Epidemiological Study of Suicidal Ideation and Suicidal Behaviour Among Patients with Substance Use Disorders in a Rehabilitation and Treatment Centre for Addiction in Dubai

MUNEER, A.[1], ABDELMAQSOUD, S. H.[2], FOAD, W.[3], ZIDAN, M.[4]

1 | Maudsley Health, Al Amal Psychiatric Hospital, Dubai, United Arab Emirates
2 | Dubai Medical College for Girls, Dubai, United Arab Emirates and Alexandria University, Egypt
3 | Erada Center, Dubai, United Arab Emirates
4 | Dubai Health Authority, Medical Research Section, Medical Education & Research Department, Dubai, United Arab Emirates

BACKGROUND: Suicide is considered a severe global phenomenon as near to 700,000 people die annually as a result of suicidal behaviours. Suicide is a major public health problem among patients with a substance use disorder. **AIM:** To determine the prevalence of suicidal ideation/behaviours and to investigate the factors associated with this problem among a selected sample of patients with a substance use disorder (SUD) in a specialised centre for treatment and rehabilitation for addiction in Dubai. **METHODS:** An observational cross-sectional study design was used to collect data from the target population between May and August 2021 (n = 103), using a structured face-to-face interview questionnaire which included Ask Suicide-Screening Questions (ASQ) and the Patient Health Questionnaire (PHQ-9). **RESULTS:** This study revealed that the positive/acute suicide risk was 44.7% and the most common risk factors for suicide as reported by the participants were the presence of a legal problem, the presence of a significant financial crisis, and the recent death of a family member or close friend (63.7%, 50%, and 41.2% respectively). More than half of the patients currently using methamphetamine and amphetamine (51.9% and 51.1%) had a positive suicide risk, compared to half of the patients who reported using alcohol and opioids (50% each). Finally, a positive association between depression and the risk of suicide was found, with a highly statistically significant difference between the severity of depression and the risk of suicide (χ^2 = 22.928, $p < 0.001$). **CONCLUSION:** Our findings suggest a crucial need to adopt standardised evidence-based risk assessment, interventions, and further research that target the epidemiology of suicide and its risk factors.

● 1 BACKGROUND

Substance abuse is significantly linked to an increase in the risk of suicide; the highest risk of suicide is amongst people with alcohol use disorders, followed by people who abuse opiates (Esang, 2018). Other recent research exploring the risk of suicide and personality traits among Egyptian patients with substance use disorders revealed that patients with SUDs were at a greater risk of suicide (Shahin et al., 2018). Furthermore, Han et al. (2021) conducted a recent study based on data analysis from a National Survey on Drug Use and Health of more than 280,000 participants aged 18–34 and presented the association with increased risks of thoughts of suicide, a suicide plan, and suicide attempts among cannabis users. Moreover, the prevalence of suicidal ideation or reporting a suicide plan was 3% among individuals who did not use cannabis and without depression; it increased according to cannabis use to the following levels; those with non-daily cannabis use near 7%, individuals with daily cannabis use approximately 9%, and individuals with a cannabis use disorder near to 14%. Additionally, the researchers found that cannabis use among women might increase the probability of having suicidal ideation or reporting a suicide plan/attempt compared to men with equivalent levels of cannabis use (Han et al., 2021).

1.1 Epidemiology

According to the World Health Organization (WHO), the estimated age-standardised suicide rate for all ages (per 100,000) in the United Arab Emirates was 2.7/100,000 (0.8 for females versus 3.5 for males) (WHO, 2018). The World Drug Report 2022 stated that in the population aged 15–64, the global prevalence of substance use disorders was 0.76% in 2021. A total of 5.6% of people worldwide of the same age group have used a drug within the last 12 months, with the majority being male (UNODC, 2022).

A recent publication exploring the epidemiological status of suicide in the Middle East and North African countries (MENA) from 1990 to 2017 reported that the United Arab Emirates and Afghanistan have the highest percentage of total suicide DALY attributable to risk factors of alcohol and drug use (Amini et al., 2021). The prevalence of suicide attempts is higher in females; they are three times more likely than males to attempt suicide (Gold, 2006). These differences were addressed in the study on suicide and gender by Gold (2006), which reported various protective factors against suicide in females. Additionally, another research publication (Dervic et al., 2011) investigated the suicide rate in Dubai; this study aimed to examine the total and gender-related suicide rates in the population of Dubai and extract the socio-demographic characteristics of people who committed suicide from 2003 to 2009. It revealed that the suicide rate among UAE citizens (0.9/100,000) was seven times less than the percentage among expats (6.3/100,000). Moreover, the percentage of suicides in males was more than three times the percentage in females. The bulk of suicides were males and aged older than 30 years (Dervic et al., 2011). Finally, a survey conducted by the Substance Abuse and Mental Health Services Administration in 2015 found that 9.8 million individuals ≥ 18 years old had seriously considered suicide in the past 12 months, with 1.4 million non-lethal suicide attempts (Piscopo et al., 2015).

