

Short report

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Association of gender and schizophrenia subtype with age at disease onset in a cohort from rural Turkey

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ABSTRACT – Background and Objectives: This study was designed to investigate the association of the gender and subtype diagnosis with the onset age of the disease, marriage, reproductive rates in the schizophrenic inpatients.

Methods: Total of 463 patients (329 males and 134 females) hospitalized with the diagnosis of schizophrenia according to *DSM-IV criteria* and who were between 15-65 years of age were included in the study. We evaluated the age, gender, marital status, number of children, onset of the disease and subtype of schizophrenia.

Results: Mean of onset of the disease score was higher statistically in the females (27.6 ± 4.3) than the males (23.7 ± 3.9) ($p < 0.05$) in our study. The paranoid subtype was the commonest, while women were more likely to be married than men, men had more children than women; and the paranoid subtype were more likely to be married than the other groups.

Conclusions: Onset age of schizophrenia was four years higher in the women than in men and that the rates of the schizophrenia subtypes were consistent with those detected in the other studies demonstrates that these rates were determined by neurobiological mechanisms rather than socio-cultural factors.

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Introduction

Loranger¹ reported that the mean age at onset of schizophrenia in men was approximately 5 years earlier than that of women. Goldstein *et al.*² used the *DSM-III criteria*, and found that the mean age at onset 24.3 for men with schizophrenia and 27.9 for women with schizophrenia. Applying the *Research Diagnostic Criteria*³ to a Nigerian sample of schizophrenia patients, Gureje⁴ found that the mean age at onset illness was 23.5 for men and 26.4 years for women. He concluded that the gender difference in the age at onset of schizophrenia is present across cultures, implying a biological rather than a social etiology. In a better designed study of Nigerian schizophrenia patients, Ohaeri⁵ reported similar findings. Gruenberg *et al.*⁶, in a study of reliability and concordance of the subtypes according to four major diagnostic systems, showed that the age at onset for the paranoid subtype was significantly later than for the disorganized and the undifferentiated subtypes.

It is generally accepted that patients with schizophrenia have lower marital and fertility rates than the rest of the general population and indeed than patients with other psychiatric conditions^{7,8}. There has been a long-held belief that these lower rates were occasioned by the deterioration in social life, particularly for catatonic and hebephrenic patients⁹. The severity of illness and timing of marriage¹⁰ were also thought to be crucial. This would especially impact on males, who tend to have earlier age of onset and more protracted course with worse outcome¹¹, in a reproductive culture informed by male initiative.

This study was designed to investigate the association of the gender and subtype diagnosis with the onset age of the disease, marriage, reproductive rates in the schizophrenic inpatients.

Participants and methods

This study was performed in Elazığ Mental Hospital. It is a regional hospital situated in the Eastern-Southeastern region of the country and provides services to 22 cities of the region. Total of 463 patients (329 males and 134 females) hospitalized with the diagnosis of schizophrenia according to *DSM-IV criteria*¹² and who were between 15-65 years of age were included in the study.

Required information was primarily obtained from relatives and then from the patients. We evaluated the age, gender, marital status, number of children, onset of the disease and subtype of schizophrenia. All data were collected through face-to-face interviews or reviews of hospital records. A group of two people consisting of 1 psychiatrist and 1 psychologist evaluated each patient.

The difference between two groups in definitive characteristics was studied with χ^2 test, groups of more than two were studied using the Kruskal-Wallis method and the relationship between groups was investigated using Spearman correlation analysis. The level of significance was defined as $p < 0.05$.

Results

Table 1 shows the distribution of the 463 patients in the two sex of schizophrenic disorders. Among this group, 329 were male and 134 were female. The mean age of our patients was 36.49 ± 10.09 years. 142 of the total 463 patients were married (30.7%). 95 male patients were married (28.9%) and 47 female patients were married (35.1%). The male patients were significantly less likely to be married than the female patients ($\chi^2 = 31.66$, $P < 0.001$). 45.1% of total patients did not have

Table 1
Marital status, number of children and age at onset of the disease according to gender differences

