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Premorbid Personality Disorders in Male Schizophrenic Patients with or without Comorbid Substance Use Disorder: Is Dual Diagnosis Mediated by Personality Disorder?

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ABSTRACT

Introduction: Although substance abuse is an important clinical problem in schizophrenic patients, very little evidence explains why these patients use drugs and alcohol. This study therefore aimed to examine whether premorbid personality disorders affect substance abuse.

Methods: The sample included 40 male schizophrenic patients with and 40 male schizophrenic patients without substance use disorder comorbidity who had applied to Ankara Numune Research and Training Hospital. Each participant and a family member were interviewed in a structured clinical interview that addressed premorbid personality disorders.

Results: Altogether, 32 patients (80%) in the group with comorbidity and 28 (70%) in the group without comorbidity had a premorbid personality disorder. Antisocial (35% vs. 0%; p<.001) and borderline (37.5% vs. 5%; p=.001) personality disorders were more often detected in the group with comorbidity, while avoidant (10% vs. 35%; p=.014) and obsessive–compulsive (0% vs. 15%; p=.026) personality disorders were less frequently found in this group. Comparing the group with comorbidity with premorbid personality types, schizophrenic patients with premorbid antisocial personality disorder were more frequently unemployed and hospitalized as well as had an earlier onset age of schizophrenia (p=.034, p=.038 and p=.035, respectively). Schizophrenic patients with premorbid borderline personality disorder had a significantly earlier onset age of substance use (19±5; p=.028).

Conclusion: Schizophrenic patients with substance use comorbidity variously differ from those without comorbidity and some of these differences may be associated with premorbid personality disorders.

Keywords: Comorbidity, personality disorder, schizophrenia, substance abuse

INTRODUCTION

While schizophrenia alone is a devastating disorder, its high coincidence with comorbid substance use poses significant challenges to researchers. Currently, about half of all the schizophrenic patients meet the criteria for substance abuse and/or dependence (1,2). Comorbidity is associated with higher rates of specific negative outcomes including severe symptoms, frequent relapse, less social functioning, health problems, homelessness and legal problems (3,4). However, despite more than 20 years of research, no consensus on the etiology of increased rates of substance use in people with psychosis exists. As such, understanding the reasons for such high rates of substance use is necessary if treatments designed to help patients abstain from substance use are to succeed.

Numerous competing theories exist regarding the reasons for such comorbidity (5,6,7,8,9,10). Self-reported factors that may account for drug abuse in schizophrenia include achieving intoxication, enhancing the ability to socialize, self-medicating for positive and negative symptoms of schizophrenia and relieving a dysphoric mood. Another theory regarding the etiology of comorbidity proposes that there may be a third factor mediating a common vulnerability to both of the disorders. So far, studies along these lines have been interested in PDs. The association between substance abuse and personality disorders (PDs) has long been shown by evidence (11,12,13). This evidence includes data from the Epidemiologic Catchment Area survey that reveals a rate greater than 80% of severe substance abuse among people with PDs, particularly antisocial and borderline PDs (14). Antisocial PD has also been reported to be associated with an earlier onset of substance abuse (15). To explain the increased rates of comorbidity, antisocial PD has been particularly studied as a common vulnerability factor and several links have been demonstrated between antisocial PD and psychotic illness. Nevertheless, evidence of the role of PDs as risk factors for substance abuse in dually diagnosed patients remains unclear.

In the present study, we hypothesized that schizophrenic patients either with or without substance use comorbidity are different in many ways, some of which appear before the onset of schizophrenia. Our hypothesis generally aimed to compare premorbid PDs in schizophrenic patients either with or without substance use disorder (SUD) and examine the effect of premorbid personality types on clinical outcomes.

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METHODS

Sample

The sample for this study consisted of schizophrenic patients with or without SUD, all of whom had applied to the psychiatry outpatient clinic at Ankara Numune Research and Training Hospital. All sample members were diagnosed with schizophrenia according to The Diagnostic and Statistical Manual of Mental Disorders (Text Revision) (DSM IV-TR) (16) and some were diagnosed with SUD according to the DSM IV-TR if they had ever had an alcohol and/or drug use disorder (i.e., addiction or abuse).

