

Impact of familial risk factors on the severity of addiction in a sample of Egyptian adolescents

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Background

The 20th century ended with the conviction that drug abuse was a global problem, and thus global solutions were required. Adolescence represents a critical time to prevent alcohol and other drug use. Early initiation and regular use is often associated with negative consequences. Research on adolescents focuses increasingly on features of the family in predicting and preventing substance use, such as parenting style, parental monitoring, and parental substance use. Although there is an increasingly alarming phenomenon of drug abuse demonstrated in the Egyptian community, there has been no study that estimated the prevalence and risk factors of substance abuse in adolescents in Egypt recently.

Aim of the work

The current study aimed at exploring the effect of various familial risk factors on the development and severity of substance use in adolescent Egyptians.

Participants and methods

The current study included two groups: the patient group, which included 100 adolescents (92 male and eight female) from Mansoura, Egypt, between 10 and 19 years of age who were diagnosed as being substance abusers or substance dependants according to the DSM-IV-TR criteria; and the control group, which included 100 (86 male and 14 female) age and sex matched participants with no current psychiatric or neurological disorders. Tools of assessment used were as follows: Mini International Neuropsychiatric Interview for children and adolescents (MINI KID), the Teen Addiction Severity Index (T-ASI) scale, and a scale for measuring family socioeconomic status for health research in Egypt. Familial assessment was carried out with Parental Monitoring Questionnaire and parenting style questionnaire.

Results

The incidence of substance use was higher in male (92%) than in female (8%) adolescents. The most commonly abused substances were tramadol (97%), followed by cannabis (94%) and sedatives and hypnotics (38%), and the least commonly abused substance was anticholinergic (12%). The majority of the studied addicts were abusing more than one drug (92%). The results of the study indicated a highly significant difference between substance users and controls on all familial risk variables.

Conclusion

The substance use disorders are a major health problem among youth, and it is more prevalent in male sex in Egyptian population. Tramadol dependency is at the top of all substances abused in Egypt, followed by polysubstances. The findings highlight how family influences subsequent adolescent substance use.

Keywords:

adolescents, parental monitoring, parenting style, substance use

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Introduction and aim of the work

Adolescent substance use is a major public health concern (Hernandez *et al.*, 2015). Substance use in early adolescence increases the risk for substance use disorders and mental illness later in life (Weissman *et al.*, 2015). Early identification and treatment of substance use disorders is essential in preventing long-term negative consequences (Curtis *et al.*, 2014).

Increased morbidity and mortality arise from mental health problems, poor performance in school, risky

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sexual behaviors, riding with an impaired driver, and suicide (Mitchell *et al.*, 2016).

A 'national survey' in 2007 reported that six million (8.5%) Egyptians are addicted to drugs and the majority of them were between 15 and 25 years of age, and that addicts are considered criminals rather than patients in need for treatment (Nasreldin *et al.*, 2012).

Many researchers who explore risk and protective factors related to adolescent substance use emphasize the social context, and the key aspects of this context are interactions within the family. Parents influence adolescents' development in many ways, such as providing family structure, instilling values, and regulating how time is spent. Studies have found that parental monitoring, such as establishing clear rules about drug use and providing opportunities for involvement in family decisions, has been shown to reduce teen substance use (Van Ryzin *et al.*, 2012).

Family structure may also influence future adolescent drug use (Barrett and Turner, 2006). Crawford and Novak (2008) found that, although family structure has an effect on substance use, a larger portion of the effect is accounted for by parenting style, indicating that the quality of the family's interaction has a strong effect on youth alcohol and drug use.

To our knowledge, in Egypt, there are a few number of research studies that estimated the prevalence and risk factors of substance abuse among adolescents during the last two decades.

In the current study, we adopt the hypotheses that there are correlations between substance abuse incidence and severity in adolescents and familial factors such as negative parenting style, parent history of substance abuse, and low parental monitoring.

The aim of the study was to explore the effect of various familial risk factors on the development and severity of substance use in adolescent Egyptians.

Participants and methods

This case-control study was conducted in Mansoura city, Egypt. The study included two groups: the patient group and the control group.

The patient group included 100 adolescents (92 male and eight female) between 10 and 19 years age who were diagnosed clinically as being substance abusers or

substance dependants according to the DSM-IV-TR criteria. Patients were recruited from the outpatient clinic of adolescent and addiction units of Psychiatry Department, Mansoura University Hospital, and other private hospitals.