1.2 Aims

In this study we aim to determine the prevalence of suicidal ideation/behaviours and to investigate the factors associated with this problem among a selected sample of patients with a substance use disorder in a specialised centre for treatment and rehabilitation for addiction in Dubai.

● 2 METHODS

2.1 Study design and setting

An observational cross-sectional study was used to collect data from all patients with a substance use disorder who were seen on all working days of the week and who were attending outpatient clinics for new admission and follow-up, as well as inpatients at the Erada Center for Treatment and Rehabilitation in Dubai.

2.2 Target population

Any patient aged 18 years old and above was included in the current study.

Inclusion criteria: Both genders above 18 years old, all socio-economic and educational levels, and patients who met the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria for substance use disorders with or without a history of suicidal or deliberate self-harm behaviour. A consultant addiction psychiatrist confirmed the diagnoses.

Exclusion criteria: Patients with an acute psychiatric condition; patients with psychotic comorbidity, dementia, or delirium.

2.3 Data collection and study tool

The tool used in this study was a questionnaire consisting of a total of 48 questions distributed among five sections:

1. The sociodemographic characteristics section comprises 14 questions, including general questions about gender, age, marital status, level of education, occupation, residency, nationality, smoking status, income, and religion.

2. Suicide Screening section (ASQ Screening Tool) (Nimh. nih.gov. 2020) Ask Suicide-Screening Questions (ASQ) is a brief psychometrically validated tool for young people and adults (Horowitz et al., 2020). The suicidal risks were categorised into three groups according to the ASQ screening tool:

1. negative screened category (any patient answering "No" to all ASQ questions 1 to 4);

2. positive screened category (any patient answering "Yes" to any of questions 1 to 4 or refusing to answer;

3. acute positive screen category (IF the patient answers "Yes" to question 5 (imminent risk identified).

3. The Depression screening tool section using the Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001). The Patient Health Questionnaire (PHQ-9) is a self-administered diagnostic instrument for common mental disorders. PHQ-9; is the depression module, which has nine questions, and four options for each. "0" (not at all), "1" (several days),"2" (more than half of the days), and "3" (nearly every day). As a severity measure, the PHQ-9 score can range from one to four for minimal depression, five to nine for mild depression, 10 to 14 for moderate depression, 15 to 19 for moderately severe depression, and 20 to 27 for severe depression (Kroenke & Spitzer, 2002).

4. Substance use profile composed of six questions: including screening regarding the first substance abused, age at exposure, cause of abuse, frequency of use, route of administration, and current abused drugs such as the following substances: amphetamine, methamphetamine, opiates, benzodiazepine, pregabalin, tramadol, and cannabis.

5. Risk Factors of Suicide section: The Risk Factors of Suicide section is composed of 14 questions asking about shared risk factors. That includes academic failure, aggressive tendencies or a history of violent behaviour, bullying, victimisation, family conflict, legal problems, a history of trauma or abuse, hopelessness, impulsivity, low self-esteem, mental illness, peer rejection, physical illness or chronic pain, social withdrawal, relational, social, work or financial losses and previous suicide attempt(s), family history of suicide, and if the patient has access to a lethal weapon.

We conducted an extensive literature review which enabled us to identify the specific characteristics that most people at risk tend to share concerning suicide. First, we looked at the main risk factors for suicide according to a study in the population of young people at risk of suicide (Taliaferro & Muehlenkamp, 2014). Secondly, we looked into the main risk factors according to a study in the general adult population; the risk factors may predict suicide attempts (Klonsky, 2014). Additionally, we identified an alarming sign in clinical practice for suicidal behaviour (Theobald & Cooper, 2011; SAMHSA, 2013).

2.4 Sample size and analysis

All patients who met the inclusion criteria and signed the consent forms to enrol in this study between May and August 2021 were included in this study. The number of patients included in the study and who met the inclusion criteria during the study period is 103. Moreover, descriptive statistical analysis using SPSS version 27 was used; the chi-square test was used to test

the hypothesis of the association between two categorical variables, and the p-value was calculated.