Variants	Males		Females		Total		χ^2	P
	n	%	n	%	n	%		
Gender	329	71.1	134	28.9	463	100		
Marital status							31.66	<0.001
Married	95	28.9	47	35.1	142	30.7		
Single	218	66.3	61	45.5	279	60.3		
Divorced	12	3.6	15	11.2	27	5.8		
Widow	4	1.2	11	8.2	15	3.2		
Number of children								
Absent	43	38.7	40	54.8	83	45.1	18.91	= 0.002
1	6	5.4	9	12.3	15	8.2		
2	19	17.1	5	6.8	24	13.0		
3	11	9.9	5	6.8	16	8.7		
4	6	5.4	9	12.3	15	8.2		
5 and above	26	23.4	5	6.8	31	16.8		
Total	329	71.1	134	28.9	463	100		
Age at onset of the disease							64.03	<0.001
25 and below	241	73.3	44	32.8	285	61.6		
26 and above	88	26.7	90	67.2	178	38.4		

any children. Whereas 54.8% of married women did not have any children, 43% of married men did not have any children. Mean of onset of the disease score was higher statistically in the females (27.6 ± 4.3) than the males (23.7 ± 3.9) ($p < 0.05$) in our study.

As presented in Table 2, 62.4% of patients were paranoid, 27.2% of them were disorganized, 8.2% of them were residual and 6.7% of them were undifferentiated subtypes. The ratio of married patients was still high in the paranoid group. whereas the ratio of singles were higher in the other three groups ($t =$

52.31, $p < 0.001$). The number of children was lower in the disorganized subtype and higher in other subtypes. The onset of the disease was before 25 years of age in the majority of patients in the three subtypes apart from the residual group ($t = 13.57$, $p = 0.004$). 118 of these 289 patients (40.8%) were married. 57.1% of the patients with paranoid sub-type had at least one child. This rate was 30.4% for the disorganized subtype and 56.2% for the residual subtype. In other words, the marriage rate was lowest in the patients with undifferentiated subtype.

Table 2
Marital status, number of children and age at onset of the disease of patients according to subtype of schizophrenia

Type of schizophrenia	Paranoid	Disorganized	Residual	Undifferentiated		
Variants	n (%)	n (%)	n (%)	n (%)	χ^2	P
Total	289 (62.4)	105 (22.7)	38 (8.2)	31 (6.7)		
Marital status					52.31	<0.001
Married	118 (40.8)	7 (6.7)	12 (31.6)	5 (16.1)		
Single	149 (51.6)	82 (78.1)	22 (57.9)	26 (83.9)		
Divorced	14 (4.8)	11 (10.5)	2 (5.3)	–		
Widow	8 (2.8)	5 (4.8)	2 (5.3)	–		
Number of children					33.14	0.004
Absent	60 (42.9)	16 (69.6)	7 (43.8)	–		
1	8 (5.7)	4 (17.4)	1 (6.3)	2 (40.0)		
2	17 (12.1)	1 (4.3)	5 (31.3)	1 (20.0)		
3	16 (11.4)	–	–	–		
4	15 (10.7)	–	–	–		
5 and above	24 (17.1)	2 (8.7)	3 (18.8)	2 (40.0)		
Age at onset of the disease					13.57	0.004
25 and below	172 (59.5)	66 (62.9)	19 (50.0)	28 (90.3)		
26 and above	117 (40.5)	39 (37.1)	19 (50.0)	3 (9.7)		

Discussion

The cities included in the study from the east regions represent the socioeconomically undeveloped regions of Turkey¹³. The people living here commonly use another language as well as the official language. The Kurdish language is spoken commonly in the daily life in this region. The patients in the study and their relatives were interviewed by a translator.

Mean of onset of the disease score was higher statistically in the females (27.6 ± 5.3) than the males (23.7 ± 4.9) ($p < 0.05$) in our study. The paranoid subtype was the commonest, while women were more likely

to be married than men, men had more children than women; and the paranoid subtype were more likely to be married than the other groups. Many Western studies have shown that men develop schizophrenia on average four to six years earlier than women¹⁴. This difference has also been reported in a rural Chinese epidemiological survey¹⁵. In our study we showed that the disease started in females approximately four years later than in males. This finding was consistent with the information that schizophrenia started earlier in males¹⁶⁻¹⁸. We did not find any gender difference in the subtypes of schizophrenia and this finding was consistent with other studies^{16,19}. Despite socio-cultural differences, the fact that

the onset age of schizophrenia was four years higher in the women than in men and that the rates of the schizophrenia subtypes were consistent with those detected in the other studies demonstrates that these rates were determined by neurobiological mechanisms rather than socio-cultural factors. Numerous studies in economically advanced European nations, as well as Japan and USA have reported on gender-related variations in procreation among individuals with schizophrenia. It has been noted consistently that the unmarried state and childlessness are more common among male patients²⁰⁻²². Although the rate of marriage was higher among women, married men had more children than women in our study. Cultural peculiarities may be significant in this contradiction, and therefore the effect may tend to vary across ethnicity and culture.

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