

## Substance Abuse in Hospitalized Psychiatric Patients

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**Key words:** substance abuse, hospitalized psychiatric patients, major mental problems, epidemiology

### Abstract

**Background:** The co-morbidity rate of illicit substance abuse and major mental problems in Israel is far from clear.

**Objectives:** To investigate the extent of drug abuse in a sample of psychiatric patients hospitalized in a psychiatric hospital and in the psychiatric department of a general hospital in Israel, to compare demographic and other background factors in dual-diagnosis patients with those of abuse-free mental inpatients, and to examine the time correlation between drug abuse and the appearance of major mental problems.

**Methods:** Our data were derived from self-report and urine tests. The study population comprised 470 consecutively admitted patients – 250 patients in the mental health center and 220 patients in the psychiatric department of the general hospital.

**Results:** The lifetime prevalence of drug abuse was 24%; cannabis abuse was found in 19.7%, opiates in 5.7%, cocaine in 2.7%, amphetamines in 3.4% and methamphetamine in 1.1%. Active abuse of drugs (during the last month) was registered in 17.3%, cannabis in 11.5%, opiates in 4.9%, amphetamine in 3.8%, cocaine in 1.3% and methamphetamine in 1.1%. We also found that 28.2% of active abusers used two or more substances. In 41.6% the drug abuse appeared prior to symptoms of the mental disorder; in 37.1% the duration of the mental disorders and the drug abuse was relatively similar, and in 21.3% of cases the duration of mental problems was longer than the duration of drug abuse. Dual-diagnosis patients were younger than non-abusers, more often male, unmarried, and of western origin.

**Conclusions:** Substance abuse (especially cannabis) among hospitalized psychiatric patients in Israel is a growing problem.

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area about 25% reported some lifetime experience of using illicit drugs, but only 2 patients reported serious abuse. Interestingly, only one female patient reported some substance use in her past. Ten years later, 103 inpatients from the same region were enrolled in a study that included self-report and urine tests for cannabis, amphetamine, methamphetamine, opiates and cocaine [6]. The results of this study indicated a serious increase in co-morbidity rate – about 30% of the mental patients reported lifetime substance abuse and 18% reported abuse during the previous month.

The primary goal of the present study was to investigate the extent of various drug abuse in a large sample of psychiatric patients hospitalized in a psychiatric hospital or in psychiatric departments of a general hospital. We also aimed to compare the groups of patients with a dual diagnosis to the group of mental patients with mental disorders and no drug abuse relative to demographic and other background variants. Another important aim of the investigation was to examine the time correlation between the appearance of mental problems and drug abuse. Our hypothesis was that the rate of drug abuse among hospitalized psychiatric patients had increased sharply in recent years. According to our hypothesis, dual-diagnosed patients are younger and mostly male. In our view, drug abuse usually precedes the appearance of symptoms of mental problems.

### Patients and Methods

The study population comprised 470 consecutively admitted psychiatric patients aged 18–70, recruited between the years 2003 and 2006: 250 in Kfar Shaul Mental Health Center and 220 in the psychiatric department of Sheba Medical Center. The age distribution was as follows: 87 patients (18.5%) were 18–24 years old, 224 (47.7%) were 25–44 years old, and 159 (33.8%) were 45 years and above. There were 165 (35%) female patients and 305 (65%) male patients. About 23% of the patients (n=107) were employed, 8.5% (40 patients) were unemployed, and 4% (20 patients) were students. Approximately 38% (178 patients) received social security due to mental problems, about 12% (56 patients) received social security for non-mental problems, and 15% (69 patients) received financial support from other sources. Among the examined patients, 71 (15.5%) had no previous psychiatric history while 391 (83.2%) were under some psychiatric treatment before the hospitalization. In 6 cases (1.3%) information of previous treatments was lacking. Organic disorders (including mental disorders due to

Drug abuse among psychiatric inpatients is a widely recognized problem although the precise extent of this phenomenon is still unclear. Margolese et al. [1] reported that 44.9% of schizophrenic patients met criteria of lifetime abuse/dependence, while 14% were active abusers. According to Fowler and colleagues [2], the 6 month and lifetime prevalence of substance abuse in outpatient schizophrenics was 26.8% and 59.8% respectively. Cantwell et al. [3] found that among patients with a first psychotic episode, 19.5% used drugs during the year preceding the psychotic episode. In the large-scale CATIE study, of the 1460 participants, 23% used substances and 37% had a substance use disorder [4].

Very few studies of substance abuse in hospitalized patients have been conducted in Israel, in either psychiatric or general hospitals. In 1992 Knobler and team [5] reported a relatively low co-morbidity rate: among 100 inpatients in the Jerusalem

drug abuse) were diagnosed in 33 patients (7.7%); schizophrenia, schizophreniform and schizoaffective disorders were diagnosed in 237 patients (50.4%), affective disorders in 126 (26.8%), anxiety disorders in 48 (10.8%) and personality disorders in 26 (5.4%).