⬡ 3 RESULTS

3.1 Sociodemographic characteristics of the participants

The sociodemographic characteristics of the selected participants in the current study are described in *Table 1.* More than half of the patients (52.4%) were inpatients. About 31% of the patients were between 25 and less than 30 years old, while 27% were less than 25 years old. The mean age of the individuals participating in the study was found to be 29.3 (SD = 7.6). Regarding gender, most of the patients were males (92.2%). Regarding the educational level, about 56% of the sample had completed secondary education, while 1.9% were found to be illiterate. Almost half of the participants lived in Dubai (46.6%), while one-quarter lived in Sharjah (25.2%). Regarding marital status, more than two-thirds of the participants were single (67%). The majority of the sample (97.1%) were Muslims. Concerning occupation, almost three-quarters of the participants in the current study (71.8%) were unemployed, while 15.5% were employed and only 7.8% were students. About 94% of the participants were of UAE nationality.

Among the respondents to the question about income, about 70% of the participants reported they did not have any income, while 13.6% said they had a monthly income of more than 15,000 dirhams. The vast majority of the patients (91.3%) reported that they lived with their own family. Concerning the type of accommodation, 82.5% of the patients lived in a villa.

Table 1 | Socio-demographic characteristics of participants

Socio-demographic variable	n (%)
Patient type	
Inpatient	54 (52)
Follow-up	42 (40)
New assessment	7 (6.8)
Age (Years)	
< 25 Years	28 (27.2)
25–30 Years	32 (31.1)
30–35 Years	24 (23.3)
> 35 Years	19 (18.4)
Mean (SD)	29.3 (7.6)
Sex	
Male	95 (92.2)
Female	8 (7.8)
Education level	
Illiterate/read and write	2 (1.9)
Primary education	26 (25.3)
Secondary education	58 (56.3)
University degree	17 (16.5)

| Socio-demographic variable	n (%)
Residency	
Dubai	48 (46.6)
Sharjah	26 (25.2)
Abu Dhabi	12 (11.7)
Others	17 (13.5)
Marital status	
Single	69 (67)
Married	22 (21.4)
Separated	12 (11.6)
Religion	
Muslim	100 (97.1)
Others	3 (2.9)
Occupation	
Unemployed	74 (71.8)
Employed	16 (15.5)
Student	8 (7.8)
Others	5 (4.9)
Nationality	
UAE	97 (94.2)
Expat	6 (5.8)
Income in dirhams per month	
No income	72 (69.9)
< 5000	9 (8.7)
5000–15,000	8 (7.8)
> 15,000	14 (13.6)
Living arrangements	
With the family	94 (91.3)
Alone	7 (6.8)
In a shared apartment/room	2 (1.9)
Accommodation	
Villa	85 (82.5)
Flat	15 (14.6)
Others	3 (2.9)
Smoking status*	
I smoke cigarettes	85 (82.5)
I smoke other tobacco products	37 (35.9)
I smoke shisha	18 (17.5)
I do not smoke at all	4 (3.9)

*The total is not 103 because of multiple responses.

3.2 Prevalence of suicidal ideation and behaviour

Concerning the prevalence of suicidal ideation, *Table 2* reveals that in the few weeks preceding the patients enrolling into the study, about 31% of the patients with a substance use disorder had wished they were dead (Q1), and nearly 25% reported that they felt that their family would be better off if they were dead

(Q2), and 12.6% of the patients with an SUD had had thoughts about killing themselves in the past week (Q3). Only 4.9% of the patients reported having thoughts of killing themselves (Q5). Regarding the prevalence of suicidal behaviour, about one-quarter (25.2%) of the patients with an SUD in the current study reported that they had tried to kill themselves (Q4).

The risks of the patients committing suicide were categorised into three groups according to the ASQ screening tool. *Figure 1* illustrates that more than half of the participants (55.3%) were not at any risk of suicide. At the same time, 39.8% of the patients with an SUD were found to have positive screening results for a risk of suicide, and only 4.9% of the study sample had an acute positive screening result for a risk of suicide.

