

Gender Differences in Patients With Schizophrenia in Terms of Sociodemographic and Clinical Characteristics

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Abstract

The aim of this study is to investigate gender differences in patients with schizophrenia and to consider if the resultant findings will help us to understand the etiopathogenesis, distinctive clinical characteristics, and course of the illness.

40 female and 40 male inpatients admitted to Bakırköy Neuropsychiatric Hospital and met the diagnostic criteria of DSM-IV for schizophrenia included in our study. They were administered the Scale for the Assessment of Negative Symptoms (SANS), the Scale for the Assessment of Positive Symptoms (SAPS), and the Brief Psychiatric Rating Scale (BPRS). And a detailed questionnaire prepared to collect sociodemographic and clinical data was used.

This study demonstrated that female patients were more likely to be married and to have better social and occupational functioning. They had higher rates of positive familial history of schizophrenia, and of attempted suicide than males. Male patients, however, had an earlier age of onset, they spent a shorter time between the appearance of first psychotic symptoms and onset of treatment and were younger during first treatment than females. Total SANS, SAPS and BPRS scores of males were also higher than females. They had higher number of hospitalizations with longer length of stay (although this is not statistically significant), and their problems with law and substance abuse were more frequently observed compared to female patients. In addition, female patients exhibited more heavily paranoid symptoms, while male patients tended to display the disorganized subtype of the illness (German J Psychiatry 2006;9:41-47).

Keywords: age at onset, outcome, subtype, symptomatology

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Introduction

Since Kraepelin defined “dementia praecox” as a degenerative disease primarily seen in the young men, many interested in gender differences in schizophrenia. The relevant literature indicate that there is an agreement about the differences in schizophrenic patients of both sexes regarding age of onset, length of time between the appearance of first psychotic symptoms and first treatment, premorbid functioning, symptomatology, response to treatment, number of hospitalizations, length of hospital stay, outcome, and cerebral structural abnormalities. One of most consistent findings is that the onset of the disorder is earlier in men and

that schizophrenic men are hospitalized earlier than women (Gureje, 1991; Szymansky et al., 1995; Angermeyer and Kühn, 1998; Leung and Chue, 2000; Takahashi et al., 2000; Moriarty et al., 2001; Usall et al., 2001). Most of the studies demonstrated that schizophrenic women showed a better course of hospital treatment, experienced a shorter length of stay, and survived longer in the community after their first hospital admission (Goldstein 1988a; Angermeyer et al., 1989, 1990; Test et al., 1990; Usall et al., 2002). Literature also suggests that women tend to exhibit less negative symptoms and to respond better to treatment (Goldstein and Link, 1988b; Hambrecht et al., 1992; Shtasel et al., 1992; Addington et al., 1996; Leung and Chue, 2000). Finally, schizophrenic women have been reported to have had more education, better work records, and consequently better

Table 1: Sociodemographic characteristics of the patients

		Female		Male	
		N	%	n	%
Marital status	Single	19	47.5	32	80
	Married	12	30	3	7.5
	Divorced	8	20	5	12.5
	Widow	1	2.5	0	0
	None	5	12.5	1	2.5
Education	0-5 years	20	50	23	57.5
	6-11 years	4	10	7	17.5
	12-14 years	10	25	8	20
	15+	1	2.5	1	2.5
Familial income (US \$ per month)	0-30	5	12.5	4	10
	30-100	13	32.5	17	42.5
	100-350	17	42.5	14	35
Employment	350+	5	12.5	5	12.5
	Yes	1	2.5	6	15
Cause of unemployment	No	39	97.5	34	85
	The illness	19	47.5	33	82.5
Global assessment of functioning	Other (housewife, retired, etc)	20	50	1	2.5
	Better (40-31)	9	22.5	1	2.5
	Good (30-21)	26	65	15	37.5
Live as single	Worse (20-11)	5	12.5	24	60
	Live with her/his parents	4	10	2	5
Live with her/his parents	Live with her/his parents	21	52.5	26	65
	Live with his/her spouse and children	10	25	1	2.5
Live with only one parent	Live with only one parent	4	10	10	25
	Other	1	2.5	1	2.5

social functioning (Goldstein, 1988b; Gureje, 1991; Leung and Chue, 2000; Usall et al., 2003) than schizophrenic men.

The aim of the present study is to investigate the gender differences in terms of age at onset of the illness, the duration of pretreatment period, the number and length of hospitalizations, indications of premorbid and social functioning such as education, marital and occupational status, the clinical psychopathology, the frequency of suicide attempts and psychoactive substance use, legal problems, and family history of the patients.