Inclusion criteria for the experimental group consisted of a minimum age of 18 years, a dual diagnosis (schizophrenia and SUD), no history of or current neurological disease, a stable dosage of antipsychotic treatment for at least 6 months and remission of the acute stage of the illness. Patients with either an overall important impairment or for whom it was impossible to obtain family collaboration were excluded from the experimental group. During the study period, no female patients applied to the outpatient clinic, which incidentally limited the experimental group to male patients only. Two patients refused to participate, whereas five others were excluded because of an important overall impairment. Finally, the experimental group consisted of 40 participants.

The control group consisted of 40 male schizophrenic participants without any history of substance use and a minimum age of 18 years. The inclusion criteria for the control group were identical to those of the study group, except that these participants had no history of SUD.

The aim of this study was clearly explained to all participants and each of whom provided his written, informed consent. The ethics committee of Ankara Numune Training and Research Hospital approved the study, which conformed to the provisions set forth in the Declaration of Helsinki.

MATERIALS

Demographic Information Form

A semi-structured interview was used that addressed the participant's age, sex, marital status, highest level of education attained, socioeconomic status, permanent residence, number of hospitalizations, both the onset age and duration of schizophrenia, family history of mental disorders, substance use history and recent medication. The antipsychotic daily treatment doses of each participant were calculated as chlorpromazine equivalent doses, as suggested by Andreasen et al. (17).

The Structured Clinical Interview for DSM-III-R Axis II Personality Disorders

The structured clinical interview for DSM-III-R axis II PDs (SCID-II), designed to diagnose the full range of DSM-III-R PDs (18), was used to diagnose PDs in participants. A Turkish translation of the interview was completed by Sorias et al. (19) and a Turkish validation study was conducted by Coşkunol et al. (20). Categorical assessment was used to detect PDs.

Procedure

Interviews were conducted and hospital records were reviewed in order to diagnose SUD in participants, each of whom along with his relative was interviewed. All pathological personality traits were carefully differentiated from any schizophrenic symptoms by emphasizing that usual behavior should have been partly formed by traits before the onset of any psychotic symptom. In the case of insidious onset, personality was always analyzed up to 6 months before the onset of symptoms, which was especially taken into account in the diagnosis of schizotypal, paranoid and schizoid PDs. Here the onset of psychosis was regarded as any psychotic symptom, including negative symptoms, observed by the patient or his family, or else during first psychiatric contact.

To prevent misdiagnosis, psychiatric examinations and interviews were made only when participants were free of acute symptoms. Furthermore, during SCID-II interviews, participants were asked after each question whether the trait had been existed before the onset of psychosis or not. In all cases, information provided by the each participant's relative was also used to verify the data supplied by the participant, as well as to add data regarding his personality that he had not provided. Information provided by the relative rarely contradicted to that provided by the participant. All evaluations were performed by the same psychiatrist (N.A.).

Statistical Analysis

Statistical analysis was performed with the Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) version 15.0 and the Shapiro–Wilk test was used to test the normality of the distribution of continuous variables. Descriptive statistics for continuous parameters were recorded as mean (±SD) and discontinuous parameters as percentages. A comparison of mean and median values was performed using Student's t test and Mann–Whitney U test, respectively. Nominal values were evaluated using either Pearson's chi-squared test or Fisher's exact chi-squared test. Statistical significance was set as $p<0.05$.

RESULTS

The demographic characteristics of the two groups are shown in Table 1. The means of participants' ages were not statistically different; mean age was 30.3±7.5 years in the group with comorbidity and 31.4±4 years in the group without comorbidity (p=0.417). Most participants were single and of middling socioeconomic status (p=0.282 and p=0.614, respectively). By contrast, a comparison of the employment status and highest level of education attained showed that participants without comorbidity more often tended to have regular jobs ($p<0.05$) and distinctively more formal education ($p<0.05$) than those with comorbidity.