Figure 1 | Prevalence of suicide risk categories among participants

Suicide Risk Categories (%)

■ Negative screen
■ Positive screen (potential risk identified)
■ Acute positive screen (imminent risk identified)
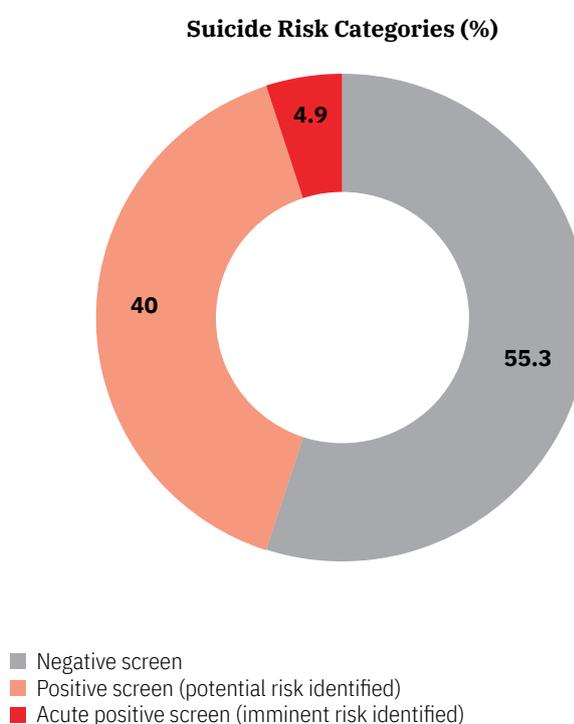
3.3 Pattern of addiction among patients with a substance use disorder

The pattern of addiction among the patients with a substance use disorder is described in *Table 3*. Regarding the age of their first exposure to a substance, the study revealed that the mean age was 16.4 years old (*SD* = 3.7). The most common reasons for the use of the first substance as reported by the participants in this study were: teenage curiosity, followed by the presence of an addicted person in the family or friends, and seeking joy (67%, 28.2%, and 21.4% respectively). Concerning the substance currently used as reported by the patients in our study, nearly half (50.5%) reported the use of methamphetamine, about 48% of the participants used opioids, and 45.6% used amphetamine. Cannabis and alcohol were used by a small percentage of patients in the current study (15.5% and 9.7%, respectively). Most (68.9%) of the patients with an SUD in this study used injecting

Table 2 | Prevalence of suicidal ideation and suicidal behaviours among participants

Suicide ideations and behavior	**Yes** n (%)	**No** n (%)
1. In the past few weeks, have you wished you were dead? (Ideation)	32 (31.1)	71 (68.9)
2. In the past few weeks, have you felt that you or your family would be better off if you were dead? (Ideation)	26 (25.2)	77 (74.8)
3. In the past week, have you been having thoughts about killing yourself? (Ideation)	13 (12.6)	90 (87.4)
5. Are you having thoughts of killing yourself right now? (Ideation)	5 (4.9)	98 (95.1)
4. Have you ever tried to kill yourself? (Behaviour)	26 (25.2)	77 (74.8)

Table 3 | Characteristics of addiction profile of participants

Addiction profile	**Yes** n (%)	**No** n (%)
Substance currently used*		
Methamphetamine	52 (50.5)	51 (49.5)
Opioids	50 (48.5)	53 (51.5)
Amphetamine	47 (45.6)	56 (54.4)
Pregabalin	35 (34)	68 (66)
Benzodiazepine	18 (17.5)	85 (82.5)
Cannabis	16 (15.5)	87 (84.5)
Alcohol	10 (9.7)	93 (90.3)
Other	8 (8.2)	92 (94.8)
Route of administration*		
Injection	71 (68.9)	32 (31.1)
Oral	35 (34)	68 (66)
Sniffing (via the nose)	20 (19.4)	83 (80.6)
Smoking (like a cigarette)	20 (19.4)	83 (80.6)
Causes of the first use of drugs*		
Teenage curiosity	69 (67)	34 (33)
Presence of an addicted person in the family or among friends	29 (28.2)	74 (71.8)
Joy-seeking	22 (21.4)	81 (78.6)
Psychological disorder	11 (10.7)	92 (89.3)
Lack of knowledge about complications of drugs	9 (8.7)	94 (91.3)
Low self-confidence	9 (8.7)	94 (91.3)
Having free time	9 (8,7)	94 (91.3)
Parents' divorce	7 (6.8)	96 (93.2)
Inability to resolve routine problems	7 (6.8)	96 (93.2)
To eliminate shyness	7 (6.8)	98 (95.1)
Having strict parents	5 (4.9)	98 (95.1)
Positive attitude toward drug abuse	5 (4.9)	100 (97.1)
Low cost of drugs	3 (2.9)	100 (97.1)
Age at the first exposure		
Mean (SD)	16.4 (3.7)	

* The total is not 103 because of multiple responses.

as the route of administration. More than a third (34%) of the patients took the drug orally, while smoking and sniffing were used equally as a route of drug administration by our participants in the current research (19.4% for each one).

