Study of stress and coping among depressive adolescents versus addictive adolescents: a cross-sectional study

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Aim
The purpose of the present study was to compare stresses in both addiction and depression during adolescence and to determine different types of coping styles used by these patients.
Objective
Given the growing preclinical evidence that supports the key role of stress in addiction and depression during adolescence, this research examines empirical evidence on stress that may play a role in addiction and depression, and it also compares different types of stress and coping mechanism in both studied patients.
Patients and methods
The study included 30 addict patients representing as group I, and they were assessed by Addiction Severity Index. Moreover, 30 patients diagnosed as having major depressive disorder were included as group II who were assessed by Hamilton rating scale for depression. Both groups were subjected to Structured Clinical Interview for DSM-IV and assessed by life event stressors and coping processes scale.
Results
The occurrence rate of various psychosocial stressors in depressive patients was higher than that of addict participants. Overall, 6.7% of the patients in the addictive group had anxiety disorders, whereas 43.3% in the depressive group had anxiety disorders and 6.7% had comorbid psychotic disorders, with a statistically significant difference. In comparison to depressive subjects who use denial coping, addictive group made more use of avoidant-coping strategies (helplessness and mental disengagement) and the socially supported strategies (social support and emotional discharge) and emotion-focus coping strategies (positive reinterpretation and information).
Conclusion
Adolescent patients with depression were exposed to more stressful life events than addictive group. Addictive group resorted to more ineffective coping strategies, whereas depressive group used mainly denial as a coping strategy.

Keywords:
addiction, adolescent, coping, depression, stress

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Introduction

It is noted that early adolescence is a period of rapid cognitive, social, emotional, and physical changes. During this period, early adolescents usually lack the ability to cope with stress, which is usually family related. If they cannot cope with such stress, they may fail to develop in a healthy manner and may develop habits harmful to their health such as substance abuse (SA) [1].

Stress has long been recognized as one of the most powerful triggers for drug abuse, craving, and relapse. People who experience major trauma and those with post-traumatic stress disorder or depression may self-medicate with drugs or alcohol to relax and cope with stress [2].

Although several pathways for depression might exist during the adolescence period, including biological, cognitive, and environmental pathways, the devastating effects of environmental or social stresses are likely to be moderated by the individual's personality characteristics and/or behavioral and coping styles [3].

Active coping is a better way to deal with stressful events; on the contrary, avoidant coping appeared to be a psychological risk factor for adverse responses to stressful life events, which lead to withdrawal state and predisposition to depression [4].

Depressive adolescents were accompanied by higher levels of passive and avoidant coping mechanisms but lower levels of active and approach coping styles [5].

Adolescent SA creates certain difficulties for not only the individuals who misuse the substances but also their parents, families, school, peers, and society as a whole [6].

Stress not only plays a key role in modulating the development and expression of addictive behavior but also is a major cause of relapse following periods of abstinence.

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Stress was positively related to substance use, and four coping mechanisms (behavioral coping, cognitive coping, adult social support, and relaxation) were inversely related to substance use [7].

In the context of substance use, an individual can use drugs or alcohol as an avoidance strategy to try to reduce distress or depression or, alternatively, can rely on active/approach methods, such as problem solving and seeking social support, to cope with stress [8].

Patients and methods

The study was a cross-sectional comparative study. Selection of 60 patients was done from the outpatient clinic at Kasr Al Aini Psychiatric and Addiction Hospital, and the patients were subjected to Structured Clinical Interview for DSM-IV. Patients were divided into two groups according to certain inclusion and exclusion criteria.

The study was approved by the Research Ethics Committee, Faculty of Medicine, Cairo University. The researchers described the study to the patients, ensured the confidentiality of information, and obtained their informed consent for participation. It was stated that participation in the study was voluntary and they have the freedom to withdraw from the assessment at any time.

Group I was the substance dependence group, which included 30 patients diagnosed as having substance use disorders according to DSMIV criteria [tramadol (93%), cannabis (73%), polysubstance (70%), heroin (16%), benzodiazepine (6%), and alcohol (3%)]. Both sexes were included. Their age range was between 12 and 19 years. Patients were excluded in case of co-morbid psychiatric disorder on axis I or II. Similarly patients were excluded in case of comorbidity with any chronic medical illness.

