Anxiety and depression in addiction: magnitude of the problem
Hassan Sonbol

Department Psychiatry, Mansoura University, Mansoura, Egypt

Correspondence to Hassan Sonbol, MD Psychiatry; Department of Psychiatry, Mansoura University, Mansoura, Egypt.
Tel: +20 100 390 3567;
e-mail: hassansonbol84@gmail.com

Aim
Anxiety, depression, and substance-use disorders are common comorbidities in psychiatry and this is evidenced in the previous epidemiologic studies. The current study was conducted to evaluate anxiety and depressive symptoms among patients with substance-use disorder, also to detect the correlation between the degree of anxiety and depression on one hand and the sociodemographic variables and drug use-related problems on the other hand.

Patients and methods
A case–control study was carried out at Mansoura University Psychiatry Department (Addiction Unit), from December 2020 to the end of June 2021. A sample of 50 patients with substance-use disorder were included in the study according to the following criteria: (a) 18 years or older, (b) currently with the diagnosis of substance-use disorder according to Diagnostic and Statistical Manual of Mental Disorders-5, and (c) acceptance of the participation in the study, also with the following exclusion criteria: (a) the patient had known psychiatric diagnoses before being diagnosed with substance-use disorder, (b) the patient was intellectually disabled or has an organic brain disorder, and (c) the patient has chronic medical conditions. The control group of 50 individuals without a past or current history of substance-use disorder and free from chronic medical conditions as well.

Results
The present study was conducted on 50 age-matched and sex-matched groups, mean age of the studied groups is 29 (6.62) and 29.36 (6.56) for patients and control groups, respectively. Among the studied cases, 94% are polysubstance users, 90% have multiple routes for drug intake, 34.0% have peer pressure as the main reason for addiction, and 90% have started substance use from more than 1 year. Beck depression and Beck anxiety scores illustrate a statistically significant difference between the studied group with higher severity of depression and anxiety among the studied patients than the control group; moderate, severe, and extreme depression is detected among patients only and 32% of the patients' group are suffering from mild anxiety, while 50% have moderate anxiety and severe anxiety was found among 18% of the studied cases. A statistically significant positive correlation is detected between Beck anxiety and drug-use identification test score ($r=0.384$, $P=0.006$). There is no statistically significant association between sociodemographic data and drug-use identification test among the studied cases ($P>0.05$).

Conclusion
Substance-use disorder is associated with depressive and anxiety symptoms of variable degree. There is a remarkable association between the presence of anxiety and depression on the one hand and the severity of drug-related problems on the other hand. Depression and anxiety are commonly present together in patients with substance-use disorders.

Keywords:
anxiety, depression and sociodemographic data, substance use

Introduction
The substance use's lifetime prevalence in Egypt ranges from 7.25 to 14.5% (Hamdi *et al.*, 2013). Substance use, mood, and anxiety disorders are widespread among the general population (Grant and Harford, 1995) and are involved in remarkable socioeconomic and health losses (Goetzel *et al.*, 2003). The *Journal of the American Medical Association* reports indicate that roughly 50% of individuals with severe mental disorder are diagnosed as substance-use disorder, and of all patients with a diagnosis of mental illness, 29% abuse either alcohol or drugs, 37% of alcohol users, and 53% of any other substance users also have at least one serious mental illness (NAMI, 2015).

Anxiety and depression are among the most common complaints reported by patients seeking help for substance-use disorder; as primary psychiatric symptoms persist after the detoxification phase, they may be significant risk factors associated with falling into the thrones of addiction, or addiction results into them (Weisner *et al.*, 2003).

Anxiety can be precipitated by substance-use disorder. Anxiety symptoms commonly occur during the alcohol-withdrawal phase and its persistence may last for up to 2 years as a part of postwithdrawal syndrome, in about 25% of patients recovering from alcohol-use disorder (Johnston *et al.*, 1991), anxiety and depressive manifestations are responsible for 75% of the disability attributed to mental disorders (Begg *et al.*, 2007).

