Substance Use Among Patients with Schizophrenia in a University Hospital

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ABSTRACT:

Substance use among patients with schizophrenia in a university hospital

Objective: Individuals with schizoprenia are known to be at increased risk for comorbid substance use disorders compared to the general population. The aim of the study was to identify the prevalence of substance use and abuse among a group of patients with schizophrenia.
Methods: Forty-nine schizophrenic patients were assessed with Structured Clinical Interview for DSM IV Axis I Disorders (SCID-I) for schizophrenia and substance use disorders. Demographic and clinical characteristics were investigated in a semistructured interview. The Positive and Negative Syndrome Scale (PANSS), Clinical Global Impression Scale (CGI), Hamilton Depression Scale (HAMD) were used to evaluate the psychiatric symptomatology, and Extrapyramidal Symptom Rating Scale (ESRS) for extrapyramidal side effects. Fagerström Nicotine Tolerance Questionnaire was used for the severity of nicotine dependence. The CAGE Questionnaire and Alcohol Use Disorders Identification Test (AUDIT) were used for screening alcohol related problems.
Results: The prevalence of current cigarette smoking was 69.4%. The prevalence of current alcohol use was 44.9%, 8.2% were considered to be alcohol abusers. Only one patient (2%) diagnosed as cannabis abuse. Demographic and clinical characteristics were not found to be significantly associated with cigarette and alcohol use. While the prevalence of cigarette smoking in patients with schizophrenia was high, the prevalence of alcohol and cannabis use was low compared to other countries.
Conclusion: We conclude that the high level of family support and/or a low prevalence of alcohol and substance use among general population together with non-availability of illicit substances may account for these findings.

Key words: cigarette smoking, alcohol use, substance use disorder, schizophrenia

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INTRODUCTION

Substance abuse among schizophrenic patients is a growing clinical concern. Individuals with severe mental disorders such as schizophrenia are at increased risk for comorbid substance use disorders compared to the general population (1-3). Lifetime rates of any substance abuse in schizophrenia or schizoaffective disorder have tended to range between 40 and 60% (4). The high rate of substance use disorders and its effects on the course of the psychiatric illness have made the identification and treatment of these individuals a high priority (5).

Alcohol dependence, cigarette smoking and psychostimulant misuse are the three most frequently reported addictions in schizophrenia (6). Studies show that 45% to 60% of current and former psychotic inpatients use alcohol primarily for its euphoric, antidepressant, or relaxing effects (7). The relationship between smoking and schizophrenia is complex, and the smoking may attenuate ill effects or antipsychotic effects. Patients with schizophrenia who smoke have demonstrated improvement in negative symptoms. It is also suggested that nicotine improves the processing of auditory data in schizophrenic patients. Cocaine may reduce both positive and negative symptoms of

schizophrenia and is often taken by psychiatric patients to relieve feelings of depression.

Patients with schizophrenia with a history of substance abuse have been found to have an earlier onset of the disorder, better premorbid adjustment and more florid symptoms (7). Comorbid substance use disorders are associated with a wide range of negative outcomes in this population, such as increased rates of relapse and rehospitalization, homelessness, legal problems, violence, treatment incompliance, HIV infection and family stress (6,7). While the substance use/abuse is clearly an important issue in schizophrenia, relatively few studies have been conducted out of North America and Europe, and information from developing countries is lacking. The objective of the present study was to identify the prevalence of substance use and abuse including nicotine, alcohol, prescription and illicit drugs among a group of patients with schizophrenia in a university hospital in Turkey.

METHODS

Patient population

The study included 49 consecutive patients (26 males, 23 females) accepting to participate with DSM-IV (8) diagnosis of schizophrenia who underwent clinical evaluation in either the outpatient or inpatient facilities of Department of Psychiatry, Dokuz Eylul University Medical School. The mean age of the patients was 39.3 years (SD=11.9), mean age at onset of illness was 23.5 years (SD=10.1), mean age at first contact with treatment was 24.5 years (SD=8.1) and mean duration of illness was 16.0 years (SD=10.5). The mean number of previous hospitalizations was 2.9 (SD=2.6). Majority of patients (71.4%) were currently on atypical antipsycotics. More than half of the patients (59.2%) were never married and living with parents; 16.3% were married and 24.5% were divorced or widowed. Only 3 patients (6.1%) were living alone. Overall, patients had a mean of 11.7 years (SD=4.21) of education. The rate of employment sometime during the last year was 29.2%. The subjects were given a complete description of the study after which informed consent was obtained.

