Sexual risk among substance users and its relation to personality profile

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Objectives

To study sexual behavior among substance users, to find an association between substance use and risky sexual behaviors, and to determine whether there is an association between personality traits and risky sexual behaviors among substance users.

Participants and methods

Our participants (100) were divided into two groups: group 1 (cases) included 50 individuals (diagnosed with substance abuse according to the DSM-VI criteria) recruited from the Kasr El Aini psychiatric inpatient ward and group 2 (controls) included 50 normal control individuals, matched for age, sex, and socioeconomic status. All patients were men, ranging age from 18 to 40 years, were taking substances for at least 6 months, and all of them could read and write. Those with a comorbid axis I diagnosis were excluded from the study. Both groups were subjected to a full psychiatric sheet, risk assessment battery (RAB), and the Eysenck personality questionnaire. The Addiction Severity Index was determined for cases, urine sampling was carried out using drug screening strips, and a laboratory test was performed for HIV and hepatitis C virus detection.

Results

Both groups showed nonsignificant differences in terms of age, education, employment, education, and social status. The most prevalent substance used was tramadol (96%), followed by cannabis (72%) and heroin (58%). Hepatitis C virus infection was detected in (16%); none of the patients had HIV (AIDS). There were statistically significant differences in extroversion and neuroticism between the cases and the controls. There was a statistically significant difference between the cases and the controls in terms of the sexual subscale of RAB. There was a significant correlation between psychoticism and criminality subscales in Eysenck Personality Questionnaire and the RAB in the case group.

Conclusion

Patients with substance abuse have more sexual risk than normal controls. Sexual risk is not related to the severity of addiction, but to psychoticism and criminal behavior of personality.

Keywords:

personality, sexual risk, substance abuse

Introduction

Substance users are at a risk of sexual transmission of HIV through high-risk sexual behavior such as engaging in unprotected intercourse, having multiple sexual partners, exchanging sex for money and/or drugs, and combining sex and substance use (Booth *et al.*, 2000; UNAIDS/WHO/UNICEF, 2008).

Certain patterns of substance use have been shown to be associated with an increased risk for sexual transmission of HIV. Both injection and noninjection heroin use have been associated with high-risk sexual activity (Chitwood *et al.*, 1995; Sánchez *et al.*, 2002).

Several studies of men who have sex with men have found an association between sexual risk behavior and alcohol and recreational drug use (Dolezal *et al.*, 2000; Chaudhury *et al.*, 2010).

The relationship between alcohol and sexual risk taking is complex, and may be explained in a number of ways. Alcohol use may influence high-risk behaviors by affecting judgment and increasing disinhibition. Alcohol use may be a marker of a risk-taking personality; individuals who consume alcohol in huge amounts may also be more likely to engage in high-risk sexual behaviors (Leigh *et al.*, 1994; Haynes *et al.*, 2008).

The use of alcohol or other drugs has been proposed to be a contributing factor to sexual risk-taking. Because alcohol and drugs are believed to interfere with judgment and decision making, it has been suggested that their use

in conjunction with sexual activity might increase the probability that risky behavior will occur (Graves and Leigh, 1995; Marshall *et al.*, 2010).

Several hypotheses have been offered to explain the association between substance use and sexual risk behavior, including pharmacological effects, social context, situation specific rituals, and personality traits. Yet, few studies have sought to verify these explanatory hypotheses (Dolezal *et al.*, 2000).

Preliminary evidence has indicated that impulsivity and related traits such as novelty, sensation, and risk seeking appear to account for some unique variance in sexual risk behavior, at least in some populations (Stein *et al.*, 2006).

It has been well established that substance use disorders and personality disorders frequently co-occur. (James and Taylor, 2007; Fridberg *et al.*, 2011).

Aim of the work
(a) To study sexual behavior among substance users. (b) To find an association between substance use and risky sexual behavior. (c) To find an association between personality traits and risky sexual behavior among substance users.