The clinical characteristics of the two groups are shown in Table 2. In both groups, the most common type of schizophrenia was paranoid (62.5% and 70%; p=0.636). The mean onset age of schizophrenia was not statistically different between the groups (22.1±2.8 years for the group with comorbidity and 21.8±5.6 years for the group without comorbidity; p=0.484). The mean duration of schizophrenia was 8.6±2.6 years for the group with comorbidity and 9.3±2.7 years for the group without comorbidity; thus, the difference was not statistically significant (p=0.374). The mean number of hospitalizations and total duration of hospitalizations were also similar in both groups: 2.4±2.3 and 2.5±3.0 months, respectively, for the group with comorbidity and 2.2±1.8 and 2.2±2.1 months, respectively, for the group without comorbidity (p=0.717, p=0.611). Most participants were taking atypical antipsychotics (85%) and the mean daily doses of these (in terms of chlorpromazine equivalent doses) were 647.30±324.89 for the group with comorbidity and 636.30±301.73 for the group without comorbidity. Again, the difference here was not statistically significant (p=0.876). In total, 20 participants (50%) in the group with comorbidity, whereas 10 participants (25%) in the group without comorbidity had attempted suicide. Thus, this difference was statistically significant (p=0.021). Furthermore, 12 participants (30%) in the group with comorbidity, whereas only 4 participants (10%) in the group without comorbidity had attempted homicidal acts. Thus, the difference between the two groups was also statistically significant (p=0.025).

Table 1. Demographic characteristics of the two groups

	Group without SUD (n=40)	Group with SUD (n=40)	p
Age, mean±SD	31.4±4	30.3±7.5	0.417
Marital status			
Married	9 (22.5%)	6 (15%)	0.282
Single	30 (75%)	30 (75%)	
Divorced/widowed	1 (2.5%)	4 (10%)	
Working status			
Working	18 (45%)	8 (20%)	0.017*
Not working	22 (55%)	32 (80%)	
Education years, mean±SD	11.3±3.7	8.8±2.8	0.001**

*p≤0.05, **p≤0.01. SUD: substance use disorder; SD: standard deviation

Table 2. Clinical characteristics of the two groups

	Group without SUD (n=40)	Group with SUD (n=40)	p
Onset age of schizophrenia, mean±SD	21.8±5.6	22.1±2.8	0.484
Duration of schizophrenia, (years) mean±SD	9.3±2.7	8.6±2.6	0.374
Number of hospitalization, mean±SD	2.2±1.8	2.4±2.3	0.717
Total duration of hospitalization (months), mean±SD	2.2±2.1	2.5±3.0	0.611
Schizophrenia, paranoid type	25 (62.5%)	28 (70%)	0.636
Suicide attempt	10 (25%)	20 (50%)	0.021*
Homicidal act	4 (10%)	12 (30%)	0.025*
Medication			
Atypical	34 (85%)	34 (85%)	1.000
Atypical+typical	4 (10%)	4 (10%)	
Typical	2 (5%)	2 (5%)	
Current use of depot antipsychotic	14 (35%)	12 (30%)	0.316
Antipsychotic equivalent dose, mean±SD	647.30±324.89	636.30±301.73	0.876
Family history of schizophrenia (family background)	15 (37.5%)	12 (30%)	0.478

*p≤0.05, ** p≤0.01. SUD: substance use disorder; SD: standard deviation

Table 3 shows substance abuse and/or addiction in the group with comorbidity. The most frequently abused substance was cannabis, the abuse rate of which was 80% (n=32), whereas 22 participants (55%) in this group had alcohol use disorder. Other substances abused by participants in this group included amphetamines (n=12; 30%) and volatile substances (n=2; 5%). In total, 22 participants (55%) were abusing multiple substances. The mean age of onset of alcohol and substance abuse was found to be 21.6±5.6 years (min: 11 years; max: 36 years).