The control group included 100 (86 male and 14 female) age and sex matched adolescents with no current psychiatric or neurological disorders. These adolescents were recruited from those attending Mansoura University Hospital outpatient clinics for causes other than psychiatric disorders with exclusion of those with severe medical or neurological disorders.

After obtaining oral consent from each participant, they were evaluated using a semistructured interview that gathered general data and drug habits of the patients (the type of drug, the route of administration, the dose, etc.). The following tools of assessment were used. First, a Mini International Neuropsychiatric Interview for children and adolescents (MINI KID) (Sheehan *et al.*, 1998) was used to diagnose psychiatric disorders. Second, the Teen Addiction Severity Index (T-ASI) scale (Kaminer *et al.*, 1991), which provides multidimensional assessment for the problems presented by patients with substance abuse disorders. It yields ratings in seven domains: chemical (substance) use, school status, employment/support status, family relations, peer/social relationships, legal status, and psychiatric status. Third, a scale for measuring family socioeconomic status for health research in Egypt was used (El-Gilany *et al.*, 2012). Finally, familial assessment with the following: (a) Parental Monitoring Questionnaire (Reese, 2008), for assessing the adolescent perceived level of parental monitoring, and (b) parenting style questionnaire (Abd El-Maksoud, 1999), to assess method or methods followed by the parents in the treatment of adolescents during their interaction with them in various life situations and as perceived by the adolescent. These include discrimination, overcontrolling, volatility, overprotection, and proper parenting style (positive parenting).

Statistical analysis

Data were analyzed using SPSS (Statistical Package for Social Sciences; SPSS Inc., Chicago, Illinois, USA), version 15. Qualitative data were presented as number and percent. Comparison between groups was made using the χ^2 -test. Quantitative data were tested for normality using the Kolmogorov-Smirnov test. Normally distributed data were presented as mean $\pm$ SD. Student's t-test was used to compare two groups. Pearson's correlation coefficient was used to test

correlation between variables. Linear dependence between the pair of values was determined. A P value less than 0.05 was considered to be statistically significant.

Results

Table 1 shows the sociodemographic characteristics of the studied groups. There were no significant differences between the studied groups (cases and controls) as regards demographics.

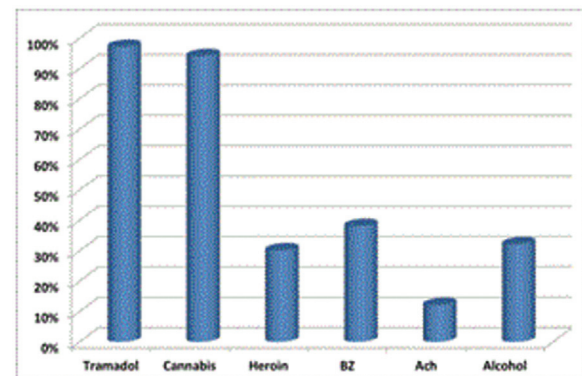
Figure 1 shows the prevalence of substance abuse in the studied group. Tramadol was the most frequently used substance (97%), followed by cannabis (94%), sedatives and hypnotics (38%), alcohol (32%), heroin (30%), and anticholinergic drugs (12%). The majority of studied addicts were abusing more than one drug (92%), as shown in Fig. 2.

Figure 3 shows the T-ASI. An overall 51% of patients suffered from severe problems with regard to addiction problems; 21% faced extreme problems with regard to school; 16% of addicts had severe occupational problems; 27% had severe problems with regard to family; 25% had severe social problems; and only 8 and 7% had severe legal and psychiatric problems, respectively.

Table 2 shows the familial risk factors. There was a highly significant statistical difference ($P=0.000$) between the two groups as regards parental monitoring, wherein the control group showed higher parental monitoring

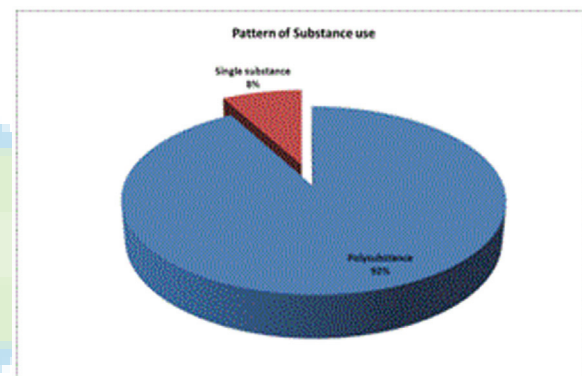
compared with the addict group. As regards the parenting style, there was a highly significant statistical

Figure 1



The prevalence of substance abuse in the studied group. Ach, anticholinergic drugs; BZ, benzodiazepine.