Participants and methods
Our participants (100) were divided into two groups: group 1 included 50 individuals [diagnosed with substance abuse according to the DSM-VI criteria (American Psychiatric Association, 2000)] recruited from the Kasr El Aini psychiatric inpatient ward. Group 2 included 50 (selected on consultation with a statistical consultant) normal control individuals, matched for age, sex, and socioeconomic status. Individuals ranging in age between 18 and 40 years, men, with substance abuse during the last 6 months, those who could read and write, and those who provided informed consent were included in the study.

Exclusion criteria
Patients with a comorbid psychiatric condition on Axis I were excluded.

Methods
A cross-sectional study was carried out using the following tools: (a) a full psychiatric examination (semistructured interview): based on a Kasr Al Ainy psychiatric interview, with a special focus on substance use. (b) The risk assessment battery (RAB, Navaline *et al.*, 1994): the RAB is a self-administered questionnaire designed for use with substance-using populations. It was developed to provide a rapid (< 15 min) and confidential, noninterview method of assessing both needle use practices and sexual activity associated with HIV transmission. There are two global sections in the RAB: (a) drug and alcohol use during the past 30 days and (b) needle use and sexual behavior during the past 6 months. Sexual risk behavior was assessed using the sex risk subscale of the RAB. This questionnaire was translated into Arabic and back translated by a staff member of the psychiatric department of Cairo University Faculty of Medicine. This questionnaire was administered to both the patient and the control group. (c) Eysenck's Personality Questionnaire (EPQ; Eysenck and Eysenck, 1975) was used to assess neuroticism, psychoticism, introversion/extroversion, criminality, and Lie scale.

The questionnaire has 90 questions to be answered by a yes or a no response. Each one of the five dimensions has certain questions and each question has a score; then, the total score for each dimension is calculated. For patients in group 1, (d) the Addiction Severity Index (ASI) was used (McLellan *et al.*, 1992). The ASI is a widely used structured clinical interview that assesses substance use/ abuse and psychosocial functioning in a variety of domains including medical, employment, legal, family/ social, and psychiatric. (e) Urine sampling was performed using drug screening strips. (f) A laboratory test was performed for HIV and hepatitis C virus (HCV) detection.

Ethical issues
Participation of the patients was voluntary. Patients received an explanation of the aim of the research as well as instructions for filling in the questionnaires. This research was funded by the researcher without any outside financial support.

Data management and analysis
All the questionnaires collected were checked for completeness and logical consistency. Precoded data were entered into a computer using a database developed for data entry on Microsoft Office Excel program for Windows, 2003. Data were then transferred to the statistical package of social science, version 16 (SPSS, IBM, Chicago, Illinois, USA), for data analysis.

Results
Both the groups showed nonsignificant differences in terms of age, education, employment, education, and social status. The most commonly used substance was tramadol (96%), followed by cannabis (72%), heroin (58%), benzodazepines (40%), and alcohol (16%). Among these substance abusers, 90% were using more than one substance, that is they were polysubstance dependent. In addition, 58% were substance drug injectors (SDI), injecting themselves with heroin. HCV infection was detected in 16%; none of the patients had HIV (AIDS) Table 1.

Table 2 shows that there were statistically significant differences in extroversion and neuroticism between the cases and the controls.

Table 3 shows that there was a significant difference between the cases and the controls on the sexual subscale of RAB.

Our patients had medical problems because of drug dependence ranging from mild (18%) to moderate (10%), to severe (20%), and 52% did not have any medical problems.

For the employment subscale, 4% did not have any problem, 14% had mild problems, 32% had moderate problems, and 50% had severe problems.

On the drug abuse scale, 34% had moderate problems and 66% had severe problems.

No abnormality was found on the legal problem scale (18%), followed by 24% with mild problems, 22% with moderate problems, and 36% with severe problems.

The family history scale was normal in 20% of the patients, followed by 36% with a mild degree, 14% with a moderate degree, and 30% with a severe degree of problems.

Table 4 shows a nonsignificant correlation between the RAB and the ASI.

Table 5 shows a significant correlation between psychoticism and criminality subscales in EPQ and the RAB in the case group.