Depression and substance-use disorder are critical, not only because of their high prevalence but also because of their negative impact. Patients with comorbid major depression and substance-use disorder are often manifested by more severe symptoms, more disability, and poorer prognosis (Najt *et al.*, 2011).

Patients and methods
Study design
The current study is a descriptive case–control study, which was carried out at Mansoura University Psychiatry Department (Addiction Unit), which provides both inpatient and outpatient substance-use disorder services to the entire population of delta region. After approval from the ethical committee of the college. The study was conducted from December 2020 to the end of June 2021.

Patients
A sample of 50 patients with substance-use disorder were included in the study according to the following criteria: (a) 18 years or older, (b) diagnosed with substance-use disorder according to Diagnostic and Statistical Manual of Mental Disorders 5th ed., and (c) acceptance of the participation in the study, also with the following exclusion criteria: (a) the patient had known psychiatric diagnoses before being diagnosed with substance-use disorder, (b) the patient was intellectually disabled or has an organic brain disorder, and (c) the patient has chronic medical conditions. The control group of 50 individuals without a past or current history of substance-use disorder and free from chronic medical conditions as well. Most of them were selected from the patients' relatives and the hospital staff.

Face-to-face interviews were conducted to collect data by a trained study team including a psychiatrist and psychologist. The researchers introduced themselves to participants before the interview and clearly expressed the purpose of the study, and consent was obtained from every participant (Figures 1–4).

Methods
Beck Depression Inventory
The Beck Depression Inventory is a 21 item, multiple-choice tool. Respondents are asked to rate each item based on four responses according to the severity of the manifestations, ranging from the absence of a symptom to an extreme form, during the past week. A 13-item version of the Beck Depression Inventory is also available. Both the original and short forms have reasonable internal consistency for nonpatient and depressed adults and adequate test–retest reliability in adult and nonpatient populations (Beck and Steer, 1996).

Beck Anxiety Inventory
The Beck Anxiety Inventory consists of 20 one self-reported items (four-point scale) used to evaluate the intensity of physical and cognitive anxiety symptoms during the past week. Scores may range from 0 to 63: minimal anxiety level (0–7), mild anxiety (8–15), moderate anxiety (16–25), and severe anxiety (26–63) (Beck and Steer, 1996).

Drug-use disorder identification test, Arabic version
This scale has been originated in English language by Berman *et al.* (2007). Then it was translated into Arabic and validated by Sfendla *et al.* (2017). The core of the drug-use disorder identification test was to evaluate the patterns of use and different problems related to substances. It is composed of 11 items, and the total score of this tool was 44 points. A patient with six points or more probably has drug-related problems (e.g. risky or harmful drug habits that might be diagnosed as substance abuse or harmful use), while a patient with 25 points or more is probably said to be dependent heavily on substances. This measure was found to have good reliability using Cronbach's alpha (0.780) and of high validity using Pearson correlation ($r=88\%$) for the total scale.

Statistical analysis
The Statistical Package for Social Studies (SPSS) software (IBM, Armonk, NY, USA), version 20 was used to analyze data. A descriptive analysis using means with SD, frequency counts, and percentages was carried out. Pearson correlation coefficients (r) were used to address the relationship between Beck scores and study variables.