Method

40 male (average age 34.42, SD: 8.47) and 40 female patients (average age 37.25, SD: 10.86) admitted to Bakirkoy Neuro-psychiatric Hospital and diagnosed with schizophrenia according to the criteria of DSM-IV were included in this study. One of the researchers (F.A.) who trained in the use of Diagnostic and Statistical Manual of Psychiatric Disorders (Forth Edition) and Structured Clinical Interview for DSM IV Axis I Disorders conducted interviews with all patients selected consecutively by her fellow psychiatrists in an acute psychosis ward. Patients who were mentally retarded, who had a history of alcohol and other psychoactive substance use in amount of which is warranted to make a diagnosis a psychiatric disorder, and those from whom satisfactory information about the disease process were not been obtained because of the communication difficulties with patient himself/herself or his/her relatives or because of inadequacy of previous medical records were not included.

The study was described in detail and informed consent was obtained from all participants. The interviews with the patients were conducted in a face-to-face manner and the evaluations of the questionnaire and the scales used in the study were assessed by a psychiatrist. Moreover, they were administered the Scale for Assessment of Negative Symptoms (SANS), the Scale for Assessment of Positive Symptoms (SAPS), and the Brief Psychiatric Rating Scale (BPRS).

The questionnaire used contains several questions aimed at gathering information about the demographical characteristics, illness history, clinical picture, previous treatment methods and family history of each patient (Appendix-1). To complete this information, the relatives of the patients were also talked and the medical records of previous admissions were surveyed. Thus the findings about age at onset, age at first treatment, and family history was verified by the patients as well as the different source of information. In the end, age at onset was defined as age when first psychotic symptoms appeared. The time between age at onset of illness and age at onset of first treatment attempt was called "pretreatment period". Legal problems was accepted positive if a patient had any trouble with the security forces leading, for example, to be arrested at best or to be sentenced at worst. Positive history of psychoactive substance use was due to the existence of the use of any of them to the degree which it had to be considered a problem, but not yet to lead to a psychiatric disorder.

Results were statistically interpreted by Student's t test, Mann-Whitney-U and Pearson or Fisher's qui square test when necessary.

Table 3: Family history, illness subtype, suicide attempts, legal problems, and substance use of the patients

	FEMALE		MALE	
	n	%	n	%
Family history of the schizophrenic patients				
Affective Disorder	1	2.5	1	2.5
Alcoholism	1	2.5	2	5
Schizophrenia spectrum disorders	14	35	10	25
1th degree relatives	9	22.5	6	15
2nd degree relatives	5	12.5	4	10
Other	1	2.5	0	0
Subtype Of Schizophrenia In The Patients				
Paranoid	21	52.5	14	35
Undifferentiated	15	37.5	13	32.5
Disorganized	4	10	13	32.5
Suicide Attempts In The Patients				
Previous suicide attempts	11	27.5	4	10
Suicide attempt in index episode	2	5	0	0
Legal Problems And Substance USE				
Trouble with Law	2	5	6	15
Psychoactive substance use	0	0	11	27.5

Results

Significantly more female patients were married compared to male patients (12 vs 3, respectively) although both group lived mostly as single (19 vs 32). Women also had a worse occupational history than male patients, but there did not remain any significant difference between both groups if they are accepted as having an occupation as a housewife. Female patients were also scored higher than males in Global Assessment of Functioning (GAF) (Table 1).

There were significant differences between male and female patients with respect to age at onset, pretreatment period and age at first treatment. The average of age at onset of the first psychotic symptoms was 21.6 years (SD: 5.36) for men whereas it was 24.6 years (SD 6.6) for women (Table 2). The time length between age at onset of the first psychotic symptoms and age at first treatment was significantly longer in women than in men (Table 2). This difference was associated with the fact that women were referred to treatment at a significantly older age than men. Whether family history is positive or not did not make a significant effect on age at onset in patients of both sexes.

Table 2: Clinical characteristics of patients

	Mean (n 40)	SD	Mean(n 40)	SD	
Age at onset of the illness (years)	24.67	6.6	21.6	5.36	0.025
Pretreatment Period (mounths)	48.5	6.74	16.07	17.25	0.001
Age at First Treatment (years)	28.77	9.28	22.92	6.08	0.001
The illness duration (years)	12.47	8.18	12.7	8.23	0.9
Total SANS scores	12.92	4.21	15.85	4.01	0.002
Total SAPS scores	11.22	3.89	13.12	2.86	0.01
Total BPRS scores	26.85	4.47	30.87	4.95	0.001
Total number of hospitalizations	4.72	5.09	7.62	5.74	0.02
Whole duration of hospitalizations (days)	105.3	113	185	196	0.1
Duration of hospitalization at index episode (days)	18.6	5.75	28	14.2	0.001

Female patients tended to have more positive family histories for schizophrenia and unspecified psychotic disorders, but the difference was not statistically significant (Table 3).