Assessments

A semistructured interview, screening information on patient's sociodemographic characteristics including age, gender, marital status, education and psychiatric history such as the age at onset of disorder, number of previous hospitalizations, and lifetime and current substance use was performed. In our study the term 'substance' refers to nicotine, alcohol, prescription drugs (opiods, benzodiazepines, anticholinergics, and barbiturates), inhalants and illicit drugs (heroin, cocaine, cannabis, amphetamines, LSD).

The Structured Clinical Interview for DSM IV Axis I Disorders (SCID-I) (9, 10) was used to assess schizophrenia and substance use disorders. The Positive and Negative Syndrome Scale (PANSS) (11,12), Clinical Global Impression Scale (CGI) (13), Hamilton Depression Scale (HAMD) (14,15) were used to evaluate psychiatric symptomatology. The extrapyramidal effects of medication were assessed by Extrapyramidal Symptom Rating Scale (ESRS) (16). Fagerström Nicotine Tolerance Questionnaire (17) was used to measure the severity of nicotine dependence. The CAGE (acronym for cut down, annoyed, guilty, eye-opener) Questionnaire (18) and Alcohol Use Disorders Identification Test (AUDIT) (19) were used to screen alcohol related problems. CAGE is a short test with four questions: (1) "Have you ever felt you ought to cut down on your drinking," (2) Have people annoyed you by criticizing your drinking," (3) Have you ever felt bad or guilty about your drinking," (4) "Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hang over?" One or two positive answers are taken as the cut-off point for the presence of alcohol related problems. The AUDIT is a screening test consisting of 10 questions with cut-off points 8 or 9. It incorporates questions about drinking quantity, frequency, and binge behavior, along with questions about consequences of drinking. Unlike the CAGE, it assesses alcohol use and problems over the last 12-month period. In order to increase the reliability of information, participants were assessed when they were mentally stable, and all the self-report inventories were treated as interviews to rule out invalid responses due to poor reading skills. The information on clinical characteristics and the history

of substance use was confirmed by a family member.

Analysis

The data analysis was performed using SPSS for Windows (10.0). In order to examine the correlates of substance use, smokers and nonsmokers (former smokers and those who had never smoked), and the alcohol users and non users were compared on demographic and clinical variables with Mann-Whitney U test. The differences in proportions were compared by using the chi-square test. The mean and standard deviations of the variables were presented.

RESULTS

The prevalence of current cigarette smoking was 69.4% (16 females, 18 males), 16.3% had never smoked and 14.3 % had a history of smoking (Table 1). There was a statistical trend of smoking patients to have a greater number of previous hospitalizations (mean number of hospitalizations= 3.4, SD= 2.8) compared to nonsmokers (mean number of hospitalizations= 1.8, SD= 1.7) (z=-1.8, p=0.07) (Table 2). Table 2 shows the mean PANNS, CGI, ESRS and HAMD scores for smoker and nonsmokers. The two groups did not differ significantly on any demographic and clinical variables including age, sex, age at onset of illness, number of hospitalizations, scores on PANNS, CGI, ESRS and HAMD. The mean number of cigarettes smoked daily was 16 (SD=11). Twenty six percent of smokers consumed 25 or more cigarettes per day. Nearly half of the current smokers (48.5%) were severely nicotine dependent

Table 1. Cigarette smoking, alcohol use and substance abuse in patients with schizophrenia (n=49)

	n	%
Cigarette smoking		
never smoked	8	16.3
quit smoking	7	14.3
infrequent smoker	8	16.3
regular smoker	26	53.1
Alcohol		
never drink	18	36.7
prior drinker	9	8.4
infrequent drinker	18	36.7
regular drinker	4	8.2
Frequency of drinking		
1-3 times/wk	6	27.3*
once or less/mo	16	72.7
CAGE (score)		
1	5	10.2
3	1	2.0
AUDIT (score)		
< 8	15	36.7
≥ 8	4	8.1
Alcohol abuse (SCID)	2	4.08
Alcohol dependence	2	4.08
Cannabis abuse	1	2.04