Figure 1
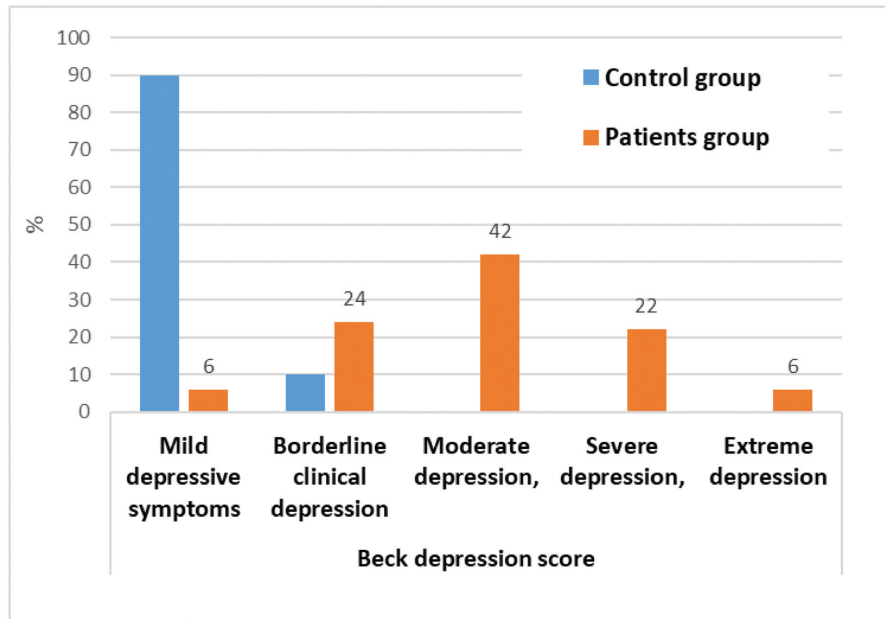
Comparison between studied and control groups with regard Beck depression scores.

Figure 2
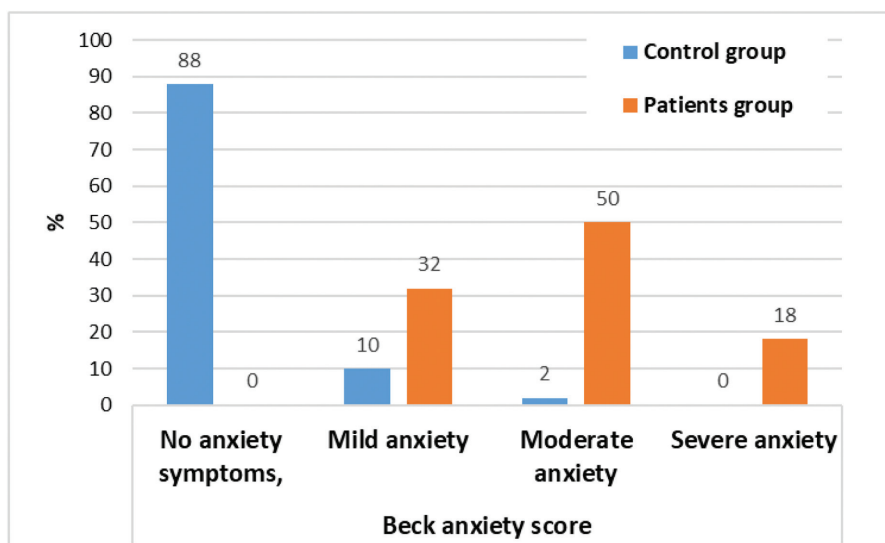
Comarison between studied and control groups with regard Beck anxiety scores.

Results

The present study is a case–control study that was carried out on 50 age-matched and sex-matched groups, mean age of the studied groups is 29 (6.62) and 29.36 (6.56) for patients and control groups, respectively (Table 1).

Among the studied cases, 94% are polysubstance users, 90% have multiple routes for drug intake, 34.0% have peer pressure as the main reason for addiction, and 90% have started substance use from more than 1 year.

History of previous hospitalization is distributed as the following: 74% no previous hospitalization and 22% have been hospitalized before and 4% have been hospitalized more than once (Table 2).