Each patient was administered SANS, SAPS and BPRS scales and the scores were compared to the illness duration. We found no relation between the disease duration and the scores (Table 2). This result is important because it made possible to evaluate the symptomatology without any interference with the chronicity factor.

However, there were significant differences between female and male patients in all subscales of SANS except for attention subscale, whereas only statistically significant difference was in the positive thought disorder of SAPS (Table 4). This difference may be due to the fact that paranoid subtype was more often in women than in men (21 vs 14).

Female patients were found to attempt suicide more often than males (Table 3). However, the rates of legal problems were higher in male patients but this was not statistically significant (6 men vs 2 women). Alcohol and other psychoactive substance use were also found to be predominantly higher in men than in women (Table 3).

The number and duration of hospitalizations at index episode, and the total duration of all hospitalizations demonstrated that male patients had more frequent hospitalizations and stayed longer there (Table 2).

Discussion

Education, marital and occupational status, and the living style all had been used for the evaluation criteria of premorbid adaptation and functioning in the literature, and the female patients had been reported to have had more education, better work records, and better social functioning than male patients. We also found that female patients were more likely to be married, but there was not any difference in their education and income levels. This finding could be attributed to the very low levels of education in both groups: 25 women and 24 men were unschooled, or had education histories at the level of elementary school. Furthermore, male patients were more often unemployed than females probably because of the factors related to the illness. Also, although in the present study women seem less likely to have an occupational position, this difference disappears if they are accepted as having an occupation as a housewife. Our study confirmed the finding that women had a better social functioning level than men when living alone or together with the spouse and children is taken as an indicator of better functioning. Higher GAF (Global Assessment of Functioning) scores of female patients than of males also supported this conclusion. When we bring all of these findings together it is possible to say that female patients had better social functioning than males.

Almost all studies have reported that age at onset of the illness was earlier in men than in women. The difference in age at onset of the illness between men and women was found to be usually 3-5 years (Leung and Chue, 2000). Whether age at onset is accepted as the time when the first symptoms and signs of the disease appeared or the time when the first treatment was introduced, both are shown to be reliable indicators of the beginning of the disease (Häfner et al., 1992; Beiser et al., 1993; Faraone et al., 1994). Our study also found that there were significant differences among both groups in terms of age at onset of the first psychotic symptoms, the time range between the appearance of first symptoms and age at first treatment. In other words, the occurrence of the symptoms and the initiation of first treatment both were earlier in male patients. Faraone et al. could not find any difference between both sexes regarding the time of first psychotic symptoms and the referral time to hospital (Faraone et al., 1994). On the contrary, in our study, both the age of patients at first treatment and the time lag between the appearance of first symptoms and the age at first treatment were found to be shorter in male patients than in females. This finding may be due to the fact that the functional disabilities induced by the illness could be noticed early in men by his family and society because of the familial, occupational and social responsibilities forced upon them. Although some has reported that there was no gender difference regarding age at onset in those with a positive family history (Walsh et al., 1993), and others have suggested that the illness might begin older in women with a negative family history (Kirov et al., 1994), we were not able to confirm neither of these findings. Our results demonstrated that the family history did not make a significant effect on age at onset of the illness in both sexes.

Again, there was not any statistically significant difference in terms of family history of schizophrenia and spectrum disorders, although schizophrenia and unspecified psychotic disorder were overrepresented in the families of female patients. This finding is consistent with the conclusion of Goldstein et al., suggesting that the differences related to family histories between genders are decreased when the diagnosis of the spectrum of psychotic disorders get narrower (Goldstein et al., 1992).

The lack of any significant difference in the duration of the illness between both groups increases the reliability of our study in respect to comparing their symptomatology. We found significant differences between both genders in the symptomatology as were measured with the SANS and SAPS scales. Although there was a significant difference in the total BPRS scores, which measure the illness severity, there were not significant differences among its subscales, except that the sub-items of disorganized thinking and elevated self-esteem were scored higher in men than in women. Most of the studies in literature have reported higher SANS scores in men than in women (Leung and Chue, 2000). However, Shtasel et al. reported that there was no difference between men and women in the total severity of symptoms, but they found higher SANS scores in men (Shtasel et al., 1992). Having used BPRS, Perry did not found any difference between genders regarding the severity of symptoms (Perry et al., 1995). In our study, men scored significantly

Table 4: Frequency of the psychotic symptoms measured by SANS and SAPS (NS: Statistically nonsignificant)

		FEMALE	MALE	p
SANS	blunted affect	2.75	3.5	0.001
	alogia	2.35	2.97	0.01
	avolution-apathy	3.12	3.7	0.01
	anhedonia-asociality	3.5	4.22	0.001
SAPS	attention	1.57	1.57	NS
	hallucination	2.87	3.25	NS
	delusion	3.52	3.85	NS
	bizarre behavior	3	2.52	NS
	positive formal thought disorder	2.12	2.85	0.02

higher than women in all subscales of SANS (except attention subscale) and in total scores. There was a similar difference in SAPS, too, although not much higher as was in SANS, and we believe that this difference is related to the fact that the score of formal thought disorder was considerably higher in men than in women. This result is consistent with the work of Perry et al., suggesting that men display much more thought disorder than women (Perry et al., 1995).