Table 4 displays premorbid PDs detected in participants of both the groups. Most participants had at least one premorbid PD: 32 participants (80%) in the group with comorbidity (p=0.317) and 28 participants (70%) in the group without comorbidity. For the latter group, the most common premorbid PDs were avoidant (n=14; 35%), paranoid (n=7; 17.5%) and obsessive–compulsive PDs (n=6; 15%), whereas others were schizotypal (n=4; 10%), schizoid (n=2; 5%), borderline (n=2; 5%), passive-aggressive (n=2; 5%), histrionic (n=1; 2.5%) and dependent (n=1; 2.5%) PDs. For the group with comorbidity, the most common premorbid PDs were borderline (n=15; 37.5%) and antisocial PD (n=14; 35%), whereas others were paranoid (n=9; 22.5%), avoidant (n=4; 10%), histrionic (n=3; 7.5%) and passive-aggressive PD (n=2; 5%). When premorbid PDs were compared between the groups, the most significantly antisocial PD (p<0.001) and significantly borderline PDs (p=0.001) were detected more frequently in the group with comorbidity, though avoidant and obsessive–compulsive PDs were more significantly encountered in the group without comorbidity (p=0.014 and p=0.026, respectively).

Table 5 displays the demographic and clinical characteristics of participants in the group with comorbidity according to different premorbid PDs. Those in the group with comorbidity also suffering from a premorbid paranoid PD were more frequently married, had a regular job and had started using at least one substance later in life (p=0.030, p=0.037 and p=0.042, respectively). Participants with premorbid antisocial PD were significantly more frequently unemployed and hospitalized, as well as had an earlier onset age of schizophrenia (p=0.034, p=0.038 and p=0.035, respectively). Participants in this group also suffering from premorbid borderline PD had a significantly earlier onset age of substance use (p=0.028).

DISCUSSION

Results showed that most schizophrenic patients in our sample had at least one premorbid PD. In previous studies, the frequency of premorbid PDs in schizophrenic patients has been reported in a range of 7% to 85% (21,22,23,24,25,26,27,28). The vast variation found among these studies stems from methodological differences (29). As Jackson et al. (30) suggest, one reason for the high prevalence of PDs is the difficulty of distinguishing prodromal and residual symptoms of schizophrenia from PD. Such confusion between prodromal symptoms and PD traits could have artificially increased PD frequency. However, as previously listed, several controls were embedded in our study to minimize confusion. In our study, the prevalence of premorbid PDs in both groups, with or without SUD, were much higher than that in the general population (2–18%) (23) and closer to psychiatric patient populations (36–67%) (27,30,31). This result is consistent with other studies that suggest a predisposition to PDs in different clinical syndromes of axis I (25,27,31), as well as supports the hypothesis that schizophrenia is no exception (32,33). Premorbid PD frequency, which was found to be higher in the group with comorbidity, was not statistically significant yet could be considered significant with a larger sample size.

Our results also showed differences between the groups in terms of premorbid PD types. In schizophrenic patients without comorbidity, the most common premorbid PDs were avoidant (35%), paranoid (17.5%) and obsessive–compulsive (15%), which supports previous reports about premorbid PDs in schizophrenic patients (32,34). Avoidant PD was more frequently seen in patients with schizophrenia, which shows that this disorder can be a part of the same pathological spectrum of schizotypal and schizoid PDs (35,36,37). Kety et al. (38) revealed a schizophrenia spectrum term for all disorders transmitted genetically to a degree together with schizophrenia. The disorder possibly varies in a broad, continuous range from subthreshold forms to severe clinical forms, in which schizophrenia

Table 3. Abused/addicted substances and the mean of the onset age of substance use in the group with comorbidity

	n (40)
Cannabis	32 (80%)
Alcohol	22 (55%)
Amphetamine	12 (30%)
Volatile	2 (5%)
Multiple substance use:	22 (55%)
Cannabis+alcohol	10 (25%)
Cannabis+amphetamine	6 (15%)
Cannabis+amphetamine+alcohol	6 (15%)
Age at onset of substance use, mean±SD (min-max)	21.6±5.6 (11-36)

Table 4. Comparison of the premorbid personality disorder subtypes and frequencies detected in the two groups