All demographic data were registered in a special inventory. The information on drug abuse was obtained in a non-threatening and supportive atmosphere in order to encourage forthright responses from the patients, and the issue of confidentiality was stressed. Drug abuse was diagnosed according to the criteria of SCID-IV. All patients underwent a clinical psychiatric examination and were diagnosed according to the DSM-IV criteria, which are widely used in clinical research. Urine tests for five drugs (cocaine, opiates, amphetamine, methamphetamine, and cannabis) were performed using the Sure Step™ kits (Applied Biotech, Inc. San Diego, CA, USA).

### Statistical analysis

The chi-square test was used to examine the relationship between the two variables. If the variable had more than two categories, the categories were collapsed into a dichotomous variable.

### Results

Dual-diagnosis patients were younger than non-abusers [Table 1], were more often males (76.9% vs. 62.5%,  $P < 0.05$ ), unmarried (66.7% vs. 44.1%,  $P < 0.001$ ) and of western origin (30.8% vs. 22.6%,  $P < 0.05$ ). No difference was found in employment and/or social status [Table 2].

The lifetime prevalence of drug abuse was 24% (113 cases). Cannabis abuse was reported in 19.7% of the sample (93 patients), opiates in 5.7% (27 patients), cocaine in 2.7% (13 patients), and amphetamine in 3.4% (16 patients). The frequency of abuse in these patients was 2–10 episodes per month in 42

**Table 3.** Abusers vs. non-abusers – psychiatric diagnoses

	Cannabis		Stimulants		Opiates	
	Abusers (N=54)	Non-abusers (N=392)	Abusers (N=29)	Non-abusers (N=392)	Abusers (N=22)	Non-abusers (N=392)
Organic (incl. due to substance abuse)	14 (25.9%)	14 (3.7%)	3 (10.3%)	14 (3.7%)	9 (27.3%)	14 (3.7%)
Schizophrenia, schizoaffective, schizophreniform	27 (50%)	200 (51%)	21 (72.2%)	200 (51%)	7 (31.8%)	200 (51%)
Affective disorders	9 (16.7%)	112 (28.5%)	3 (10.3%)	112 (28.5%)	5 (22.7%)	112 (28.5%)
Anxiety disorders	0	46 (11.7%)	2 (6.9%)	46 (11.7%)	0	46 (11.7%)
Personality disorders	4 (7.4%)	20 (4.5%)	0	20 (4.5%)	1 (4.5%)	20 (4.5%)

patients, more than 10 episodes in 77 patients and unclear in 27 patients. In about half of these patients (53 cases, 46.9%) abuse of two or more substances was reported (out of 5 researched substances).

Active abuse of drugs (during the month prior to hospitalization) was registered according to urine tests and/or self-report in 78 cases (17.3%): cannabis in 54 cases (11.5%), opiates in 22 cases (4.9%), amphetamine in 18 cases (3.8%), cocaine in 6 cases (1.3%) and methamphetamine in 5 cases (1.1%). Twenty-two patients (28.2% of active drug abusers) abused two or more substances. The correlation between self-report and urine test for the researched substances was 58.3%.

With regard to the duration of drug abuse versus duration of mental problems: of 89 dual-diagnosed patients 37 (41.6%) had drug abuse prior to symptoms of the mental disorder; in 33 cases (37.1%) duration of the mental disorders and the drug abuse were almost equal, and only in 19 cases (21.3%) was the duration of mental problems significantly longer than the duration of drug abuse.

### Cannabis abuse

Active cannabis abuse was diagnosed in 54 cases (11.5%). The frequency of drug abuse was 2–10 times per month in 16 of them (29.6%), 10 or more per month in 35 (64.8%) and not clear in 3 cases (5.6%). In 30 patients urine tests were positive for THC. The comparison of the dual-diagnosis group and the non-abusers group for psychiatric diagnosis [Tables 3 and 4] shows the prevalence of schizophrenic patients in the dual-diagnosis group. Interestingly, no co-morbidity with anxiety disorders was diagnosed in the dual-diagnosis group, but it was not statistically significant due to the relatively small number of patients in this group.

### Opiates abuse

Active opiate abuse was diagnosed in 22 cases (4.7%). Twelve of them (55%) were heavy abusers (10 or more times per month), 4 of them (18%) used opiates up to 10 times a month, and for the rest (6 cases – 27%) the frequency was unclear. Seventeen patients (3.7%) tested positive for opiates in the urine. No significant difference in psychiatric diagnosis between the opiate-user group and the non-abusers group was observed [Tables 3 and 4].

**Table 1.** Abusers versus non-users – age

	Abusers (N=78)	Non-users (N=392)	Statistical analysis (df=1)
18–24 yrs	24 (30.8%)	63 (16.1%)	$P < 0.001$
25–44 yrs	41 (52.6%)	183 (46.7%)	NS
45–64 yrs	12 (15.4%)	117 (29.8%)	$P < 0.001$
65–70 yrs	1 (1.2%)	29 (7.4%)	NS

**Table 2.** Abusers versus non-users – working status

	Abusers (N=78)	Non-users (N=392)	Statistical analysis (df=1)
Working	16 (20.5%)	91 (23.2%)	NS
Students (including yeshiva students)	7 (9%)	13 (3.3%)	NS
Unemployed	9 (11.5%)	31 (7.9%)	NS
Social security due to mental problems	25 (32%)	153 (39.1%)	NS
Social security due to other problems	8 (10.3%)	48 (12.2%)	NS
Other	13 (16.7%)	56 (14.3%)	NS