Figure 2



The pattern of substance abuse in the studied group.

Table 1 Sociodemographic characteristics of the studied groups

	Cases (n=100)	Control (n=100)	χ^2	P
Age	18.24±1.12	18.12±1.27	0.710	0.479
Sex [n (%)]				
Male	92 (92)	86 (86)	1.839	0.175
Female	8 (8)	14 (14)		
Residence [n (%)]				
Urban	48 (48)	40 (40)	1.299	0.254
Rural	52 (52)	60 (60)		
Education [n (%)]				
Dropped from education	15 (15)	6 (6)	5.290	0.259
Preparatory	11 (11)	14 (14)		
Secondary	17 (17)	22 (22)		
Vocational education	23 (23)	20 (20)		
University	34 (34)	38 (38)		
SES				
Very low	1 (1)	0 (0)	4.692	0.196
Low	36 (36)	24 (24)		
Middle	44 (44)	38 (38)		
High	19 (19)	38 (38)		

SES, socioeconomic status. *Statistically significant ($P<0.05$).

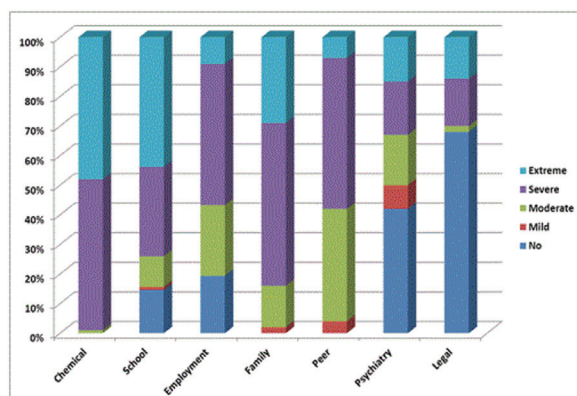
difference as regards all parenting style items, wherein parental discrimination, volatility, overcontrolling, and overprotection were higher in the addict group, whereas positive parenting was higher in the control group.

As regards parental substance use, there was a highly significant difference ($P=0.000$); the incidence of

parental substance use among addicts was 24%, whereas it was only 6% in the control group (Table 3).

There were a statistically significant difference between the two groups as regards death of father, parental divorce, and separation, whereas there was no difference between the two groups as regards the death of mother (Table 4).

Figure 3



The severity of substance abuse according to the Teen Addiction Severity Index (T-ASI).

The severity of family problems positively correlated with discrimination and overcontrolling by the father and negatively correlated with positive parenting by father and parental monitoring. The severity of psychiatric problems was positively correlated with discrimination by the father and negatively correlated with positive parenting by the father. There was no relationship between the severity of substance abuse, school, occupational, social, legal problems and familial variables (Table 5).

Discussion

The current study is consistent with previous studies in other countries (Merikangas and McClair, 2012). The

Table 2 The familial variables among the studied group

	Mean±SD	Mean±SD	t	P
Parental monitoring	11.07±4.61	17.76±4.43	10.469	<0.001*
Parenting style				
Father discrimination	12.40±2.21	11.55±1.56	3.040	0.003
Father volatility	15.03±1.44	13.66±1.53	6.354	<0.001*
Father overcontrolling	14.89±2.21	12.72±1.80	7.403	<0.001*
Father overprotection	15.21±2.00	13.40±1.45	7.108	<0.001*
Father positive parenting	32.32±3.97	35.04±2.09	5.919	<0.001*
Mother discrimination	12.19±2.08	11.00±1.18	4.952	<0.001*
Mother volatility	14.61±1.45	13.41±1.56	2.864	0.005*
Mother overcontrolling	13.55±2.08	12.14±2.20	4.606	<0.001*
Mother overprotection	16.53±1.72	14.41±1.52	9.166	<0.001*
Mother positive parenting	34.57±2.60	36.60±1.76	6.447	<0.001*

*Statistically significant ($P<0.05$).