Table 6 shows a nonsignificant correlation between any subscale in EPQ and RAB in the controls.

Table 7 shows a significant correlation between psychoticism, family history, and social relation status. Also, there was a significant correlation between extroversion and legal state, criminality, and family history.

Discussion

In terms of the demographic data of the sample, there were no statistically significant differences between the case group and the control group including age, marital status, education, and occupation. This indicated that the samples were well matched and eligible for the study and comparison. The mean age of the patients was 25.88 years, whereas that of the controls was 27.64 years; although the mean age in the controls was slightly higher, there was no statistically significant difference between the two groups. This is in agreement with many researchers such as Hafeiz (1995), who found, in a study of 116 patients admitted to the Al-Amal Hospital in Dammam, that 83% of the patients ranged in age from 21 to 32 years, which also indicates that most substance users fall within this age range; this is also in agreement with another Egyptian research carried out on 52 psychoactive substance users by Mubasher et al. (2008) on disinhibited risky behaviours and plasma serotonin among drug addicts, where the mean age of the cases was 26.9 years. In terms of education, among the cases, 16% had completed primary education, 18% had completed preparatory education, 12% had completed secondary education, 26% had a diploma (technical education), and 28% had university education.

However, in the control group, 8% had completed primary education, 12% had completed preparatory education, 24% had completed secondary education, 22% had a diploma, and 34% had university education. This shows that controls had higher levels of education compared with cases, but there was no statistically significant difference between the two groups. This may reflect the adverse effects of substance abuse on education. In terms

Table 1 Demographic data of the cases and the controls

| | | N (%) | | |
	Factor	Cases (N=50)	Control (N=50)	P value
Age	Mean	25.88	27.64	0.158
	SD	5.68	6.09	
Education	Primary	8 (16)	4 (8)	0.367
	Preparatory	9 (18)	6 (12)	
	Secondary	6 (12)	12 (24)	
	Diploma	13 (16)	11 (22)	
	University	14 (28)	17 (34)	
Employment	Professional	12 (24)	15 (30)	0.582
	Skilled laborers	30 (60)	23 (46)	
	Nonskilled laborers	5 (10)	9 (18)	
	Not working	3 (6)	3 (6)	
Social status	Married	15 (30)	14 (28)	0.378
	Single	30 (64)	31 (62)	
	Divorced	3 (6)	5 (10)	
Substance abuse	Alcohol	8 (16)		
	Tramadol	48 (96)		
	Heroin	21 (58)		
	Cannabis	36 (72)		
	Benzodiazepines	20 (40)		
	>1 substance at a time	45 (90)		
	Injecting substance	21 (58)		
Laboratory investigation	HIV	0 (0)		
	HCV	8 (16)		

HCV, hepatitis C virus.

Table 3 Sexual subscale of the risk assessment battery

	Minimum	Maximum	Mean	SD	P value
Cases	0	1	0.1822	0.387358	0.05
Control	00	0.050	0.001	0.007	

Table 2 Eysenck Personality Questionnaire in cases and controls

| | Cases | | | | Controls | | | | |
	Minimum	Maximum	Mean	SD	Minimum	Maximum	Mean	SD	P value
Psychoticism (p)	1	18	6.9	3.48	1	15	6.46	3.35	0.464
Extroversion (E)	3	18	11.96	3.09	9	18	13.48	2.41	0.023
Neuroticism (N)	3	23	15.04	4.69	5	22	13.14	4.00	0.032
Lie Scale (L)	3	19	10.04	3.83	2	19	9.48	3.39	0.441
Criminality (C)	5	27	15.66	4.90	4	23	14.44	4.41	0.194

Table 4 Correlation between the risk assessment battery and the Addiction Severity Index in the case group

	ASI social relation status category	ASI legal status category	ASI family history category	ASI drug and alcohol abuse status category	ASI occupation category	ASI medical status category
Sexual risk subscale of the risk assessment battery						
r factor	0.254	0.015	0.234	0.251	0.249	0.051
P value	0.075	0.920	0.102	0.079	0.081	0.724

ASI, Addiction Severity Index.

