Comorbidity of Substance Abuse and Other Psychiatric Disorders in Acute General Psychiatric Admissions: A Study From Lebanon

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This is the first published study from an Arab Near Eastern country to examine the comorbidity of substance abuse with other psychiatric disorders. All inpatients with substance abuse/dependence (present or past) admitted to the psychiatry unit at St. George Hospital (Lebanon) between 1979 and 1992 (N = 222) constituted the study sample. Of these, 64.9% were found to have comorbid psychiatric disorders with specific relations between individual substances and psychiatric diagnoses identified such as cocaine and bipolar disorder (42.1%), and cannabis and schizophrenia (44.8%). Patients with no axis I disorder were predominantly heroin users, most of them having antisocial personality disorder. Polydrug abuse was found among 44.9% of patients, and most of the benzodiazepine abusers belonged to this category. The pattern of comorbidity of psychiatric and substance use disorders in this Near East inpatient population compares well with findings from the Western hemisphere: cultural factors (including war) do not seem to have much of an effect on the different forms of dual diagnoses. This adds weight to the already existing literature on the need for careful psychiatric assessment in the treatment of substance abuse.
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IT HAS BEEN estimated that almost half of psychiatric patients have a history of substance abuse.[1,2] Psychiatric-addictive comorbidity is reported to be associated with more diagnostic, prognostic, and therapeutic difficulties.[3,4] These difficulties are thought to be at least in part due to the presence of two disorders in the absence of a "simple univariate relationship between substance abuse and other psychiatric disorders."[5] Psychiatric disorders can serve as a risk factor for addictive disorders and modify the course of addictive disorders or, conversely, psychiatric symptoms develop during the course of an addictive disorder. Still in some cases, psychiatric pathology and substance abuse may originate from a common vulnerability.[6]

Several studies have sought to increase the understanding of the psychiatric-addictive comorbidity with a wide range of target populations and settings. Despite the differences in reported prevalence rates and the inherent complexity in isolating and controlling for psychiatric and substance abuse entities, most studies have repeatedly confirmed the comorbidity of substance abuse and psychiatric illness in both clinical and general populations.[1,7-13]

A relatively new trend in the study of psychiatric addictive comorbidity is to compare psychiatric patients with substance abuse disorder but no other psychiatric disorders, to those patients with both psychiatric and substance abuse disorders.[9,14] Such a comparative approach may be helpful in the classification, treatment, and elucidation of the etiology of substance abuse.[9,14]

Specific comorbidity relationships between different categories of psychiatric disorders and different types of substances abused have been described in the literature. The epidemiology of substance abuse in schizophrenic patients has always been found to include alcohol, cannabis, cocaine, and other illicit drugs.[15] Polydrug abuse was found to be the rule rather than the exception.[15,16] Cannabis use has been claimed to have a causative role in the development of schizophrenic illness, whereas other researchers are in favor of the self-medication postulate in schizophrenic symptomatology.[17-19] Cocaine abuse has been found to be associated with unipolar and bipolar mood disorders.[20-22] A history of alcohol dependence was found in 24% of panic disorder patients[23] and higher rates of alcohol dependence were associated with social phobia–major depression comorbidity and a childhood history of anxiety disorders. Fi-

nally, personality disorders have been well documented in substance-abusing patients.[24-27]

The purpose of the current study was to examine the comorbidity of substance abuse and psychiatric disorders in a transcultural setting, i.e., Lebanon. The period of the study, 1979 to 1992, corresponded thoroughly to the duration of the Lebanon Wars (1975 to 1990). At the height of the Lebanon wars, drugs (illicit substances) were widely available in the Lebanese market with the absence of control over their sale or consumption. Additionally, medicines could be purchased readily from pharmacies without prescription from a physician. At the time of this writing, there were no similar published reports in the Near East Arab country and thus making this study the first from the region to report on dual diagnosis.[28]

The scope of this report is beyond the study of war and its relation to substance use (or other psychiatric disorders); this was studied extensively by our group and can be found elsewhere.[29-39]

METHOD

Setting

The Psychiatry and Psychology Inpatient Unit, founded in 1979, is a 22-bed unit that admits patients with various psychiatric disorders, including substance use. It is an independent, locked-door unit and is part of a larger general medical hospital (St. Georges, Beirut, Lebanon).