Beck depression and Beck anxiety scores illustrate a statistically significant difference between the studied groups with higher severity of depression and anxiety among the studied patients than the control group; moderate, severe, and extreme depression is detected among patients only and 32% of the patients' group are suffering from mild anxiety, 50% of the patients' group

are suffering from moderate anxiety, while severe anxiety was found among 18% of the studied cases (Table 3).
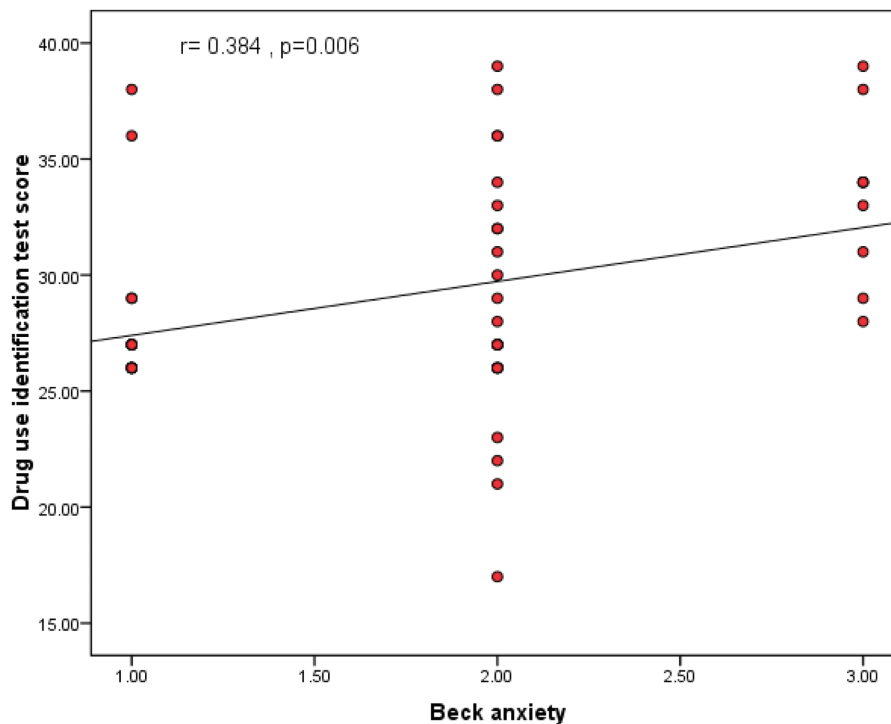
Median drug-use identification test score is 28 ranging from 17 to 39 with 92% dependent on drugs (Table 4). A statistically significant positive correlation is detected between Beck anxiety and drug-use identification test score ($r=0.384$, $P=0.006$) as shown in Table 5.

Figure 3
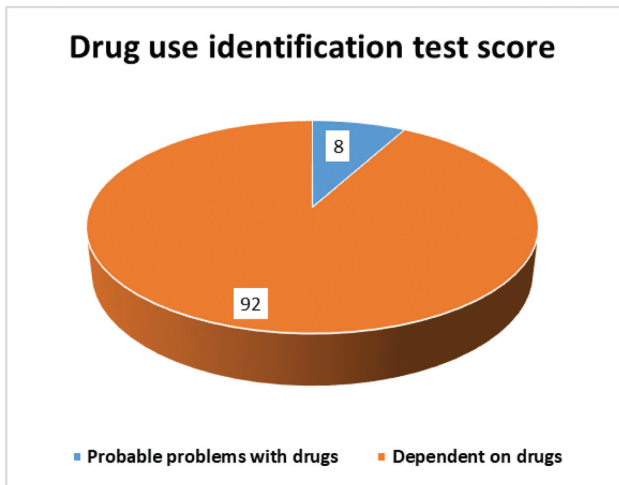
Percentage of dependent patients and patients with probable substance use problems.

Figure 4

Correlation between drug use identification test scores and Beck anxiety scores.