Table 5 Correlation between risk assessment battery and Eysenck Personality Questionnaire in the cases

RAB	Psychoticism	Neuroticism	Extroversion	Lie	Criminality
r factor	0.374*	0.264	0.218	− 0.147	0.390*
P value	**0.007**	0.063	0.128	0.309	**0.005**

RAB, risk assessment battery.
*Highly significant correlation.

Table 6 Correlation between risk assessment battery versus Eysenck Personality Questionnaire in the controls

RAB	Psychoticism	Neuroticism	Extroversion	Lie	Criminality
r factor	0.154	0.099	− 0.085	− 0.105	0.139
P value	0.285	0.492	0.558	0.468	0.336

RAB, risk assessment battery.

of occupation, among the cases, 24% were professional workers, 60% were skilled workers, 10% were nonskilled workers, and 6% were not working and were unemployed.

This is in agreement with Kleyn and Lake (1990), who found that injection drug users who were working were significantly less willing to enter treatment because, among other difficulties, treatment is time consuming and can limit job-related travel. Also, there is a risk of employment termination if employers learn of treatment entry and, thereby, of drug use, although earlier studies have not only failed to find adverse effects, but often found positive impacts of illicit drug use on labor market success (Kaestner 1991, 1994; Andrew and Michaels, 1992; Charles and Williams, 1992). Thomas and Zuvekas (1998) suggest that these studies failed to adequately discriminate between moderate drug consumption and heavy drug consumption or abuse/addiction. When differentiating moderate drug users from more problematic users, expected negative labor market effects of drug problems were found, and more recent studies have found that chronic use or substance abuse substantially reduces the probability of employment (Pieere and French, 2004).

In our study, although only 6% were unemployed, the other patients had current employment problems, and this may be explained by the small sample of our study (i.e. 50 patients). In terms of marital status, the majority of the cases were single (64%), 30% were married, and 6% are divorced, in agreement with other results as in a Survey on Hard Drug Users in Nepal: Practice for Policy Analysis and Advocacy (2010), in which similar results were found, that is, 65.4% of patients were single, 29.7% were married, and 4.1% were divorced.

Also, Abdel Mohsen et al. (2009) found that 21.1% of the patients were married, 64.2% were single, and 14 (14.7%) were separated. This trend may be attributed to several social problems, including marital, associated with substance abuse and also the lack of responsibility among substance abusers. In terms of the type of substance used in our study, the most commonly used substance was tramadol (96%), followed by cannabis (72%), heroin (58%), benzodiazepines (40%), and then alcohol (16%); (90%) of the patients were using more than one substance, that is polysubstance dependent, also (58%) where SDI for heroin injection and that's why they have same percentage.

Our results are in agreement with the results of the study of Hatata (2004), who found that opiates were used by 61.9% of the patients, cannabis by 18.5%, followed by sedatives (15.8%) and alcohol (3.9%). Our results were not in agreement with those of Abdel-Wahhab et al. (2006), who carried out a study on a sample of Egyptian adolescents, and found that among 40 patients, the most common substance used was cannabis (70%), followed by alcohol (65%), bango (62.5%), sedative hypnotics (57.5%), heroin (25%), codeine (10%), and tramadol (2.5%). This inconsistency can be attributed to the nature of the sample used in both studies; in the former study, the patients were adolescents, and the use of cannabinioids at this age is experimental and believed to be a proof of maturity.

In the study by Fawzi (2011), of 640 patients, 67.9% were taking tramadol in prescribed or nonprescribed form. Tramadol is the most commonly used drug because of its wider availability and cheaper price compared with other types of drugs. The unplanned indirect media advertising for tramadol abuse movies and TV also played a remarkable role in promoting tramadol abuse. Out of 50 patients, 16% had HCV infection; none of the patients had HIV (AIDS). Although Egypt is one of the countries with a low prevalence of HIV and AIDS, evidence shows that unless concerted efforts are made, this might not remain true for long (NSP, 2007). Egypt has a low prevalence of HIV among the general population (below 0.1%). Until the end of 2009, 3919 HIV cases were detected in Egypt, of which 2920 were Egyptians. Among these, 1078 (27.5%) developed AIDS. However, Egyptians have the highest prevalence of HCV in the world. The recently released Egyptian Demographic Health Survey tested a representative sample of the entire country for the HCV antibody. The sample included both urban and rural populations and included all 27 governorates of Egypt. Over 11 000 individuals were tested. The