Table 3 Parental substance use among the studied groups

	Cases (n=100) [n (%)]	Control (n=100) [n (%)]	χ^2	P
Parental substance use			12.706	<0.001*
Negative	76 (76)	94 (94)		
Positive	24 (24)	6 (6)		

*Statistically significant ($P<0.05$).

Table 4 Absent parent among the studied groups

Absent parent	Cases (n=100) [n (%)]	Control (n=100) [n (%)]	χ^2	P
Father death	24 (24)	14 (14)	3.249	0.071
Mother death	3 (3)	2 (2)	0.205	0.651
Parental divorce	14 (14)	2 (2)	9.783	0.002
Parental separation	9 (9)	1 (1)	6.737	0.009*

*Statistically significant ($P<0.05$).

Table 5 Correlation between the Teen Addiction Severity Index and familial variables

	Chemical		School		Employment		Family severity		Peer		Psychiatry		Legal	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>
Parental monitoring	-0.047	0.639	-0.134	0.194	-0.033	0.789	-0.225	0.025	-0.085	0.402	-0.244	0.015	-0.087	0.387
Parenting style														
Father discrimination	0.009	0.930	0.013	0.903	0.180	0.152	0.300	0.003	0.038	0.716	0.319	0.002	0.055	0.596
Father volatility	0.051	0.626	-0.018	0.863	-0.005	0.97	0.173	0.096	0.044	0.669	0.128	0.219	-0.033	0.748
Father overcontrolling	-0.085	0.411	-0.056	0.596	0.159	0.205	0.300	0.003	0.058	0.580	0.103	0.323	-0.040	0.700
Father overprotection	-0.096	0.354	-0.009	0.931	-0.011	0.931	-0.091	0.385	0.182	0.077	-0.175	0.092	-0.174	0.092
Father positive parenting	-0.006	0.952	-0.065	0.541	-0.150	0.234	-0.378	<0.001	-0.096	0.354	-0.400	<0.001	-0.056	0.592
Mother discrimination	0.103	0.309	0.163	0.116	-0.169	0.174	0.087	0.393	0.012	0.904	0.214	0.035	0.028	0.783
Mother volatility	-0.088	0.386	0.002	0.986	-0.043	0.732	-0.009	0.929	0.102	0.317	0.113	0.269	-0.262	0.009
Mother overcontrolling	-0.138	0.174	0.018	0.865	-0.060	0.631	0.006	0.952	-0.023	0.818	0.111	0.276	-0.218	0.030
Mother overprotection	0.049	0.629	-0.079	0.447	0.107	0.394	0.262	0.009	-0.035	0.727	0.013	0.899	-0.120	0.237
Mother positive parenting	0.131	0.196	-0.165	0.110	0.050	0.688	0.090	0.378	-0.061	0.549	-0.017	0.867	0.009	0.926

incidence of substance use was higher in male sex and older adolescents compared with female sex and younger adolescents. Moreover, this in line with the findings of earlier studies among Egyptian addicts.

The National Addiction survey reported that male sex was more likely to be dependent on or abuse alcohol or an illicit drug compared with female sex. The male-to-female ratio was greater in Cairo (2 : 1) compared with other governances, where it reached 13 : 1, indicating that there is a subculture difference in Egyptian population. In Egyptian culture, male population is more prone to abuse drugs at an earlier age compared with female population due to earlier work career and more freedom. Other Egyptian studies also confirmed these findings (Okasha *et al.*, 1999; El-Sawy *et al.*, 2010; Hamdi *et al.*, 2011; Negm and Fouad, 2014). Moreover, Mohamed *et al.* (2015) reported that 80% of substance users in the outpatient addiction clinic at Heliopolis Psychiatric Hospital were male and 20% were female.

Surprisingly, other researchers found that female population exhibited a higher level of substance use compared with male population during early adolescence (Mitchell *et al.*, 1999; Duncan *et al.*, 2006; Biehl *et al.*, 2007).

Moreover, Angold *et al.* (2002) reported equal prevalence rates among male and female populations.

Results of the present study confirm the elevated prevalence of polysubstance use behavior. A study in

a sample of problematic drug users in Greater Cairo showed that the studied sample of addicts in Cairo were habitual polydrug users (Elshimi *et al.*, 2004).