Table 1 Sociodemographic characteristic of the patient group, is there any significant difference from control group

	Control group (N=50) [n (%)]	Patients group (N=50) [n (%)]	Test of significance
Age (years)			$t=0.273$
Mean±SD	29.0±6.62	29.36±6.56	$P=0.785$
Education			
Primary	3 (6.0)	2 (4.0)	MC
Preparatory	7 (14.0)	6 (12.0)	$P=0.952$
Secondary	30 (60.0)	32 (64.0)	
High education	10 (20.0)	10 (20.0)	
Occupation			
Nonworking	17 (34.0)	17 (34.0)	$\chi^2=0.07$
Worker manual or others	23 (46.0)	22 (44.0)	$P=0.966$
Employer	10 (20.0)	11 (22.0)	
Marital status			
Single	30 (60.0)	29 (58.0)	$\chi^2=0.128$
Married	16 (32.0)	16 (32.0)	$P=0.938$
Divorced	4 (8.0)	5 (10.0)	
Residence			
Rural	29 (58.0)	29 (58.0)	$\chi^2=0.0$
Urban	21 (42.0)	21 (42.0)	$P=1.0$
Economic status			
Low	19 (38.0)	20 (40.0)	$\chi^2=0.103$
Medium	24 (48.0)	24 (48.0)	$P=0.950$
High	7 (14.0)	6 (12.0)	

χ^2, χ^2 test; t, Student t test; MC, Monte Carlo test.

Table 2 Clinical characteristic of the patient group; one substance or poly, one route or multiple, reasons for using drugs, onset of substance use, previous hospitalization

	N=50	%
One substance	3	6.0
Polysubstance	47	94.0
One route	5	10.0
Multiple routes	45	90.0
Reasons for addiction		
Peer pressure	17	34.0
Escaping problems	12	24.0
Increasing activity	5	10.0
Multiple reasons	16	32.0
Onset of substance use		
<1 year	5	10.0
>1 year	45	90.0
Previous hospitalization		
Not hospitalized before	37	74.0
Hospitalized once	11	22.0
Hospitalized more than once	2	4.0

Table 3 Comparison of Beck depression score and beck anxiety score between studied groups

	Control group (N=50) [n (%)]	Patients group (N=50) [n (%)]	Test of significance
Beck depression score			
Mild depressive symptoms	45 (90.0)	3 (6.0)	MC
Borderline clinical depression	5 (10.0)	12 (24.0)	$P<0.001^*$
Moderate depression	0	21 (42.0)	
Severe depression	0	11 (22.0)	
Extreme depression	0	3 (6.0)	
Beck anxiety score			
No anxiety symptoms,	44 (88.0)	0	MC
Mild anxiety	5 (10.0)	16 (32.0)	$P<0.001^*$
Moderate anxiety	1 (2.0)	25 (50.0)	
Severe anxiety	0	9 (18.0)	

MC, Monte Carlo test; t, Student t test. *Statistically significant.

Table 4 Identification test score among studied cases

	N=50	%
Drug-use identification test score		
Probable problems with drugs	4	8.0
Dependent on drugs	46	92.0
Drug-use identification test score		
Median (minimum-maximum)	28 (17–39)	

Table 6 shows that there is no statistically significant association between sociodemographic data and drug-use identification test among the studied cases ($P>0.05$).

Table 5 Correlation between beck anxiety and depression and drug-use identification test

	Drug-use identification test score
Beck depression	
r	0.218
P	0.129
Beck anxiety	
r	0.384[**]
P	0.006

**Statistically significant.

Table 6 Relation between sociodemographic data and severity (high scores) in drug-use identification test