*n=22

Table 2. Patients' age and illness history and clinical assessments-differences between groups according to smoking status

Measures	Smokers (n=34) %	Nonsmokers (n=15) %	c^2	p*
Gender				
male	52.9	53.3	0.01	0.98
female	47.1	46.7		
Marital status				
single	85.3	80.0	4.62	0.2
married	14.7	20.0		
	Mean ± SD	**Mean ± SD**	**z**	**p****
Age	40.62 ± 12.58	36.47 ± 10.86	-1.69	0.09
Age at onset	21.93 ± 12.58	24.20 ± 8.98	-1.08	0.27
Hospital admissions	3.41 ± 2.81	1.86 ± 1.76	-1.8	0.07
PANNS total	73.32 ± 20.17	70.00 ± 24.63	0.75	0.45
PANNS positive	14.08 ± 5.96	13.33 ± 5.75	-0.42	0.67
PANNS negative	20.05 ± 6.67	19.0 ± 8.32	-0.60	0.55
PANNS general	38.94 ± 10.50	37.33 ± 11.96	-0.60	
ESRS	15.40 ± 2.69	17.81 ± 4.90	-1.74	0.08
CGI	3.67 ± 1.03	3.46 ± 1.30	-0.68	0.50
HAMD	12.11 ± 6.60	9.46 ± 5.50	-1.26	0.20

*: chi-square test, **: Mann Whitney U test, SD: standard deviation

Table 3. Demographic and clinical characteristics of alcohol user and non-user schizophrenic patients.

	Alcohol user (n=22) %	Non-user (n=27) %	c^2	p*
Gender				
male	59.1	48.1	0.58	0.44
female	40.9	51.9		
Marital status				
single	53.7	46.3	3.30	0.34
married	46.3	53.7		
	Mean ± SD	**Mean ± SD**	**z**	**p****
Age	36.7 ± 9.2	41.4 ± 13.5		
Age at onset	21.9 ± 9.7	24.7 ± 10.5	-1.10	0.26
Hospital admissions	2.9 ± 2.7	2.9 ± 2.5	-0.24	0.80
PANNS Total score	72.0 ±19.5	72.5 ±23.1	-0.27	0.78
PANSS Positive	14.5 ± 6.4	13.2 ± 5.3	-0.70	0.48
PANSS Negative	19.5 ± 6.6	19.9 ± 7.6	-0.06	0.95
PANSS General	38.0 ± 9.7	39.1± 12.8	-0.11	0.91
CGI	3.5 ±1.1	3.6 ± 1.1	-0.03	0.97
ESRS	16.4 ± 3.7	17.5 ± 4.9	-0.72	0.47
HAMD	11.6 ± 3.7	11.0 ± 6.0	-0.38	0.70
Fagerström Nicotine Tolerance Test	5.1 ± 3.7	3.9 ± 4.3	-1.0	0.31

*: chi-square test, **: Mann Whitney U test, SD: standard deviation

according to Fagerström Nicotine Tolerance Questionnaire.

Lifetime prevalence of alcohol use was 63.3% (69.2% for males and 56.5% for females). Twenty two patients (44.9%) were current alcohol users. Of these, 27.3% have used alcohol one to three times a week with 72.7% have drunk once a month or less frequently. Demographic and clinical characteristics of alcohol users and non users were described in Table 3. There was no statistical difference between these groups for age, gender, marital status, number of previous hospitalizations, PANNS total and sub-scores, CGI, ESRS, HAMD and Fagerström Nicotine Tolerance Questionnaire scores. Six patients had one or more positive response on CAGE. Four patients had eight or more scores on AUDIT. Two patients were diagnosed with alcohol abuse and two patients with alcohol dependence by SCID I.

Two patients used cannabis (4%) and one of which was currently using cannabis met the criteria for substance abuse (2%).