An overall 24% of our participants reported that their fathers had used drug. This is similar to the findings of Mohamed *et al.* (2015), who found that 25% of substance users had a positive family history of substance abuse. These results are consistent with those of Okasha (2000) as well, who reported that more than one-third of the users' fathers and almost half of their relatives were substance abusers. This indicates the effect of exposure to drug-related stimuli and the distorted models of fathers and relatives; we also detected the significant role of identification and learning in entering the dilemma of substance abuse.

Forty-four percent of the participants in our study were from the middle socioeconomic level, 19% were from the high socioeconomic level, and 37% were from the low socioeconomic level.

This result is consistent with that of Mohamed *et al.* (2015), who reported that 43% of the participants in their study were from the middle socioeconomic level, 28% were from the high socioeconomic level, and 24% were from the low socioeconomic level.

The most commonly abused substances among abusers in our study were tramadol, cannabis, sedatives and hypnotics, alcohol, heroin, and anticholinergic drugs

(97, 94, 38, 32, 0, and 12%, respectively). The present study is consistent with that of Negm and Fouad (2014), who found that tramadol, cannabis, and alcohol were the most commonly abused substances among adolescent school students in Zagazig (83.3, 27.8, and 16.7%, respectively). This is in agreement with the findings of Hatata *et al.* (2004), who found that 61.9% of their participants used opiates, 18.5% used cannabis, 15.8% used sedatives, and 3.9% used alcohol.

The highest prevalence of tramadol use was supported by previous Egyptian studies such as that by Fawzi (2011), who reported a prevalence of 32.1% for tramadol use among children and adolescents who were presented to the Emergency Unit of the poison Control Center of Ain Shams University Hospitals. The results of the study by Mohamed *et al.* (2015) showed that opioids were the substance of major problem in 43.73% of the substance abusers.

An increasingly alarming phenomenon of tramadol abuse has been heavily demonstrated in the Egyptian community in the last 4 years (Salem *et al.*, 2008). Although the issue of drug abuse is not new to the Egyptian society, tramadol is associated with a wide range of abuse and illegal transactions as it is easily accessible and readily provided at cheap costs despite it being scheduled. The alleged usages of tramadol have contributed considerably to its popularity and massive use, especially among youth and middle-aged individuals, as a remedy for premature ejaculation and for extended orgasm and to increase sexual pleasure (Salem *et al.*, 2008). Students also use tramadol during their examination to give them energy and keep them awake to study (Lord *et al.*, 2011).

Family variables such as parenting style, family bonding, family structure, family environment (family supervision and monitoring), and family psychopathology were investigated to detect their relation with psychiatric disorders during adolescence.

Our findings reinforce the importance of the role of parents in the lives of their adolescents and supports previous studies that found that parents have great influence on children's behaviors including substance use (Graves *et al.*, 2005; Parsai *et al.*, 2010).

Results of this study revealed that the absence of father was highly related to substance use disorders (92%) compared with absence of mother.

Hemovich *et al.* (2011) reported that youth from single-parent families engaged in significantly higher

levels of substance use than those from dual-parent households. These replicated earlier findings (Barrett and Turner, 2006; Hemovich and Crano, 2009). These findings also provide support to the assertion by Dew *et al.* (2007), who reported that changes in traditional family structures and weakening of parental bonds may especially contribute to substance abuse. It seemed plausible to assume that single parents, on average, would have less time to monitor their children consistently and intensively. Moreover, the mean family income of dual-parent families significantly exceeded that of single-parent households. Youth from single-parent families reported less adult supervision, more positive prodrug friend and peer norm perceptions, and greater self-delinquency and peer delinquency.

Parenting is often viewed as a standout among the mechanisms of socializing children. There is reciprocal and complex relationship between parenting and child behavior, each of them influencing the other.

Some parents believe that strict discipline of children in young age using physical and verbal punishment without recognition of their psychological development is the best way for controlling and shaping proper behaviors. The relation between misbehavior and aggressive punishment is bidirectional, as misbehavior is the cause of punishment and punishment generally increases misbehaviors.

Results of this study found an association between negative parenting style such as maternal and paternal discrimination, overcontrol, overprotection, and volatility and substance use disorders.

Longitudinal studies have found that negative parenting (e.g. inconsistent and harsh discipline, low warmth, and monitoring) is positively associated with substance use disorders, and that positive parenting (e.g. positive reinforcement, acceptance, approval, and guidance) is negatively associated with addiction problems (Bates *et al.*, 1995).