Group II was the major depressive disorder (MDD) group, which included 30 patients diagnosed as having MDD according to DSM-IV criteria. Both sexes were included with age range between 12 and 19 years. Patients were excluded in case of comorbid substance use disorder, any other psychiatric disorder or comorbidity with any chronic medical illness.

Methods

All participants in the study were subjected to the following:

(1) Structured Clinical Interview for DSM-IV [9] Arabic version [10].
(2) Urine toxicology screen for addictive adolescent group.
(3) Psychometric assessment for both groups was done with the following:

Life event stressors [11], in Arabic version by Shokeer [12]:

It assesses different sources of stress that could be faced, including family, economic, education, social, emotional, physical, and personality. Each one of the seven categories is assessed by 10 phrases; each phrase has 4° that are scored from 0 to 3. So each category has a score between 0 and 30 and the total score from 0 to 210.

Coping Processes Scale [13], in Arabic version by Ibrahim [14]:

It determines the different coping mechanisms that could be used to deal with the stressful situations. It is classified into five categories. The first includes the coping mechanisms that deal with the source of the problem including active coping and exercise restraint. The second category includes the behavioral strategy that is used to decrease the emotional reaction to the stress, and this includes helplessness and emotional discharge. The third category includes the cognitive activities that are used to deal with the problem trying to solve it, and this includes positive reinterpretation and denial. The fourth category includes the cognitive process that deals with the emotional side of the problem, and it includes acceptance, mental disengagement and wishful thinking. The last category includes mixed behavioral and cognitive mechanisms, and it includes seeking out information and social support and turning to religion. This scale is self-rated, and each one of the subjects answers to each phrase from totally accepting to totally not accepting. Each one of the 11 coping processes has certain phrases, and each phrase takes score from 1 to 4, and then the total score for each process is calculated.

Group I (substance dependence) was assessed by using addiction severity index [15], Arabic Version by Qassem *et al.* [16].

It is a semi-structured interview designed to provide a multidimensional assessment of problems presented by patients with substance use disorders to guide initial treatment planning and to allow monitoring of patients progress over time. It is designed for use in inpatient and outpatient alcohol and drug abuse treatment settings. It gathers information on seven functional areas often affected by medical status, employment and support, drug use, alcohol use, legal status, family and social status, and psychiatric status.

Group II (depressive disorder) was subjected to Hamilton rating scale for depression [17] to rate the severity of a patient's depression.

Statistics

Data were statistically described in terms of mean ± SD, median and range, or frequencies (number of cases) and percentages when appropriate. Comparison of numerical variables between the study groups was done using Student's *t*-test for independent samples in comparing two groups when normally distributed and Mann–Whitney *U*-test for independent samples when not normally distributed. Comparison of numerical variables between more than two groups was done using Kruskal–Wallis test. For comparing categorical data, χ^2-test was performed. Exact test was used instead when the expected frequency is less than 5. *P* values less than 0.05 was considered

Table 1 Addiction severity index for addictive adolescent group

Scales	Severity	$N=30$ [n (%)]
Medical scale	No problem	30 (100)
	Mild	0 (0.0)
	Moderate	0 (0.0)
	Severe	0 (0.0)
Employment scale	No problem	7 (23.3)
	Mild	10 (33.3)
	Moderate	10 (33.3)
	Severe	3 (10.0)
Drug abuse scale	No problem	0 (0.0)
	Mild	5 (16.7)
	Moderate	20 (66.7)
	Severe	5 (16.7)
Legal problems scale	No problem	22 (73.3)
	Mild	2 (6.7)
	Moderate	5 (16.7)
	Severe	1 (3.3)
Family history scale	No problem	14 (46.7)
	Mild	12 (40.0)
	Moderate	4 (13.3)
	Severe	0 (0.0)
Psychiatric scale	No problem	20 (66.7)
	Mild	5 (16.7)
	Moderate	3 (10.0)
	Severe	2 (6.7)
Social scale	No problem	13 (43.3)
	Mild	4 (13.3)
	Moderate	10 (33.3)
	Severe	3 (10.0)

Table 2 Hamilton depression rating scale for depressive group

Scale	Severity	$N=30$ (100%) [n (%)]
HDRS	Mild	0 (0.0)
	Moderate	0 (0.0)
	Severe	30 (100)
	Total	30 (100)

HDRS, Hamilton depression rating scale.

statistically significant. All statistical calculations were done using computer program SPSS (statistical package for the social science; SPSS Inc., Chicago, Illinois, USA) version 15 for Microsoft Windows.