Table 7 Correlation of Eysenck Personality Questionnaire and Addiction Severity Index

	ASI social relation status category	ASI legal status category	ASI family history category	ASI drug and alcohol abuse status category	ASI occupation category	ASI medical status category	ASI psychoticism problem
EPQ psychoticism							
r factor	0.432**	0.237	0.320*	0.140	0.118	0.041	0.097
P value	0.002	0.097	0.023	0.332	0.414	0.778	0.504
EPQ neuroticism							
r factor	0.057	0.063	0.218	0.078	0.032	0.107	0.140
P value	0.696	0.666	0.128	0.591	0.827	0.460	0.333
EPQ extroversion							
r factor	0.141	0.287*	0.192	0.207	0.208	0.195	0.087
P value	0.329	0.043	0.181	0.150	0.147	0.176	0.548
EPQ lie							
r factor	− 0.221	− 0.137	− 0.117	− 0.260	− 0.186	0.022	− 0.138
P value	0.123	0.344	0.419	0.068	0.197	0.880	0.341
EPQ criminality							
r factor	0.220	0.194	0.303*	0.125	0.113	0.105	0.255
P value	0.125	0.177	0.033	0.388	0.433	0.466	0.074

ASI, Addiction Severity Index; EPQ, Eysenck Personality Questionnaire.
*Significant correlation.
**Highly significant correlation.

overall prevalence (percentage of people) positive for the antibody to HCV was 14.7% (Ungass Country Progress Report, 2009).

Our results were in agreement with a Chinese study carried out by Garten *et al.* (2005), which reported that HCV was present in 95.1% of HIV-positive heroin users. HCV is highly prevalent in SDI throughout southern China as a result of parenteral and sexual transmission. Our patients had medical problems because of drug dependence ranging from mild (18%), to moderate (10%), to severe (20%), and 52% did not have any medical problems; our results were in agreement with those of Mohsen *et al.* (2001), who found that 66% of patients did not have any medical problems, and 15% had mild, 6% had moderate, and 13% had severe medical problems.

In terms of the employment subscale, 4% did not have any problem, 14% had mild problems, 32% had moderate problems, and 50% had severe problems. This was in agreement with Mohsen *et al.* (2001), who found that 5% of his patients had mild, 18% had moderate, 28% had severe, and 48% had extreme problems, and this indicates the negative effects of substance abuse on work performance. In the drug abuse scale, 34% had moderate problems and 66% had severe problems. Our results were in agreement with those of Abdel-Wahhab *et al.* (2006), who found that 70% of the patients had severe problems, followed by 10% with moderate problems; this can be attributed to the nature of the sample. Both samples were selected from the Kasr Elini Hospital clinic. In the legal problem scale, ∼18% of the patients showed no abnormality, followed by 24% with mild problems, and 22% with moderate problems, and 36% with severe problems. This could be explained by Easton *et al.* (2000) who found that crimes of violence and against property are associated with reduction of adherence to treatment and readiness to change substance use. The family history scale was normal in 20% of the patients, followed by 36% with mild problems, 14% with moderate problems, and 30% with severe problems. This is in agreement with

Mohsen *et al.* (2001), who found that 1% of the patients had mild problems, 38% had moderate problems, 23% had severe problems, and 36% had very severe problems on the family history scale. Our study showed that there were statistically significant differences between the case group and the normal control group on the extraversion scale, with a mean of (11.96 ± 3.09) for the case group compared with (13.48 ± 2.41) for the control group, and this is not in agreement with other studies that have reported higher extraversion scores among substance users (Walton and Roberts, 2004). However, some researchers such as Rankin *et al.* (1982) observed low extraversion in heavy users and, similarly, in terms of the five-factor model of personality, individuals who use intoxicating substances have been characterized by low extraversion. Also, Homayouni (2011) found that addicted individuals scored higher on neuroticism, openness to experience, and external religious orientation, and lower on extroversion, agreeableness, and conscientiousness than normal individuals.