Some international studies found that some parental practices (affection, rejection, and overprotection) have predictive value concerning substance use problems (Burt *et al.*, 2009; Prinzie *et al.*, 2010).

A recent review showed that most studies found that authoritative parenting was associated with the best outcomes as regards adolescent substance use, and neglectful parenting with the worst outcomes (Becona *et al.*, 2015). Specifically, many studies

have shown that authoritative parenting is associated with less use of alcohol, tobacco, and illicit drugs in children and adolescents (Adalbjarnardottir and Hafsteinsson, 2001; Chassin *et al.*, 2005; Shakya *et al.*, 2012; Cablova *et al.*, 2014; Becoña *et al.*, 2015). Children of authoritarian parents generally report more substance use compared with children of authoritative parents, but some studies found no difference or even an inverse association (Becoña *et al.*, 2015). Findings related to the permissive parenting style are mixed; some studies have shown that permissive parenting is associated with higher rates of substance use, whereas others demonstrate the opposite association. Neglectful parenting style is almost consistently found to be associated with higher rates of substance use (Adalbjarnardottir and Hafsteinsson, 2001; Shakya *et al.*, 2012; Čablová *et al.*, 2014).

Researchers also reported that parental love and positive expression is related with low levels of substance use disorders in adolescents (Contreras *et al.*, 2000; Eisenberg *et al.*, 2005). Thus, parenting style is predictive of substance use disorders during childhood, adolescence, and even during adulthood (Rathert, 2013).

Usually, in Arab world, discipline in the family is based on overprotection and children having to obey orders. This dynamics raised the lack of communication between family members, including adolescents and parents. In addition, lack of awareness of psychosocial development of children and adolescents may confirm this lack of communication.

Parent-child interaction has numerous dimensions, an important dimension being parental monitoring and parental support, which are strong predictors of positive outcomes during adolescence (Stattin and Kerr, 2000). Parental monitoring is 'parents' knowledge of the child's whereabouts, activities, and associations' (Stattin and Kerr, 2000), and it is associated with less substance use disorders during adolescence.

The negative association between parental monitoring and externalizing disorders has been presented among adolescents (Van Loon *et al.*, 2015). Lack of parental monitoring is strongly related to adolescent substance abuse, regardless of the presence or absence of parental substance abuse (Molina *et al.*, 1994).

Stice and Barrera (1995) found that extremely high, and likewise extremely low, levels of parental control and support were associated with substance use in adolescents. However, high levels of parental

monitoring and control appear to be a strong protective factor against adolescent alcohol use (Ennett *et al.*, 2008).

The established link between attenuated parental monitoring and adolescent substance use was hypothesized to operate through adolescents' social and intrapersonal beliefs and attitudes. It was speculated that if parents' availability were constrained then adolescents might gravitate to peers for information and alternate behavioral models. This migration from parents to peers is a common feature of adolescent development (Bush *et al.*, 1994; Kandel, 1996; Wu *et al.*, 2007; Van Ryzin *et al.*, 2012). This process may lead to a greater openness to illicit substances, overestimates of friends' and peers' drug use norms, higher approval of others' drug use, lower refusal strength, and, ultimately, higher levels of substance use.

Conclusion

From the current study it was concluded that the substance use disorders are a major health problem among youth. Moreover, it is more prevalent in male sex in Egyptian population. Tramadol dependency is at the top of all substances abused in Egypt, followed by polysubstances. Family factors were related to adolescent substance use, such as negative parenting style, low parental monitoring, and parental substance use. Having an intact nuclear family was protective factor against youth substance use.

Future research with larger samples, a longer follow-up, and data collection on parent involvement and substance use can provide further insights on how family factors influence substance use among at-risk youth, which could lead to enhancements to treatment for this population.

The Egyptian community needs more attention from family and educational and health institutes for the prevention and the treatment of substance use disorders.

Limitations

Several limitations should be considered in interpreting the results of our study. First, the study was cross-sectional, which limits the extent to which conclusions can be drawn about the causal nature of the associations between the correlates and substance abuse.

Second, the lack of collateral information, as the study did not involve parents. Third, all family variables were self-reported and unstandardized. Their validity is

unknown and some measurements such as parenting style and parental monitoring were limited to youths' perception.

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Conflicts of interest

There are no conflicts of interest.

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