Results

The mean age of addictive group was 18.48 ± 1.59 years, and the mean duration of illness was 3.8 ± 2.155 years. The mean age of depressive disorder group was 17.80 ± 2.23 years, and the mean duration of illness was 7.83 ± 4.23 weeks.

Table 1 shows that addictive adolescent group had mild, moderate, and sever problems on drug abuse scale (100%) (16.7% of the patients showed mild degree, 66.7% with moderate degree, and 16.7% with severe degree), and also on employment scale (76.6%), social scale (56.6%), and family history (53.3%). However, the patients had no problems on the medical scale (100%), legal scale (73.3%), and psychiatric scale (66.7%). The most affected scales are drug abuse scale followed by employment scale, social scale, and family history.

Table 2 shows that all depressive group patients had severe depression on HDRS.

Table 3 Life event stressor scale for addictive and depressive adolescent groups

	Mean ± SD		
Type of stressors	Addictive group ($N=30$)	Depressive group ($N=30$)	P
Family stressor	13.43 ± 8.169	15.53 ± 6.937	0.288
Economic stressor	11.73 ± 6.427	11.70 ± 5.790	0.983
Study stressor	6.53 ± 6.257	5.57 ± 7.001	0.575
Social stressor	9.10 ± 5.604	12.00 ± 8.554	0.126
Emotional	16.57 ± 0.616	20.93 ± 4.042	0.003*
Physical stressor	12.23 ± 5.740	17.27 ± 4.510	0.000*
Personality stressor	17.90 ± 5.261	21.07 ± 3.895	0.010*
Total stressors	87.50 ± 29.093	101.77 ± 23.168	0.040*

*Statistically significant.

Table 3 showed that the means of various psychosocial stressors in depressive group were higher than the means among addictive group, with a statistically significant difference between the two groups regarding personality, emotional, physical, and total stressor scales (Tables 4 and 5).

The findings showed that in comparison with depressive subjects, addictive adolescent group made more use of helplessness, mental disengagement, emotional discharge, information and social support, and positive reinterpretation; although the drug addicts' scores were higher than those of depressive subjects, it was not statistically significant. However, depressive adolescent group made significantly more use of denial coping. There was a statistically significant difference between both groups regarding denial coping scale.

Addictive group showed that 6.7% of patients had anxiety disorders, whereas in depressive group, 43.3% had anxiety disorders and 6.7% had comorbid psychotic disorders, with a highly statistically significant difference between both the groups.

Discussion

The purpose of the present study was to compare the amount of experienced stressors and stress coping strategies of addict adolescent patients versus depressive subjects. On the basis of the objective of the study, findings showed that the occurrence rate of various psychosocial stressors according to life event stressors scale in depressive adolescent patients was statistically higher than addict subjects regarding personality, emotional, physical and total stressors scales.

This finding supports the studies that provided strong evidence that life stress is associated with increased risk of depression [18–20]. The findings are consistent in adolescents [21–23].

This could be explained on the basis of the stress generation theory of depression [24–26] which speculated that depressed and depression-prone individuals generate stress in their relationships, which then