The average length of inpatient stay in this unit during the period under study was 11 days (in 2001 it had reached 7 days). All beds are self-paying except for two covered by the Lebanese Ministry of Health and the Ministry of Labor. Patients are admitted through self-referral or brought in by family members but never by the legal system. Patients are admitted from the outpatient clinics or through the emergency room department. The unit draws patients from all areas of Lebanon and to some extent from the Middle East.

The unit is staffed by American Board Certified Psychiatrists. In addition, clinical psychologists are an essential part of the treatment team and help in both diagnosis and treatment of patients on a regular basis.

Chart Review

After the approval of the research committee on human subjects of St George Hospital, all 1,961 admissions registered in the unit from 1979 to 1992 were reviewed. Only 1,643 charts were available (the others were lost to fire during the war). Of these, 222 subjects were identified to fit the criterion for inclusion in this study, mainly, a documented history of present/past history of substance abuse/dependence, constituting 13.5% of available records. All charts were reviewed by a senior clinical psychologist (P.Y.) in charge of the inpatient unit. Axis I and II disorders were made according to DSM-III-R.[40]

Patients with both axis I psychiatric pathology and substance abuse/dependence histories will be referred to here as comorbid (COM), while those with a history of substance abuse/dependence in the absence of present and past histories of other axis I psychiatric disorders are referred to as pure substance abusers (PSA).

SPSS/PC was used for statistical analysis. Categorical data were analyzed using chi-square analysis, whereas continuous data were analyzed using t tests. Fisher's exact test was used instead of chi-square test in case of small expected frequencies. A significance level of 5% was used ($P \leq .05$).

RESULTS

The male-to-female ratio in this sample was 2:1 and the mean age was 34.5 ± 11.8 years with no difference in age between males and females. Of the 222 inpatients with present or past history of substance abuse, 144 (64.9%) were found to have present or past psychiatric histories (COM) and 78 (35.1%) to have a history of substance abuse with no past or present comorbid psychiatric history (PSA). COM were more likely to be female (82.4% females v 57.1% males), whereas PSA were more likely to be male (17.6% females v 42.9% males) ($P = .00029$). No difference in age or marital status was found between the COM and PSA groups.

The mean age of onset of abuse of all inpatients in the sample was 25.9 ± 10.5 years and the mean duration of abuse was 8.1 ± 8.5 years. Males were found to have a longer history of abuse (8.8 ± 9.3 v 6.5 ± 6.0 years for females; $t = 1.9$, $P = .059$) and an earlier age of onset (24.7 ± 9.7 years v 28.9 ± 11.8 years, respectively, $t = -2.4$, $P = .019$). This gender difference held true only among the COM group (25.7 ± 10.2 years for males v 30.2 ± 12.3 years for females; $t = -2.1$, $P = .041$). There was no difference in duration of abuse between COM and PSA groups; however, PSA subjects had a significantly earlier mean age of onset of substance abuse than COM. No statistically significant difference was found in the number of previous detoxifications between males and females or between COM and PSA groups (results available on request).

Abused substances were divided into three groups: licit (tranquilizers, barbiturates, medicinal opiate derivatives, stimulants), illicit (cannabis, cocaine, heroin), and alcohol. Alcohol was found to be the most commonly ever abused substance. Illicit substances ranked next and the rates of abuse of licit substances ranged from 18.9% for tranquilizers to 4.5% for stimulants (Table 1). Female

Table 1. Lifetime Prevalence of Abused Substances and Sex

	Males (n = 154)		Females (n = 68)		Total (N = 222)		χ^2	P Value
	N	%	N	%	N	%		
Illicit								
Cannabis	44	28.6	8	11.8	52	23.4	7.4	.0064
Cocaine	42	27.3	5	7.4	47	21.2	11.2	.0008
Heroin	45	29.2	7	10.3	52	23.4	9.4	.0022
Alcohol	86	55.8	24	35.3	110	49.5	7.9	.0048
Licit								
Tranquilizers	21	13.6	21	30.9	42	18.9	9.2	.0025
Barbiturates	5	3.2	21	30.9	26	11.7	34.8	.0000
Stimulants	4	2.6	6	8.8	10	4.5	4.3	.0000*
Medicinal opiate derivatives	13	8.4	9	13.2	22	9.9	1.2	.2705

*Fisher's exact test.

subjects were significantly more likely to have ever abused licit substances (tranquilizers, barbiturates, stimulants) than males, who in turn were more likely to have ever abused at least one illicit substance and/or alcohol.