	Group without SUD (n=40)	Group with SUD (n=40)	p
Schizoid	2 (5%)	0	0.494
Histrionic	1 (2.5%)	3 (7.5%)	0.615
Narcissistic	0	0	-
Borderline	2 (5%)	15 (37.5%)	0.001**
Antisocial	0	14 (35%)	<0.001**
Schizotypal	4 (10%)	0	0.116
Paranoid	7 (17.5%)	9 (22.5%)	0.781
Obsessive–compulsive	6 (15%)	0	0.026*
Passive agressive	2 (5%)	2 (5%)	1.000
Dependent	1 (2.5%)	0	1.000
Avoidant	14 (35%)	4 (10%)	0.014*
At least one PD	28 (70%)	32 (80%)	0.317

*p≤0.05, **p≤0.01. SUD: substance use disorder; PD: personality disorder

represents the range's endpoint. As a result of various family studies with strong evidence, schizotypal PD was included in this spectrum and with moderately strong evidence paranoid and schizoid PDs were also included (39). Avoidant PD, the most frequently determined premorbid PD in our study group without comorbidity, was also proposed for inclusion in the spectrum (40). In contrast to some other studies, the number of patients with premorbid schizoid and schizotypal PDs were less common in our study (32,34).

In the group with comorbidity, the most common PDs were borderline (37.5%), antisocial (35%) and paranoid (22.5%); premorbid antisocial and borderline PDs were determined to be significantly more prevalent in this group. This latter finding is consistent with previous literature demonstrating that antisocial PD may be a risk factor for substance abuse in patients with psychotic illness (41). Although relevant literature often lacks information about borderline PD in the schizophrenic population, Trull and Sher (42) have suggested that borderline PD is the most common PD in both inpatient and outpatient psychiatric population. This result also warns that premorbid borderline personality can also be a risk factor for substance abuse in schizophrenic patients. As such, we must emphasize the premorbid personality differences between the two groups. Although the premorbid PDs of the group without comorbidity can be recognized as a part of the schizophrenia spectrum, such was not the case for the group with comorbidity. These results may support the common factor theory concerning the idea that there is a third factor mediating a common vulnerability to both the disorders (43). Antisocial PD has long been successfully studied and several links have been demonstrated between antisocial PD and psychotic illness, in addition to before-mentioned links between antisocial PD and substance abuse. The most important link to be mentioned is that childhood precursor of antisocial PD (conduct disorder) has been found associated with the development of substance abuse, schizophrenia and bipolar disorder in adulthood (44); therefore a shared genetic vulnerability to antisocial PD and schizophrenia remains a possibility (45).

To compare the group with comorbidity according to premorbid personality types, patients with premorbid antisocial PDs were found to have worse clinical outcomes including an earlier onset of schizophrenia, far more problems securing and retaining employment and longer hospitalization periods. These findings support that, beyond being a risk factor for comorbid substance usage, antisocial PD also negatively impacts the prognosis of schizophrenia. In a comparison of the same group, borderline PD

Table 5. Demographic and clinical characteristics of the patients with premorbid personality disorder in the comorbidity group

	Total Samples with SUD	Premorbid Paranoid PD		Premorbid Antisocial PD		Premorbid Borderline PD	
Patient (n)	40	9	p	14	p	15	p
Single	34 (85%)	5 (5.56%)	0.030*	12 (85.7%)	0.999	14 (93.3%)	0.507
Employed	8 (20%)	4 (44.4%)	0.037*	0	0.034*	2 (13.3%)	0.699
Suicide attempt	20 (50%)	6 (66.7%)	0.225	8 (57.1%)	0.253	7 (46.7)	0.372
Homicide act	12 (30%)	3 (33.3%)	0.999	6 (42.9%)	0.346	3 (20%)	0.481
Number of hospitalization	2.45±2.38	1.8±1.1	0.251	4.6±3.4	0.038*	2±1.8	0.699
Onset age of schizophrenia, mean±SD	22.1±2.8	23.2±3.4	0.782	19.9±1.1	0.035*	23.2±2.9	0.732
Education years, mean±SD	8.8±2.8	8.7±2.1	0.936	8.4±1.9	0.882	8.4±3.8	0.892
Onset age of substance use, mean±SD	21.65±5.6	25.2±4.6	0.042*	22.5±5.4	0.352	19±5	0.028*