Table 4 Coping process scales for addictive and depressive adolescent groups

	Addictive group	Depressive group	
Scales	*N* = 30 (100%) [*n* (%)]	*N* = 30 (100%) [*n* (%)]	*P*
Helplessness			
Low	0 (0.0)	0 (0.0)	0.754
Normal	23 (76.7)	24 (80.0)	
High	7 (23.3)	6 (20.0)	
Total	30 (100.0)	30 (100.0)	
Mental disengagement			
Low	0 (0.0)	0 (0.0)	0.317
Normal	23 (76.7)	26 (86.7)	
High	7 (23.3)	4 (13.3)	
Total	30 (100.0)	30 (100.0)	
Information and social support			
Low	4 (13.3)	0 (0.0)	0.065
Normal	25 (83.3)	30 (100.0)	
High	1 (3.3)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Positive reinterpretation			
Low	2 (6.7)	0 (0.0)	0.206
Normal	27 (90.0)	30 (100.0)	
High	1 (3.3)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Wishful thinking			
Low	6 (20.0)	4 (13.3)	0.488
Normal	24 (80.0)	26 (86.7)	
High	0 (0.0)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Turning to religion			
Low	14 (46.7)	12 (40.0)	0.602
Normal	16 (53.3)	18 (60.0)	
High	0 (0.0)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Emotional Discharge			
Low	1 (3.3)	0 (0.0)	0.065
Normal	25 (83.3)	30 (100.0)	
High	4 (13.3)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Acceptance			
Low	5 (16.7)	4 (13.3)	0.718
Normal	25 (83.3)	26 (86.7)	
High	0 (0.0)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Restraint			
Low	16 (53.3)	10 (33.3)	0.118
Normal	14 (46.7)	20 (66.7)	
High	0 (0.0)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	
Denial			
Low	0 (0.0)	0 (0.0)	0.032*
Normal	23 (76.7)	15 (50.0)	
High	7 (23.3)	15 (50.0)	
Total	30 (100.0)	30 (100.0)	
Active coping			
Low	5 (16.7)	8 (26.7)	0.347
Normal	25 (83.3)	22 (73.3)	
High	0 (0.0)	0 (0.0)	
Total	30 (100.0)	30 (100.0)	

*Statistically significant.

promotes or exacerbates their symptoms. However, relatively little is known about which characteristics predict stress generation, particularly during adolescence, a well-established period of depression onset [27].

Some research studies suggest that both stress responses and self-generated interpersonal stress also predict anxiety during adolescence. These research studies support the result of the present study, which found that in addictive group, 6.7% of the patients had anxiety disorders, whereas in the depression group, 43.3% had anxiety disorders and 6.7% had comorbid psychotic

Table 5 Comorbid psychiatric disorders in addictive and depressive adolescent groups by using Structured Clinical Interview for DSM-IV

	N (%)		
Comorbidity	Addictive group	Depressive group	*P*
Anxiety disorders	2 (6.7)	13 (43.3)	0.00**
Psychosis	0 (0.0)	2 (6.7)	

**Highly statistically significant.

disorders, with a highly statistically significant difference between both the groups.

In terms of stress responses, research studies distinguishing approach coping (strategies directed toward stressors) and avoidance coping (strategies focused on evading or distracting oneself from stressors) generally link youth anxiety with elevated avoidance [28,29]. This is in agreement with our results, where depressive adolescent group made significantly more use of avoidant-coping strategy in the form of denial coping, with a statistical significant difference between both the groups.

The results showed that addictive adolescent group had mild, moderate and severe problems on drug abuse scale (100%), employment scale (76.6%), social scale (56.6%), and family history (53.3%) on the addiction severity index.

These results were consistent with the literature that established a link between stress and substance use and abuse [30]. Moreover, life stress is related to increase in substance use over time [31]. Moreover, in many studies, negative affectivity owing to stressful situations has been found to be a powerful predictor of substance use regarding both initiation and frequency of use [32,33]. Some research studies have shown that stress increases an individual's vulnerability to substance misuse, both biologically (e.g. by chronic stress-mediated changes to the dopaminergic system) and psychologically, owing to impaired coping skills and increased sensitivity to negative affect [34].

However, these results were not supported by a study of junior high school students in the borough of Manhattan. Several midsize samples (600–900 subjects) were studied in a staggered cohort design, in which subjects were followed for a 2-year period over the interval from the beginning of seventh grade to the end of eighth grade. In this design, the subjects were surveyed four times, at 6-month intervals, over the study period. The results did indicate that stress was related to substance use during this period of adolescence [7,31].

Affect regulation models suggest that adolescents experiencing higher levels of negative affect may be more likely to adopt substance use, and this theoretical consideration leads to the prediction that stress will increase the probability of substance use [35].

One of the most popular cognitive-behavioral theories of the addictive process is the stress coping model in which substance use is viewed as a coping response to life stress

that can function to reduce negative affect or increase positive affect [36].

In turn, once the individual develops physical dependence, their drug abuse is assumed to be primarily motivated by a desire to avoid negative affective states associated with withdrawal. This negative reinforcement model is perhaps the oldest and most widely studied model of addiction [37]. This could explain why addictive patients do not have co-morbid depressive disorder.