**Table 4.** Abusers versus non-abusers – psychiatric diagnoses (without organic disorders)

	Cannabis		Stimulants		Opiates	
	Abusers (N=40)	Non-abusers N=378	Abusers (N=26)	Non-abusers (N=378)	Abusers (N=13)	Non-abusers (N=378)
Schizophrenia, schizoaffective, schizophreniform	27 (67.5%)	200 (52.9%)*	21 (80.7%)	200 (52.9%)**	7 (53.8%)	200 (52.9%) NS
Affective disorders	9 (22.5%)	112 (29.6%) NS	3 (11.5%)	112 (29.6%)*	5 (38.5%)	112 (29.6%) NS
Anxiety disorders	0	46 (12.2%) NS	2 (7.7%)	46 (12.2%) NS	0	46 (12.2%) NS
Personality disorders	4 (10%)	20 (5.3%) NS	0	20 (5.3%) NS	1 (7.7%)	20 (5.3%) NS

\*  $P < 0.05$  \*\*  $P = 0.001$   $df=1$

### Stimulants abuse

Amphetamine, methamphetamine and cocaine abusers were combined in this group of 31 patients (6.6%): active methamphetamine abuse was diagnosed in 18 cases (3.8%), amphetamine abuse in 5 cases (1%) and cocaine in 8 cases (1.7%). Urine tests were positive for methamphetamine in 7 cases (1.5%), for amphetamine in 3 cases (0.6%) and for cocaine (1.3%) in 6 cases. The frequency of stimulants abuse was found to be relatively low: only 6 patients (19.3%) were diagnosed as heavy abusers; 19 patients abused the stimulants fewer than 10 times per month and in 6 cases the frequency was not clear. In the stimulants abusers group schizophrenia was diagnosed more often than in the non-abusers group; affective disorders prevailed in the non-abusers group [Tables 3 and 4].

### Discussion

Substance abuse among hospitalized psychiatric patients in Israel is a growing problem. The rate of active abuse today is comparable to the rate found in European countries and in the United States [7,8]. The prevalence of lifetime drug abuse in this population appeared to be lower in Israel than in western countries. This reflects the relatively lower rate of co-morbidity in Israel in the past [5]. The dual-diagnosed patients in Israel are younger than non-users and more often male – findings similar to those in other countries [9]. Interestingly, our data did not show any difference between the two groups as regards working and social functioning, a finding that resembles the above mentioned results of the CATIE study [4] where, compared with abstinence, substance use and substance use disorder, unless they involved cocaine use, were generally associated with higher or equal overall psychosocial functioning. As in the recently published French findings [10], a relatively low correlation between self-report and urine analysis was observed in our study, which underlines the necessity of laboratory tests for all patients admitted to psychiatric hospitalization.

Cannabis was the most abused substance in the dual-diagnosed group in our study, as found in results from other countries [11,12]. Most of the dual-diagnosed patients who used cannabis in our sample were heavy users, a finding that is significant for the possible correlation between cannabis abuse and

psychosis [13] and for poor prognosis in schizophrenia [14]. The findings regarding the prevalence of schizophrenic patients in the dual-diagnosis group are congruent to other clinical data [15] and to publications of the involvement of the cannabinoid system in the development of schizophrenia spectrum disorder [16]. The correlation between cannabis abuse and affective disorders is still unclear [17], although some patients claim that cannabis relieves symptoms of mania and/or depression.

The abuse of opiates and stimulants in our sample was lower than in similar groups investigated abroad [18]. The positive correlation between stimulants and schizophrenia, which was found in the dual-diagnosed group in our study, is now discussed worldwide [19]. While the influence of stimulants on the appearance of depressive symptoms is not fully elucidated [20], the correlation between stimulants abuse and bipolarity, including appearance of antidepressant-induced mania, was more thoroughly investigated [21,22]. In our study stimulant abusers were less frequently diagnosed as suffering from affective disorders (this might be due to some self-treatment experiment in depression), although our relatively small number of patients with co-morbid affective disorders and stimulant abuse does not allow us to reach any foregone conclusions.

The relatively low co-morbidity rate of opiate and psychotic states in our study does not differ substantially from data of other samples. The Swedish study of Dalmau and co-authors [23] reported less than 6% of such co-morbidity, but interestingly, the co-morbidity rate for mixed opiate abusers increased significantly when alcohol abuse was also present.

Our study had several limitations. The differential diagnosis of mental disorders due to substance abuse and mental disorders with co-morbid substance abuse remains a challenging issue. Therefore, in some cases (especially in first episodes), subsequent follow-up may necessitate a change in the final diagnosis. In our study, the data concerning the temporal correlation between appearance of substance abuse and mental problems were obtained mainly from self-report and medical files. An obvious limitation is rooted in the difficulties of obtaining objective retrospective information. This underlines the need for large-scale prospective epidemiological studies of co-morbidity of diverse substances (including alcohol) and major mental disorders.

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