*p≤0.05, **p≤0.01. Comparisons were made between the samples having the above-mentioned premorbid personality disorder and the rest of the samples not having that premorbid personality disorder in the comorbidity group. SUD: substance use disorder; PD: personality disorder; SD: standard deviation

was found to be associated with an earlier onset of substance use. Shea et al. (45) have suggested that borderline PD comorbidity has negative effects on the prognosis of the most axis I disorders and this may also be true for the prognosis of schizophrenia. As the third most common premorbid PD in the comorbidity group, paranoid PD was associated with more favorable clinical outcomes such as marriage, fewer employment problems and a later onset of substance usage. However, in the group with comorbidity, the highest level of education attained was significantly lower, whereas the frequency of homicide and suicide attempts was significantly higher; both of these results did not differ in terms of premorbid PDs. As such, it is not possible to say that premorbid paranoid PD was associated with the positive effect on all clinical results in schizophrenic patients with substance use comorbidity. However, antisocial PD can foreshadow a negative prognosis for schizophrenic patients with comorbidity.

When examining the temporal sequence of the onset of schizophrenia and SUD, we could not detect any significant difference between the means of onset ages of schizophrenia and SUD. Regarding etiology, there are several reasons why the sequence of the onset of schizophrenia and SUD in dually diagnosed patients may be less informative. Both schizophrenia and SUD tend to develop gradually, with no clear demarcation for the onset of the disorder. As such, findings concerning the order of onset of different disorders have remained unclear, such as those reported by Hambrecht and Hafner (46), who concluded that alcohol abuse typically precedes the first sign of schizophrenia yet follows the appearance of the first positive symptom. At the same time, attempts to find demographic or clinical differences associated with the sequence of onset of schizophrenia and SUD have failed to detect consistent differences (47), which suggests that such data are not useful in establishing causal links between the disorders.

The present study was designed in line with the few research studies that assess premorbid PDs with a sample of schizophrenic patients only and is the first study to investigate premorbid PDs in the Turkish schizophrenic population with substance use comorbidity. Given its unprecedented quality, several limitations emerged. The primary methodological weakness of this study is that the data were retrospective and as such, patients could have been biased in the assessment of their premorbid personality because of the development of the illness. However, interviews with relatives helped to increase the reliability of the retrospective data provided by the patients. A second weakness was the possible confusion between PD traits and prodromal symptoms of schizophrenia. A series of measures were considered to prevent misdiagnosis: psychiatric examinations and interviews were made only when participants were free of acute symptoms; in the case of insidious onset, personality was always analyzed up to 6 months before the onset of symptoms, which was especially taken into account in the diagnosis of schizotypal, paranoid and schizoid PDs. Furthermore, during SCID-II interviews all participants and their relatives were asked after each question whether the trait had been existed before the onset of psychosis or not. All evaluations were made by the same psychiatrist. On this point, this study also has certain advantages because we used standardized definitions of PDs and structured instruments to assess them.

Another limitation was the lack of female schizophrenic patients' evaluations, which was a result of general male gender dominance among substance users. During the planned study period, no female patient applied to the outpatient clinic. All these limitations and methodological difficulties may have caused PDs in schizophrenics to be a neglected area of research.

We propose future studies to search premorbid PDs in dually diagnosed schizophrenic patients shortly after they have had their first psychotic episode in order to increase the reliability of the retrospective data and to better focus on the presence of these PDs frequently found in schizophrenia in the present study.

Ultimately, this study has confirmed that schizophrenic patients with SUD comorbidity are different from those without in many ways, some of which are present even before the onset of schizophrenia. As such, this research re-emphasizes that SUD comorbidity is associated with an adverse clinical appearance in schizophrenic patients (e.g., lower highest level of education attained and higher rates of suicidal and homicidal acts). SUD comorbidity in schizophrenia necessitates a different assessment and treatment that includes PD dimensions, which may require etiologic research studies different from those using the spectrum model.

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