The results showed that depressive subjects, compared with addictive group, made more use of avoidant-coping strategies (helplessness and mental disengagement), socially supported strategies (social support and emotional discharge), and emotion-focus coping strategies (positive reinterpretation and information).

Withdrawal and avoidant-coping mechanisms (disengagement coping) have been found in several studies to limit positive adolescent adjustment. Seiffge-Krenke [38] found that drug dependency, depression, delinquent behavior, and anxiety were associated with the frequent use of withdrawal. Disengagement coping strategies include avoidance, denial, wishful thinking, and social withdrawal [39].

Accordingly the results showed that both groups do not utilize problem-focused coping strategies (engagement coping strategies), but they use disengagement coping strategies, and this could explain their comorbidity with anxiety; these results disagree with a study that reported that problem-focused coping is also linked with lower levels of internalizing symptoms [40].

Addictive group patients used more disengagement coping strategies than those in the depressive group, whereas they had lower means of life stressors than that of depressive group because of substance use, which is considered as an avoidant coping mechanism that helps them manage their stressors. Wills and Filer found that denial coping had no significant results with SA [41].

This is in agreement with a study which reported that using substances for coping with problems is empirically correlated with avoidant-type measures of coping, and it is often classified as an avoidant coping mechanism [42,43]. The stress-coping model of substance use involves two additional postulates: the first is the proposition that life stress is a risk factor for substance use, and the second is the proposition that substances themselves have coping functions [44–46].

Coping mechanisms grouped under the domain of avoidant coping are related to a higher level of substance use. Helplessness also shows substantial correlations with more substance use [47]. Stress was positively related to substance use, and four coping mechanisms (behavioral coping, cognitive coping, adult social support, and relaxation) were inversely related to substance use [35].

Results from clinical and community settings have suggested other coping mechanisms that may be effective for coping with problems, including social support seeking [48], physical exercise [49], and relaxation [50]. These considerations lead to the prediction that coping (on these five dimensions) will decrease the probability of substance use.

The result was consistent with a study that found that mental disengagement was associated with greater adolescent SA [51].

Wills and Shiffman suggested that people low in personal resources such as self-esteem, mastery, or social support may turn to substance use because it is the only means available to deal with stress [46]. Social learning theory proposes that substance abusers need to learn adaptive skills to replace the maladaptive methods of coping with stress and seeking pleasure [52].

Adolescents are a vulnerable group especially in the developing countries where there is fluidity, instability, socioeconomic difficulties, and poor facilities (education or jobs), and they do suffer more and more. Families in many cases are no longer able to meet or afford basic needs, and also, absence of a parent especially father, broken homes, emotional divorce, and a poor role model to identify with affect adolescents more than any age group and impair proper or healthy coping, which is why both groups (depressive and addictive) experience stressors.

In summary, on the basis of the findings of the present study, it seems that depressive adolescent patients have more stressful life events than addictive group, which may play a considerable role in their comorbidity of anxiety disorders. Depressive patients use avoidant coping whereas addictive group patients use more ineffective coping strategies, and their use of substance is considered as an avoidant coping mechanism that helps them manage their stressors and lessens the incidence of their anxiety disorders. Identifying relationships between coping styles and both depression and addiction may help identify effective and healthy coping strategies to help vulnerable young people through the sometimes turbulent transition of adolescence into healthy, happy, and productive adulthood. So, it is advisable to teach some skills such as stress prevention, alteration and toleration strategies to the at-risk groups.

Limitations

Limitations of the study include the relatively small sample sizes, which limits the generalizability of the study, and scarcity of research studies that compare addiction and depression during adolescence. Moreover, self-report scales were used to assess severity of substance dependence, which can lead to a bias, so we need to detect the severity from other aspects, for example, family and school condition. Detection of different types of other risk factors such as personality traits and their role in addictive adolescent and depressive adolescent patients was not done.

Conclusions

Depressive adolescent patients are exposed to more stressful life events than addictive group. The addictive group resorts to more ineffective coping strategies,

whereas the depressive group used mainly denial as a coping strategy.

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Conflicts of interest

There are no conflicts of interest.

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