DISCUSSION

The current rate of cigarette smoking in our patients (69.4%) was consistent with studies conducted in the Western countries that reported high rates of cigarette smoking as between 58%-88% (20-23), but higher than other studies in Turkey which have reported the prevalence to be 50.0% (24), 54.2% (25) and 57.5% (26). However, the number of cigarettes smoked daily in our study was lower than the latter two studies (16 vs. 27 and 32 cigarettes per day respectively). This lower consumption may be related to the high rate of prescription of atypical antipsychotics which lead to less extrapyramidal side effects (7,27-29) in our sample.

Our results failed to confirm the previous findings that smokers are often young and male, but our results seemed to support the notion that smoking is associated with a more severe illness process (21,23) as the smokers had an earlier onset of illness and increased number of hospitalizations. The prevalence of smoking in our sample was consistent with the finding that the rate of smoking in patients with schizophrenia is higher than the general population (20,23) which reported to be between 30-60% in Turkey (30,31). Nicotine dependence in patients with schizophrenia has been understudied and undertreated in Turkey. It is well established that smoking can influence the efficacy of treatment (32). As nearly half of the smokers were severely addicted to nicotine, attempts to reduce their exposure to this serious health risk, advice to stop smoking, and help to

manage nicotine abstinence deserve our attention. Pharmacological and psychological support with smoking cessation needs to be addressed.

Prevalence of alcohol abuse and/or dependence in our sample (8.1%) was lower than reported lifetime rates of 12.3% up to 50% (33). However; our results were higher than Uzun et al's study which reported lifetime alcohol abuse as 2.6% (24). Lifetime prevalence of alcohol use (63.3%) and abuse/dependence in our study were higher than the general population rates in Turkey which were reported to be 33.5% for alcohol use, 6.8% for alcohol abuse (34) and 0.8% for alcohol dependence (35).

Alcohol and illicit substance use among Turkish population is low compared to developed countries which might be due to Islamic traditions and cultural norms. Although the sample size was small to generalize our findings, our low prevalence on both alcohol (63.3%) and illicit substance use (4%) seemed to support the views that the environment (exposure and access) is probably a critical determinant of who abuses which drugs (5,33,36). In case of cigarette and alcohol use; availability, affordability, easy access, and more flexible social attitudes towards these substances in our country may be facilitating their use despite the neurobiological basis (37) for comorbidity. Deinstitutionalization and social programs that have provided money to disabled people with schizophrenia have been implicated in the genesis of the high rates of substance use disorders in schizophrenia (38). Without the protection of an institutional living environment and social networks, access to alcohol and drugs increases (2,39). It is now well established that there is a need to engage patients and carers in treatment programs (40). Dually diagnosed patients 'without carer contact' were found to have had more days in hospital during their last admission and a greater number of previous admissions than their 'with carer contact' counterparts that may be indicative of the important role played by a carer (41). There are not social programs akin to the U.S. version of social security in Turkey so that patients have less money to spend on illicit substances. Most of our patients were living with and supported financially by their parents. Close family ties are important in Turkish life which provide the patient family support and an organized life, which in turn may result in better compliance with the treatment and good outcome (42). The supervised living environment and close family ties may be protective factors against using substances together with nonavailability.

Salyers and Mueser (43) pointed out that substance abuse is associated with better social and leisure functioning, and fewer negative symptoms. On the other hand, patients with more severe negative symptoms and social isolation may lack the exposure to illicit substances or the social skills to obtain them regularly (5). Patients with schizoprenia in our country are more dependent to their families and because of stigmatization they may have less social contacts so that they are less likely to be exposed to substances through their social contacts. Being aware of that treated patients are only a part of schizophrenics and the small size of our sample, we conclude that the results of this study confirm that the availability of substances, cultural context and social networks have an impact on the prevalence of substance use and abuse.

Since this study provides confirmation for increased risk for nicotine and alcohol use among patients with schizophrenia, regular screening must be included in the evaluation algoritm of the patients with schizophrenia.