A total of 60.1% of the COM group had a present (but no past) psychiatric diagnoses, 37.8% had both a present and past psychiatric diagnoses, and 2.1% had only a past psychiatric history. Depression was found to be the most prevalent diagnosis (77.1%, n = 111), bipolar disorder came next (13.9%, n = 20), followed by anxiety disorders (13.2%, n = 19) and schizophrenia (12.5%, n = 18). We then looked at possible relations between different psychiatric disorders and types of abused substances (Table 2). Patients with more than one

psychiatric diagnosis were classified into a diagnostic category according to their primary (chronological) diagnosis. The rate of abuse of tranquilizers was the highest in patients with anxiety disorders (36.8%); abuse of barbiturates was the highest in depression (19.3%); cannabis was the highest in patients with schizophrenia (44.8%) and cocaine in bipolar (42.1%), whereas the rate of heroin abuse was the highest in pure substance abusers PSA (50%). Alcohol was found to be almost equally prevalent among the different diagnostic categories.

The diagnosis of a personality disorder was documented only in 48.2% of the cases (most frequent to be documented, in this naturalistic study, is antisocial personality disorder [APD] and obses-

Table 2. Lifetime Diagnoses and Lifetime Abused Substances (COM v PSA)

	PSA (n = 78)		COM Depression (n = 88)		COM Anxiety* (n = 19)		COM Bipolar (n = 19)		COM Schizophrenia† (n = 18)		Total (N = 144)	
	N	%	N	%	N	%	N	%	N	%	N	%
Alcohol	31	39.7	49	55.7	13	68.4	9	47.4	8	44.4	79	54.9
Licit												
Tranquilizers[a]	9	11.5	22	25.0	7	36.8	4	21.1	0	0.0	33	22.9
Barbiturates[b]	5	6.4	17	19.3	3	15.8	1	5.3	0	0.0	21	14.6
Stimulants	3	3.8	4	4.5	1	5.3	1	5.3	1	5.6	7	4.9
Medicinal opiate derivatives	8	10.3	9	10.2	1	5.3	3	15.8	1	5.6	14	9.7
Illicit												
Cannabis[c]	22	28.2	15	17.0	1	5.3	6	31.6	8	44.8	30	20.8
Cocaine[d]	23	29.5	10	11.4	1	5.3	8	42.1	5	27.8	24	16.7
Heroin[e]	39	50.0	8	9.1	1	5.3	2	10.5	2	11.1	13	9.0

[a] $\chi^2 = 13.1$, $P = .0107$; [b] $\chi^2 = 10.5$, $P = .0328$; [c] $\chi^2 = 11.6$, $P = .0204$, [d] $\chi^2 = 16.7$, $P = .0023$, [e] $\chi^2 = 47.6$, $P = .0000$.

*Includes panic disorder, agoraphobia, obsessive-compulsive disorder, post-traumatic stress disorder, and generalized anxiety disorder.

†Includes schizoaffective illness.

sive-compulsive personality disorder [OPD]). COM patients were more likely to receive the diagnosis of OPD compared to PSA patients (18.1% v 2.6%; $\chi^2 = 11.0$, $P = .0009$). Patients diagnosed as OPD showed a preference for licit substances, whereas those with APD were more likely to abuse illicit substances.

Polydrug abuse (including alcohol) was found in 44.9% of the total sample. This did not differ by gender or between COM and PSA. Polydrug abusers started their abuse at an earlier age: 23.4 ± 9.2 years versus 28.4 ± 11.0 years for monodrug abusers ($t = 3.1$, $P = .002$), but this association between polydrug abuse and earlier age of onset held true only in males (21.4 ± 7.3 years v 27.6 ± 10.6 years, $t = 3.6$, $P = .000$). Polydrug abusers were significantly more likely to use tranquilizers (38.1% v 4.2% in monodrug users, $P = .0000$), and all three types of illicit drugs (cannabis: 47.4% v 5.0% in monodrug users, $P = .0000$, cocaine: 45.4% v 2.5% in monodrug users, $P = .0000$; heroin: 37.1% v 13.4% in monodrug users, $P = .0001$). A total of 38.1% of the polydrug abusers had received the diagnosis of APD compared to 16.0% of monodrug abusers ($\chi^2 = 13.7$, $P = .0002$).