3.4 Possible risk factors associated with suicidal ideation and behaviour

The most common risk factors associated with suicidal ideation and behaviour among patients with an SUD are illustrated in *Table 4,* and as reported by the participants, they were: the presence of a legal problem, the presence of a major financial problem, or the recent death of a family member or a close friend, followed by exposure to domestic/family violence (63.7%, 50%, 41.2%, and 38.2% respectively).

The Distribution of Suicide risk categories (according to the ASQ screening tool) by reported risk factors of suicidal ideation and behaviour *(Table 5)* show that the highest percentage of patients with a positive risk of suicide were found among those who reported the following risk factors; a family history of suicide (75%), exposure to domestic/family violence (66.7%), exposure to bullying at school/ home/work (65.2%), a recent breakup in a family relationship (63.9%), the presence of a major financial problem (58.8%), and the recent breakup of an emotional relationship (55.6%).The difference between a patient with a positive risk of suicide and patients with a negative risk of suicide regarding the risk factors of suicidal ideation and behaviour in the present study was found to be statistically significant for the following risk factors: exposure to domestic/family violence ($\chi^2 = 11.864$, $p < .001$), exposure to bullying at school/home/work ($\chi^2 = 4.855$, $p = .028$), the recent breakup of a family relationship ($\chi^2 = 7.934$, $p = .005$), and the presence of a major financial problem ($\chi^2 = 7.761$, $p = .005$).

Finally, the Distribution of Suicide risk categories (according to the ASQ screening tool) by depression severity categories (according to the PHQ-9 questionnaire) among the participants in the present study are represented *(Table 6),* revealing an association between depression and the risk of suicide. The highest percentage (92.9%) of SUD patients who had a positive risk of suicide was found among those who had severe depression, followed by those who had moderately severe depression (61.5%). The lowest percentage of SUD patients who had a positive risk of suicide was found among patients without depression (16.7%); there was a highly statistically significant difference between the severity of depression and the risk of suicide ($\chi^2 = 22.928$, $p < .001$).

Table 4 | Risk factors associated with suicidal ideation and behaviour reported by participants

Risk factors of suicidal ideation and behaviour	Yes n (%)	No/I do not know n (%)
1. Legal problem led to prison	65 (63.7)	37 (36.3)
2. Suffering from a major financial problem	51 (50)	51 (50)
3. Recent death of a family member or a close friend	42 (41.2)	60 (58.8)
4. Exposure to domestic/family violence	39 (38.2)	63 (61.8)
5. Recent breakup in family relationship	36 (35.3)	66 (64.7)
6. Recent breakup in emotional relationship	36 (35.3)	66 (64.7)
7. Previous suicide attempt	26 (25.2)	77 (74.8)
8. Currently on treatment plan for any mental/psychiatric disorder	24 (23.3)	79 (76.7)
9. Exposure to bullying at school/ home/work	23 (22.5)	79 (77.5)
10. Family history of psychiatric problems*	18 (17.6)	78 (76.5)
11. Access to guns or other firearms in the home	10 (9.8)	92 (90.2)
12. Family history of suicide***	8 (7.8)	91 (89.2)
13. Presence of chronic medical condition:		
a) Hepatitis B/C	9 (8.9)	94 (91.3)
b) Hypertension	7 (6.8)	96 (97.1)
c) Diabetes	3 (2.9)	100 (97.1)
d) Ischemic Heart Disease	1 (1)	102 (99)
e) Chronic Kidney Disease	1 (1)	102 (99)

*"I do not know" is applied only for risk factors numbers 10 and 12.
Number who answered "I do not know" for risk factor 10 = 3
Number who answered "I do not know" for risk factor 12 = 6

● 4 DISCUSSION

Suicidal behaviour/ideation is one of the most significant challenges in the mental health sector because of the risks and threats posed to the lives of patients and the negative implications on all psychological and social levels for the health care provider, patients, community, and families. In this study we aimed to determine the prevalence of suicidal ideation/behaviour, in addition to investigating factors associated with the problem among a selected sample of patients with a substance use disorder, which can expand and improve our knowledge of these factors, especially for the local community, which has unique characteristics. It is considered a community that contains multiple global nationalities, in addition to preserving its unique and original traditions.

The prevalence of suicide attempts in the present study was asked about in the following structure: "Have you ever tried to kill yourself?" It was found that 25% of the respondents answered 'yes' to that question. A higher prevalence (39%) was reported in a cross-sectional study of suicide attempts among 149 patients with a substance use disorder in Spain in 2019 (López-Goñi et al., 2019). The difference in figures between the two studies is probably due to the differences in the characteristics of the target populations; in the "Spanish" study, the researchers measured suicide attempts among people with suicidal ideation, while we assessed the prevalence of suicide attempts among SUD patients, regardless of the pres-

ence of suicidal ideation. Estimating the prevalence of suicide attempts among extremely high-risk groups could be an explanation of the higher prevalence reported in other studies (Lopez et al., 2019).