References:

1. Regier DA, Farmer ME, Rae DS, Locke BZ, Keith JS, Judd LL, Goodwinn FK. Comorbidity of mental disorders with alcohol and other drug abuse: results from the epidemiologic catchment area (ECA) study. JAMA 1990; 164: 251-258

2. Mueser KT, Drake RE, Wallach MA. Dual Diagnosis: a review of etiological theories. Addict Behav 1998; 23: 717-734

3. Verma SK, Mythily S, Chong S, Kua EH. Substance abuse in schizophrenia: A Singapore perspective. Soc Psychiatry Psychiatr Epidemiol 2002; 37: 326-328

4. Cantor-Graae E, Nordström LG, McNeil TF. Substance abuse in schizophrenia: a review of the literature and a study of corralates in Sweden. Schizophr Res 2001; 48: 69-82

5. Mueser KM, Yarnold PR, Rosenberg SD, Sweet C, Miles K M, Hill D. Substance use disorder in hospitalized severely mentally ill psychiatric patients: prevalence, correlates and subgroups. Schizophr Bull 2000; 26: 179-192

6. Batel P. Addiction and schizophrenia. Eur Psychiatry 2000; 15: 115-22

7. Buckley P, Thompson P, Way L, Meltzer HY. Substance abuse among patients with treatment-resistant schizophrenia: characteristics and implications for clozapine therapy. Am J Psychiatry 1994; 151: 385-389

8. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM IV). American Psychiatric Association, Washington DC, 1994

9. First MB, Spitzer RL, Gibbon M, Williams JBW. Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Clinical Version. Washington D.C, American Psychiatric Press, 1997

10. Özkürkçügil A, Aydemir Ö, Yıldız M, Esen A, Köroğlu E. The reliability of Turkish version of Structural Clinical Interview for DSM-IV Axis I Disorders, The Journal of Drug and Treatment 1999; 12: 233-236 (in Turkish)

11. Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophrenia Bull 1987; 13: 261-276

12. Kostakoğlu AE, Batur S, Tiryaki A. The validity and reliability of the Turkish version of the positive and negative symptom scale (PANSS). Turkish J Psychology 1999; 14: 23-32

13. Guy W. ECDEU Assessment manual for psychopharmacology, CDHEW No: 76-333, US Department of Health, Education and Welfare, Rockville, MD: 1976: 217-222

14. Hamilton M. A rating scale for depression. J Neurol Neurosurg Psychiatr 1960; 23: 56-62

15. Aydemir Ö, Güvenir T, Küey L, Kültür S. The validity, reliability, and clinical use of Turkish version of Hamilton depression rating scale. Journal of Psychiatry Psychology Psychofarmacology 1996; 4: 251-259 (in Turkish)

16. Chouinard G, Ross-Chouinard A, Annable L. Extrapyramidal symptom rating scale. Can J Neurol Sci 1980; 7: 233

17. Fagerström KO, Schneider NG. Measuring nicotine dependence: a review of the Fagerström nicotine tolerance questionnaire. J Behav Med 1989; 12: 159-182

18. Ewing JA. Detecting alcoholism: the CAGE questionnaire. JAMA 1984; 252: 1905-1907

19. Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the alcohol use disorders identification test /AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. Addiction 1993; 88: 791-804

20. Hughes JR, Hatsukami DK, Mitchell JE, Dahlgren LA. Prevalence of smoking among psychiatric outpatients. Am J Psychiatry 1986; 143: 993-997

21. Goff DC, Henderson DC, Amico E. Cigarette smoking in schizophrenia: relationship to psychopatology and medication side effects. Am J Psychiatry 1992; 149: 1189-1194

22. De Leon J, Dadvand M, Canuso C, White AO, Stanilla JK, Simpson GM. Schizophrenia and smoking: an epidemiological survey in a state hospital. Am J Psychiatry 1995; 152: 453-455

23. Kelly C, McCredie RG. Smoking habits, current symptoms and premorbid characteristics of schizophrenic patients in Nitsdale, Scotland. Am J Psychiatry 1999; 156: 1751-1757

24. Uzun Ö, Cansever A, Başoğlu C, Özşahin A. Smoking and substance abuse in outpatients with schizophrenia: a 2-year follow-up study in Turkey. Drug Alcohol Depend 2003; 70: 187-192