DISCUSSION

The results of this study showed that 64.9% of our sample of Lebanese inpatients admitted with a present or past history of substance abuse were found to have present or past history of psychiatric illness. There is variability in the prevalence rates of comorbidity of psychiatric and substance abuse disorders across the reviewed studies on the subject. This could be attributed to the difference in the methodology used, the population studied, and the perspective of the researcher, i.e., studying the comorbidity of substance abuse disorders in psychiatric populations or the comorbidity of psychiatric illness in substance abusing populations.[1,2] The prevalence rates of addictive disorders in psychiatric populations is found to range from 18% to 80%, whereas estimates of the prevalence of psychiatric disorders in substance-abusing populations have ranged up to nearly 80%.[41]

Unlike other studies, this study is a naturalistic one relying on data collected over a long period of time and thus providing a more comprehensive picture. Changes in the rate of comorbidity over time have not been documented in the literature.

The Lebanon Wars were at their height for most part of the study period. Throughout this period, both licit and illicit substances were easily available in the Lebanese market and would have been a possible outlet for the pain and suffering associated with psychiatric illness that increased during the Lebanon Wars.[39] It would have been interesting to measure the exposure of the individual patients to the Lebanon Wars,[32] but in view of the retrospective nature of this study, this was impossible.

The diagnoses of substance abuse and psychiatric disorders were clinical diagnoses, based on information from repeated interviews with the patients and family members, from direct observations and following the DSM-III-R criteria. No structured interviews were used. These diagnoses might not have been uniform over this period because of changes in diagnostic criteria.

Another limitation of this study is its retrospective design that could produce an overestimated rate of comorbidity. Many psychiatric disorders such as anxiety and affective disorders in substance-abusing populations are secondary to drug or alcohol problem and these were found by prospective studies to decrease and resolve following detoxification.[1] The stability of the present disorder and cause-effect relationships can be more clearly investigated in the prospective design.

Males in this study were more likely to be PSA and females to be COM. Males, PSA, and polydrug abusers were found more likely to have an earlier age of onset of abuse than females, COM, and monodrug users, respectively. This is in concordance with the international literature.[9,42]

Alcohol was found to be the most commonly abused substance, with almost half of the total sample having abused it, followed by illicit and lastly licit substances. The high prevalence of alcohol abuse/dependence in our sample is similar to other research on adult populations.[7,10,13] This finding is highly expected since alcohol remains the most available and easily accessible substance.

Clear psychiatric/addictive comorbidity relationships were found in our sample. The results of this study give support to the increased comorbidity of cocaine abuse and bipolar illness,[20-22] as well as the increased comorbidity of schizophrenia and cannabis[15,17-19] reported previously in the literature. Depression in our study was found to have the highest prevalence (77.1%) among the group of

COM patients and it has been reported by a cross-national collaborative study (including our group in Lebanon) to be increasing in consecutively younger cohorts.[39] No specific comorbidity relationship was found between alcohol and other psychiatric diagnoses, unlike what has been reported about the comorbidity of alcohol and anxiety disorders.[2,21,43,44]

The prevalence rate of personality disorders of 48.2% in our sample is comparable to that (57%) reported by others in a sample of substance abusing inpatients (26). The prevalence of APD found in our sample (26.1%) is similar to that found by others,[24] adding weight to the general finding that APD is the most common personality disorder diagnosis found in substance abusers. The association between APD and the use of illicit drugs has been also documented by other studies.[24-27]

The prevalence rate of polydrug abuse (44.9%) in our sample compares well to the 50% reported by Toner et al.,[11] to the 34% of Kalsa et al.[9] for their group of PSA only (and 50% for the dually diagnosed), and to the 46.2% prevalence rate reported by Chen et al.[8] Polydrug abuse did not emerge as a differentiating parameter between COM and PSA groups. However, polydrug abusers were found more likely to receive the diagnosis of APD and most commonly abused tranquilizers, cocaine, cannabis, and heroin.[8]

Conclusion

In the present study of psychiatric-addictive comorbidity, from a Near Eastern country (Lebanon), results were similar to those in other Western published studies, pointing to the probable generalizability of the findings on the relation of substance abuse to psychiatric disorders, which indicates the relatively limited effect of cultural variables (including war) on the expression of dual diagnosis.

Cross-cultural studies repeatedly point out to the need of international collaborative work, thus probably helping in narrowing down the many possibilities in interpretation of comparable results.

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