In the current study, about 31% of the patients with a substance use disorder wished they were dead, nearly 25% reported that they felt that their family would be better off if they were dead, and 12.6% of the patients with an SUD had had thoughts about killing themselves in the past week. Only 4.9% of the patients reported that they had thoughts of killing themselves right then. The present study revealed that 45.3% of the males were positive for suicide risk compared to 37.5% of the females, and this difference was not statistically significant. A higher prevalence (47% among males vs. 33% among females) was reported in another study (Bakken & Vaglum, 2007). In this latter study, it was found that females are more likely than men to report thinking about death, feeling as if they wanted to die, and thinking about committing suicide, and it is noted that thoughts of committing suicide were found to be higher than in the present study. A higher prevalence of suicidal behaviour was reported in other studies that were conducted among patients with substance use problems in Brazil, 43.9% (Abdalla et al., 2019), Ethiopia, 41.4% (Legas et al., 2020), Germany, 41% (Schneider et al., 2009), and Sweden, 33.3% (Rossow et al., 1999). Any cross-comparison between these figures should be taken with caution because of the differences in methodology, including the sample size and data

Table 5 | Distribution of suicide risk categories (according to the ASQ screening tool) by reported risk factors of suicidal ideation and behaviour among participants

Risk factors of suicidal ideation and behaviour	Positive/Acute Suicide Risk n (%)	Negative Suicide Risk n (%)	χ²	p
Family history of suicide			3.863	.145
Yes	6 (75)	2 (25)		
No	38 (41.8)	53 (58.2)		
Refused to answer	2 (66.7)	1 (33.3)		
Family history of psychiatric problems			1.202	.548
Yes	8 (44.4)	10 (55.6)		
No	34 (43.6)	44 (56.4)		
Refused to answer	4 (66.7)	2 (33.3)		
Currently on treatment plan for any mental/psychiatric disorder			0.017	.895
Yes	11 (45.8)	13 (54.2)		
No	35 (44.3)	44 (55.7)		
Presence of chronic medical condition			0.565	.452
Yes	9 (52.9)	8 (47.1)		
No	37 (43)	49 (57)		
Exposed to domestic/family violence			11.86	.001
Yes	26 (66.7)	13 (33.3)		
No	20 (31.7)	43 (68.3)		
Exposed to bullying at school/ home/work			4.855	.028
Yes	15 (65.2)	8 (34.8)		
No	31 (39.2)	48 (60.8)		
Access to guns or other firearms in the home			0.116	.733
Yes	4 (40.0)	6 (60.0)		
No	42 (45.7)	50 (54.3)		
Recent breakup in family relationship			7.934	.005
Yes	23 (63.9)	13 (36.1)		
No	23 (34.8)	43 (65.2)		
Recent breakup in emotional relationship			2.457	.117
Yes	20 (55.6)	16 (44.4)		
No	26 (39.4)	40 (60.6)		
Presence of a major financial problem			7.761	.005
Yes	30 (58.8)	21 (41.2)		
No	16 (31.4)	35 (68.6)		
Recent death of a family member or a close friend			0.616	.433
Yes	17 (40.5)	25 (59.5)		
No	28 (48.3)	31 (51.7)		
A legal problem leading to prison			0.487	.485
Yes	31 (47.7)	34 (52.3)		
No	15 (40.5)	22 (59.9)		

Table 6 | Distribution of suicide risk categories (according to the ASQ screening tool) by depression severity categories (according to the PHQ-9 questionnaire) of participants

Scoring of Patient Health Questionnaire (PHQ-9)	Positive / Acute Suicide Risk n (%)	Negative Suicide Risk n (%)	χ^2	p
			22.93	< .001
No depression	1 (16.7)	5 (83.3)		
Minimal depression	3 (18.8)	13 (81.2)		
Mild depression	10 (32.3)	21 (67.7)		
Moderate depression	11 (47.8)	12 (52.2)		
Moderately severe depression	8 (61.5)	5 (38.5)		
Severe depression	13 (92.9)	1 (7.1)		