25. Alptekin K, Erkoç Ş, Göğüş AK, Kültür S, Mete L, Üçok A, Yazıcı K. Co-morbid substance abuse and smoking in Turkish patients with schizophrenia. 11. Bienial Winter Workshop on Schizophrenia, Schizophr Res 2002; 53 (Suppl): 224

26. Üçok A, Polat A, Bozkurt O, Meteris H, Aksüt D. Cigarette smoking among patients with schizoprenia and bipolar mood disorders: a controlled study. Journal of Psychiatry Psychology Psychofarmacology 2001; 9: 193-198 (in Turkish)

27. Buckley PF. Substance abuse in schizophrenia: a review. J Clin Psychiatry 1998; 59 (Suppl): 26-30

28. Combs DR, Advocat C. Antipsychotic medication and smoking prevalence in acutely hospitalized patients with chronic schizophrenia. Schizophr Res 2000; 46: 129-137

29. Littrell KH, Petty RG, Hilligoss NM, Peabody CD, Johnson CG. Olanzapine treatment for patients with schizophrenia and substance abuse. J Subst Abuse Treat 2001; 21: 217-221

30. Bilir N, Doğan BG, Yıldız AN. Behaviours and attitudes towards cigarette smoking. Ankara: Hacettepe Public Health Foundation, 1997 (in Turkish)

31. Dolu N, Ozdemir C, Esel E, Suer C, Kafadar H, Kilic CG, Karakas S The effect of smoking on continious attention in patients with schizophrenia and healthy volunteers Bulletin of Clinical Psychopharmacology 2002; 12: 109-114 (in Turkish)

32. Demir C, Ceylan ME, Onal O, Ozgun F Effects of cigarette smoking up on antipsychotic treatment response and side effects of drugs in schizophrenic patients. Bulletin of Clinical Psychopharmacology 2002; 12: 69-77(in Turkish)

33. Mueser KT, Levinson DF, Sıngh H, Bellack AS, Kee K, Morrison RL, Yadalam KG. Prevalence of substance abuse in schizoprhrenia: demographic and clinical correlates, Schizophr Bull 1990; 16: 31-56

34. Akvardar Y, Türkcan A, Yazman Ü, Aytaçlar S, Ergör G, Çakmak D Prevalence of alcohol use in Istanbul. Psychol Rep 2003; 92: 1081-1088

35. Kılıç C. Mental health profile of Turkey: main report, Ministry of Health Publications 1998

36. Mueser KT, Yarnold PR, Bellack AS. Diagnostic and demographic correlates of substance abuse in schizophrenia and major affective disorder. Acta Psychiatr Scand 1992; 85: 48-55

37. Chambers RA, Krystal JH, Self DW. A neurobiological basis for substance abuse comorbidity in schizophrenia. Biol Psychiatry 2001; 50: 71-83

38. Westermeyer J. Schizoprenia and substance Abuse. Review of Psychiatry 1992; 11: 379-401

39. Trumbetta SL, Mueser KT, Quimby E, Bebout R, Teague GB. Social networks and clinical outcomes of dually diagnosed homeless persons. Behav Ther 1999; 30: 407-430

40. Barrowclough C, Haddock G, Tarrier N, Lewis SW, Moring J, O'Brien R, Schofield N, Mcgovern J. Randomized controlled trial of motivational interviewing, cognitive behavior therapy, and family interventions for patients wth comorbid schizophrenia and substance use disorders. Am J Psychiatry 2001; 158: 1706-1713

41. Schofield N, Quinn J, Haddock G, Barrowclough C. Schizophrenia and substance misuse problems: a comparison between patients with and without significant carer contact. Soc Psychiatry Psychiatr Epidemiol 2001; 36: 523-528

42. Özerdem A, Tunca Z, Kaya N. The relatively good prognosis of bipolar disorders in a Turkish bipolar clinic. J Affect Disord 2001; 64: 27-34

43. Salyers MP, Mueser KT. Social functioning, psychopatology and medication side effects in relation to substance use and abuse in schizophrenia. Schizophr Res 2001; 48: 109-123