Having considered schizophrenia subtypes in both sexes, Goldstein et al. reported that women were more likely to

express a form of the illness characterized by dysphoria and persecutory delusions (Goldstein et al., 1990). In consistent with this finding, there was a significant difference between genders in terms of schizophrenia subtypes in our study; women were more likely to have paranoid features whereas men were more likely to have disorganized subtype.

Our findings are also consistent with the conclusions of relevant literature indicating that a) men were more frequently hospitalized and stayed longer there; b) women were less likely to be rehospitalized; c) this difference between the sexes was especially prominent in early period of the illness; d) the duration of hospitalization in women was shorter than in men; and finally e) the difference in length of hospital stay between genders is decreased with age (Goldstein, 1988; Angermeyer et al., 1989, 1990; Test et al., 1990; Usall et al., 2002). Our study demonstrated that men were more frequently hospitalized and stayed there longer than women. We suggest that this difference may be due to the necessity of men to maintain their social functions immediately after discharge. In addition, the subjects of our study were restricted to the middle age and therefore the number of postmenopausal cases was not appropriate for statistical comparison.

Some studies pointed out to the higher or at least equal rates of suicide attempts in women, whereas others reported the reverse (Test et al., 1990; Leung and Chue, 2000; Riecher-Rössler and Häfner, 2000). In our study, we found that suicide attempts were more common in women, whereas the use of alcohol or other psychoactive substances were more common in men.

Schizophrenia is currently recognized as a syndrome rather than a single disease entity that appears as a resultant effect of various genetic, biochemical, psychological and social factors. The understanding of such different aspects as premorbid characteristics, clinical picture, prognosis and outcome of schizophrenia in men and women will help to highlight its underlying pathogenetic, psychological and social factors. A few decades ago the differences seen between genders was explained by the differences in mental organization. Today now research has given precedence to biochemical and neurophysiological theories. Better premorbid functioning, older age at onset of illness, and better prognosis in women than in men suggest that estrogen might have a protective effect against schizophrenia and the excessiveness of pre- and peri-natal traumas in men cause them to be predisposed to the illness. Therefore, focusing on biochemical, genetic and social factors at the same time as searching for the differences in sociodemographical, symptomatological, and outcome characteristics of male and female patients with schizophrenia will help to understand the etiology, clinical and prognosis of the illness. The developments in these areas will contribute to the further advances regarding the diagnosis and treatment of schizophrenia, which still remain as important challenges to psychiatry.

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Appendix 1. Questionnaire for the Assessment of Gender Differences in Patients With Schizophrenia

Patient number:	
Date of birth	Sex
Marital status	
<input type="checkbox"/> Married	<input type="checkbox"/> Divorced
<input type="checkbox"/> Single	<input type="checkbox"/> Other
<input type="checkbox"/> Widowed	
Education	
<input type="checkbox"/> None	<input type="checkbox"/> High school
<input type="checkbox"/> Elementary school	<input type="checkbox"/> College
Employment	
<input type="checkbox"/> Yes	<input type="checkbox"/> No
If unemployed, due to:	
<input type="checkbox"/> Illness	<input type="checkbox"/> Housewife
<input type="checkbox"/> Retired	<input type="checkbox"/> Other
Total employment duration	
Duration of time spent in last workplace	
Income level	
<input type="checkbox"/> 0-30 \$	<input type="checkbox"/> 100-350 \$
<input type="checkbox"/> 30-100 \$	<input type="checkbox"/> 350+ \$
Persons living with him/herself	
<input type="checkbox"/> Single	<input type="checkbox"/> Only one parent
<input type="checkbox"/> His/her family	<input type="checkbox"/> Spouse and child
<input type="checkbox"/> Only one parent	
Birth trauma	
<input type="checkbox"/> None	<input type="checkbox"/> Premature
<input type="checkbox"/> Vacuum	<input type="checkbox"/> Other
Developmental history	
<input type="checkbox"/> Normal development	<input type="checkbox"/> Enuresis
<input type="checkbox"/> Head trauma	<input type="checkbox"/> Intracranial infection
<input type="checkbox"/> Febrile convulsion	<input type="checkbox"/> Other
Type of schizophrenia	
<input type="checkbox"/> Paranoid	<input type="checkbox"/> Catatonic
<input type="checkbox"/> Disorganized	<input type="checkbox"/> Other
<input type="checkbox"/> Undifferentiated	