collection methods, as well as the sampling technique. We observed variations in the methodology which might explain those differences, as in the study by Abdalla et al. (2019) from Brazil, suicidal behaviour was investigated with three yes/no questions: "Have you ever tried to take your own life"; "Have you ever thought about taking your own life?"; "Has anyone in your family ever committed suicide?" In the study by Legas et al. (2020), suicidal behaviour was investigated by using the Suicidal Behaviour Questionnaire-Revised (SBQ-R). On the other hand, the study by Kzour et al. (2015) from Sweden examined suicidal behaviour by recording the cause of death among the participants during follow-up. Our results were lower than those in another study conducted in Lebanon, exploring suicidal ideation among heroin-dependent patients, where it was reported that 65.6% of the patients who were surveyed had suicidal ideation (Kzour et al., 2015). Higher prevalence was also reported in a recent meta-analysis, which evaluated the prevalence, sociodemographic variables, mental health condition, and type of drug use associated with suicidal behaviour among patients with substance use disorders. This meta-analysis reviewed articles published from January 1, 1995 to December 31, 2020. In this meta-analysis, the pooled prevalence of suicidal ideation was 35%, and that of suicide attempts among people with an SUD was 20% (Armoon et al., 2021). Another cross-sectional comparative study conducted over six months, which included 120 patients at the Psychiatry Department in Mansoura University Hospital in Egypt, explored suicidal behaviours among patients with tramadol dependence. The results of that study were in agreement with our study on the one hand, as it reported that the lifetime figure for suicidal behaviour was 26.6% (Wasify et al., 2021), while on the contrary a relatively higher lifetime figure for suicidal ideation of 38.3% was reported in the same study among tramadol users (Wasify et al., 2021). The possible explanations for those differences in prevalence might be that some studies examined pooled prevalence for suicidal ideation while, in contrast, others discussed the lifetime prevalence for different sociodemographic sample characteristics than the current study. On the contrary, in our study, we explored the prevalence of suicidal ideation during the last few weeks preceding the survey, which could explain the compar-

atively low prevalence reported in our study. Another potential explanation regarding differences in the reported prevalence of suicide could be related to stigma among patients with an SUD in the community under study.

Concerning the risk factors, the present study revealed that the most common factors associated with suicidal ideation and suicidal behaviours, as reported by the participants, were the presence of a legal problem, the presence of a major financial problem, or the recent death of a family member or close friend, followed by exposure to domestic/family violence (63.7%, 50%, 41.2%, and 38.2% respectively). Similar findings were reported by the study by Cantão and Botti (2016), which showed that the majority of substance use dependents had a family psychiatric history (73.17%), family conflicts among the patients (48.78%), a criminal history (27.64%), experience of the end of romantic relationships and the death of family members (9.76%), and the loss of parental figures in childhood (4.07%), and patients with an SUD reported psychological trauma (5.69%). Comparisons between the previous factors and the current study show a relative similarity between these factors; unfortunately, risks such as impaired productivity, impacts on the family dynamic, emotional regulation, and legal consequences can be intensified by substance use.

The present study revealed a highly positive statistically significant association between the severity of depression and the presence of the risk of suicide ($\chi^2 = 22.928$, $p < .001$). A growing body of research evidence is showing an increasing tendency towards depression as one of the most critical factors associated with suicidal behaviour and risk. A recent meta-analysis reports that the odds of suicidal ideation are 4.88 times higher among people with depression than those without depression (ORMH 4.88 95%; CI [2.04, 11.72]) (Tesfaye Tegegne et al., 2022). These results are consistent with the results of other studies; Cantão and Botti (2016) reported a similar relation as they found that the existence of mood disorders and depression among drug addicts was a risk factor for suicidal behaviour. Another study revealed that the presence of depression increased the risk probability of suicidal behaviour by two to four times (Al-Sharqi et al., 2012). Moreover, a study by López-

Table 7 | Distribution of suicide risk categories (according to the ASQ screening tool) by characteristics of addiction profile of participants

Addiction profile	Positive/Acute Suicide Risk n (%)	Negative Suicide Risk n (%)	χ^2	p
Substance currently used*				
Methamphetamine	27 (51.9)	25 (48.1)	2.241	.134
Opioids	25 (50)	25 (50)	1.121	.29
Amphetamine	24(51.1)	23 (48.9)	1.434	.231
Pregabalin	16 (45.7)	19 (54.3)	0.024	.877
Benzodiazepine	9 (50)	9 (50)	0.252	.616
Cannabis	6 (37.5)	10 (62.5)	0.393	.531
Alcohol	5 (50)	5 (50)	0.128	.721
Other	4 (50)	4 (50)	0.100	.752
Route of administration*				
Injection	36 (50.7)	35(49.3)	3.378	.066
Oral	16 945.7)	19 (54.3)	0.024	.877
Sniffing (via the nose)	7 (35)	13 (65)	0.937	.333
Smoking (like a cigarette)	7 (35)	13 (65)	0.937	.333
Frequency of the drug used currently			0.113	.99
Once per day	5 (41.7)	7 (58.3)		
More than once per day	35 (46.1)	41(53.9)		
Once per week	3 (42.9)	4 (57.1)		
One to two times per month	3 (42.9)	4 (57.1)		

*The total is not 103 because of multiple responses.