However, Fridberg *et al.* (2011) found the same extraversion among controls and cases; this study was carried out on 62 current cannabis users and 45 healthy drug-naïve controls. This may be attributed to the self-medication theory of addiction, as individuals with a high E-score are sociable and substance users may use substance intake as a kind of self-medication to help them overcome anxiety and to become more extroverted and interactive, enhance relaxation, relieve stress and anxiety, increase alertness, help them cope with daily life, aid mood alteration, seek pleasure, to improve performance, or enhance creativity, and also for social facilitation. Also, our study showed statistically significant differences between the case group and the normal group in terms of the neuroticism scale, with a mean of (15.04 ± 4.69) for the case group compared with (13.14 ± 4.00) for the control group, and this was in agreement with Sher *et al.* (2000), who reported that heavy users appear to score high on measures of neuroticism, and this may indicate the inner hidden anxiety associated with substance drug use. Our study showed that there were statistically significant

differences between the two groups in the sexual subscale RAB; the case group had a mean value of (0.1822 ± 0.387) and the controls had a mean value of (0.001 ± 0.007), with a P value of 0.05. This result was in agreement with the (alcohol/drug model); in this model, the definition was expanded to include individuals who used both alcohol and drugs. An individual under the influence of drugs may have casual sex with unknown partners and may not use a condom, and potentially engage in other risky sexual behaviors (Dew *et al.*, 2007; Marshall *et al.*, 2010). Schafer *et al.* (1994) hypothesized that those under the influence of a substance may have impaired judgment, lower inhibitions, and decreasing sensitivity toward pain during intercourse, which may lead to an infection and sexually transmitted diseases. Our study showed that there was a significant positive correlation between the sexual subscale of RAB and the criminality scale of EPQ, and this is in agreement with Margolis *et al.* (2006), who found that out of 550 participants, men aged 18–29 years, in state prisons in California, Mississippi, Rhode Island, and Wisconsin, 71% had multiple sex partners, 65.1% had sex with a partner they perceived as risky, and 45.3% had engaged in unprotected sex with multiple partners. Our study showed that there was a positive significant correlation between the legal status scale of ASI and the extraversion scale of EPQ, as extraverts are 'sensation seeking' as reported by Zuckerman (1979), who defined the sensation seeking personality trait as follows: 'the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience'. This trait has been related to the proneness to high stimulating activities such as adventure sports, exotic meals, intake of drugs, sex, and illegal activities. There was a significant positive correlation between the severity of a family history of substance intake and the psychoticism scale of EPQ, as individuals who score a high score on psychoticism may be aggressive and antisocial.

This result was in agreement with a study that reported that patients with a family history of substance abuse showed higher antisocial behaviors (Giancola, 2003), and the children of parents with alcohol and other drug use disorders (i.e. high-risk children) have increased rates of antisocial behaviors. Also, drug addiction is strongly linked to a family history of drug abuse, and relatives of drug-dependent individuals have an eight-fold increased risk of developing substance abuse disorders compared with the general population (Merikangas *et al.*, 1998).

Limitations

The results of the present study should be interpreted in light of the following limitations:

First, our sample size was small.

Second, we restricted our sample to a hospital that serves patients belonging to a lower social class, which might not be representative of hospitals serving patients of higher social classes, who might have different profiles.

Third, female patients and those with a comorbid psychiatric diagnosis were not included, who might have a different profile of substance abuse and risky sexual behaviors.

Conclusion

Patients with substance abuse show more risky sexual behaviors than normal controls, which might be because of impaired judgment.

This high risk is not related to the severity of addiction, but to psychoticism and criminal behavior of personality.

Psychoticism and criminal behavior in our patients were related to a family history of substance abuse.

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