	Drug-use identification test		Test of significance
	Probable problems with drugs (N=4)	Dependent on drugs (N=46)	
Age (years)			t=0.998
Mean±SD	32.50±4.51	29.08±6.67	P=0.323
Education [n (%)]			
Primary	0	2 (100.0)	FET, P=1.0
Preparatory	2 (33.3)	4 (66.7)	FET, P=0.07
Secondary	1 (3.1)	31 (96.9)	FET, P=0.13
High education	1 (10.0)	9 (90.0)	FET, P=1.0
Occupation			
Nonworking	1 (5.9)	16 (94.1)	FET, P=1.0
Worker manual or others	1 (4.5)	21 (95.5)	FET, P=0.621
Employer	2 (18.2)	9 (81.8)	FET, P=0.206
Marital status			
Single	2 (6.9)	27 (93.1)	FET, P=1.0
Married	2 (12.5)	14 (87.5)	FET, P=0.42
Divorced	0	5 (100)	FET, P=1.0
Residence			
Rural	1 (3.4)	28 (96.6)	FET
Urban	3 (14.3)	18 (85.7)	P=0.297
Economic status			
Low	2 (10.0)	18 (90.0)	MC
Medium	2 (8.3)	22 (91.7)	P=0.728
High	0	6 (100)	

FET, Fisher exact test; MC, Monte Carlo test; t, Student t test.

Discussion

The current study elucidated that most of the substance-use patients were polysubstance-use disorder patients. This might be explained by one substance is used as a base or primary substance,

with adding other substances to compensate for the side effects of the primary substance or make more enjoyable experience with synergetic effects (Eurosurveillance Editorial Team, 2012). These findings are consistent with the results of Panebianco *et al.* (2016) who pointed that the majority of drug-addict people were polydrug addicts. On the contrary, Jabeen *et al.* (2017) demonstrated that more than 50% of substance-use disorder patients were monosubstance users.

The current research revealed that about most of the substance users' group had moderate-to-severe levels of depression as compared with the nonusers and about half of the substance users' sample had a moderate level of anxiety as well. Multiple trials have dedicated to demonstrate the relationship between substance-use disorder and mental illness such as causality theory (Dual Diagnosis Fact Sheet, 2013), multiple risk factors/environmental trigger theory and (Mental and Substance Use Disorders, 2014).

Some researches pointed that substance use has been linked to some kind of emotional problems prior to consumption (Kaplan, 1985). Others revealed that substance use is often used as a method to relieve emotional distress (Labouvie, 1996), although its effects are not so durable in the long term, as consumption tends to enhance depressive symptoms (Bleichmar, 1994).

Some literatures are in concordance with the results of this study, such as Hodgson *et al.* (2016) showed that more than two-thirds of substance-use disorder patients had moderate-to-severe level of anxiety, while most of the nonaddict population had no-to-mild level of anxiety. Additionally, Pakhtunkhwa *et al.* (2012) demonstrated that most of the substance-use disorder patients tend to have severe levels of depression. On the other hand, the findings of this study are not in line with Ikram *et al.* (2020) in that most of the substance-use disorder population had severe depression and 98% had severe anxiety, while in this study, 50% had moderate anxiety and 18% only had severe anxiety, and this can be explained by the difference in number and characteristics of the sample and the difference in measurement tools.

The findings of this research indicated a positive correlation between the degree of anxiety, depression, and substance-related problems identified by drug-use disorder identification test, with the mutual maintenance pattern of this comorbidity to be put into consideration, undoubtedly that anxiety, depression, and substance-use disorders affect the course and prognosis for each other. Studies have revealed that anxiety and depressive disorders are related to increased severity of alcohol-use disorders, increased service utilization among patients with a substance-use disorder, increased the severity of withdrawal symptoms, and higher relapse rate after substance-use management (Driessen *et al.*, 2001). The correlation between anxiety and depression in this research can be explained by the direct causation theory, which demonstrates that one disorder heightens or lowers the threshold for the expression of the other disorder (Avenevoli *et al.*, 2001). The 'shared etiology model' stated that as the 'correlated liabilities model' by Neale and Kendler (1995): a common set of risk factors precipitates the emergence of both depression and anxiety symptoms. These results are consistent with the previous study reported by Grant *et al.* (2016), who showed that anxiety is positively and significantly correlated with depression, whereas these results are in contrast with Bellos *et al.* (2016), who revealed that anxiety is positively but nonsignificantly correlated with depression.

Conflicts of interest
There are no conflicts of interest.

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