Goñi et al. (2019) reported a statistically significant (χ^2 = 4.8, p = .029) relation between depression and the presence of suicidal ideation or behaviours as it reported that positive suicidal ideation was found among 71% of patients with an SUD who had severe depression (López-Goñi et al., 2019). They also reported suicide attempts by 86% of patients with an SUD who had severe depression. Another meta-analysis study identified depression as one of the independent risks for suicide attempts among SUD patients (Armoon et al., 2021). Finally, several previous studies, such as those of Hallgren et al. (2017), Carmel et al. (2016), Dervic et al. (2011), Bakken and Vaglum (2007), and Preuss et al. (2004), investigated various factors associated with the risk of suicide or attempts at suicide among SUD patients and revealed a greater risk among individuals with co-occurring depression and other mental health problems among these patients. Our results support the findings of the above studies; these relations between depression and suicidal ideation and behaviour might be related to the changes in cognition, emotions, motivation, behaviour, and physical functioning that patients with depression experience, which most probably placed them at the greatest risk of attempting suicide during attacks of depression (APA, 2013). This prompts us to emphasise the necessity of intensifying the systematic screening and assessment of such risks, which could act as a decisive factor in addressing and reducing the risks of suicide.

4.1 Limitations of the study

The most important limitation of the current study was its cross-sectional design, which meant that it was not possible to investigate the temporal association between substance use disorder, suicidal ideation and behaviour. Therefore, it is not within the scope of this study to prove a causal relationship between the factors that were identified with suicidal ideation and behaviour. Additionally, a small sample size may have affected the statistical power to detect associations. together with a low number of females participating in the study, which could consequently have an impact on the generalisability of the results.

● 5 CONCLUSION

The findings of this study revealed crucial epidemiological information for the development of an effective suicide prevention programme amongst substance users. It was found that the risk of suicidal ideation and suicidal behaviour was 44.7% among the patients with an SUD who participated in the current study.

We highlight the substance profile of the patients with an SUD; the results of the present study revealed that more than half of the patients who are currently using methamphetamine and amphetamine (51.9% and 51.1%) had a positive suicide risk,

similarly to half of the patients who reported using alcohol and opioids (50% for each). Additionally, this study reported that the most common risk factors for suicide as reported by the participants were the presence of a legal problem, the presence of a major financial problem, or the recent death of a family member or close friend, followed by exposure to domestic/family violence (63.7%, 50%, 41.2%, and 38.2% respectively).

Finally, the current study revealed an association between depression and the risk of suicide. The highest percentage (92.9%) of SUD patients who were at great risk of committing suicide was found among those who had severe depression, followed by those who had moderately severe depression (61.5%). The lowest percentage of SUD patients who had a positive risk of suicide was found among patients without depression (16.7%).

6 RECOMMENDATIONS

On the basis of our study results, we recommend the healthcare settings specialising in the treatment and rehabilitation of patients with substance abuse disorders to adopt standardised evidence-based screening programmes for depression and suicide among patients with substance abuse disorder, as well as adopting standardised evidence-based interventions such as universal interventions, brief psychological interventions, attempted suicidal short intervention programmes (ASSIP) (Gysin-Maillart et al., 2016), computerised adaptive testing (CAT) (Gibbons et al., 2017), and an early start to antidepressants in patients identified with depression, which may hold the best hope for improvement in the future.

Additionally, we recommend targeting research institutions and agencies to develop further research targeting the epidemiology of suicide and its risk factors among patients with a substance abuse disorder in different areas in the UAE (both quantitative and qualitative research).

Finally, we have recommendations targeting local communities and families, emphasising the crucial need for intensive and effective drug abuse prevention programmes, including suicide awareness, that target the entire community, including schools and universities, as well as early detection and referral for treatment and rehabilitation. Concerning the families, there is a need to raise awareness in families about the suicide problem and its contributory family-related factors, and how these factors can lead to an increase in the incidence of suicide among drug addicts. Furthermore, there is a need to strengthen the role of decision makers and leaders who have influence in the society and who are considered partners in developing and promoting preventive strategies within the community.

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