Phenomenology of Delusions and Hallucinations in Patients with Schizophrenia

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ÖZET:
Şizofreni hastalarında sanrı ve varsanıların fenomenolojisi

Giriş: Bu çalışmada şizofreni hastalarından oluşan 2 ayrı grup üzerinde şizofrenide rastlanan sanrı ve varsanıların fenomenolojisi üzerine farklı coğrafik bölgelerde yaşamanın etkilerinin araştırılması amaçlanmıştır.
Metod: Hasta grubu, Türkiye'nin 3 ayrı psikiyatri hastanesinde yatarak tedavi edilen toplam 373 kişiden oluşmaktadır. Bu hastaların sanrıları Huber ve Gross tarafından geliştirilen sınıflama sistemi kullanılarak değerlendirildi. Hastalar yaşadıkları bölgeler göz önüne alınarak kategorize edildi. 1. Grup Türkiye'nin Batı Bölgesini (Marmara Bölgesi), 2. Grup ise Türkiye'nin Orta Bölgesi'ni (İç Anadolu ve İç Ege Bölgesi) temsil etmektedir.
Sonuçlar: Her iki cinsiyet ve grupta en sık olarak referans ve perseküsyon sanrıları saptanmıştır. Zehirlenme ve erotomanik sanrı kadınlarda erkeklerden daha sık görülmüştür. En yaygın işitsel varsanıları dinsel inançla ilgili ve telkinde bulunan sesleri içermektedir. Cinleri görmek en yaygın görsel halüsinasyon temalarındandır.
Tartışma: Sonuçlar, bir ülkede ikamet edilen coğrafi bölge ile sanrı ve varsanıların içeriği arasında bir ilişkiye işaret etmektedir. Her ne kadar kültürel ve çevresel faktörler, sanrı ve varsanıların fenomenolojisinde önemli ise de; yaşanılan coğrafik bölge de bu bağlamda büyük bir önem arzetmektedir.

Anahtar sözcükler: Şizofreni, sanrı, varsanı, fenomenoloji

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ABSTRACT:
Phenomenology of delusions and hallucinations in patients with schizophrenia

Background: The aim of this study is to investigate the influence of living in different geographic regions of the same country on the phenomenology of schizophrenic delusions and hallucinations in two groups of schizophrenic patients.
Methods: A total of 373 schizophrenic patients hospitalized in three different psychiatric hospitals in Turkey were recruited, and their delusions were classified by using the classification system developed by Huber and Gross. Patients were categorized with respect to regions in which they lived. Group 1 represented the Western region of Turkey, and group 2 represented the Central region of Turkey.
Results: Delusions of persecution and reference were detected frequently in both genders and groups. Delusions of poisoning and erotomania were more prevalent in females than in males. The most frequent auditory hallucinations included hearing voices conversing and voices commenting. Seeing goblins was the most prevalent theme in visual hallucinations.
Conclusions: The results demonstrate a relationship between the content of delusions and hallucinations and living in different geographic regions of the same country. Although cultural and environmental factors are important in the phenomenology of delusions and hallucinations, the geographic region of residence seems to be great importance in phenomenology as well.

Key words: Schizophrenia, delusion, hallucination, phenomenology

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INTRODUCTION

The research conducted over the last few decades has indicated that social and cultural factors exert a significant influence on many aspects of psychiatric disorders. A considerable amount of work conducted in cross-cultural settings has provided evidence that the types of delusions and hallucinations experienced by an individual reflect both the place and time in which the person is living (1-4). Although there may well be a biochemical or neuroanatomical basis for the occurrence of psychotic phenomena, it is commonly assumed that culture and environment are major influences on the phenomenology of mental illness. This is particularly likely to be the case for psychotic symptoms like hallucinations and delusions where, by definition, there is no immediate basis in reality for the patients' perceptions and beliefs (5,6).

Although the symptom content of subjects with schizophrenia is very likely to be determined by the shared religious beliefs, expectations and cultural values, no culture is homogeneous and even within the same culture, there are different status classes, age and sex groups characterized by specific customs, social roles, and religious affiliations (7). The different subgroups

of a population are exposed to various environments along with a varying amount of cultural and economic stress. It was hypothesized that there may be differences in the phenomenology of delusions and hallucinations between various geographic regions of the same country. Currently, no research examining the phenomenaology of delusions and hallucinations in various geographic regions of Turkey has been reported. The aim of this study was to analyze and compare the content of delusions and hallucinations in patients with schziophrenia in the Western and Central regions of Turkey.

METHODS

Subjects

The current study employed a descriptive cross-sectional design. Three-hundred seventy-three Turkish patients with schizophrenia who were admitted and hospitalized in three different psychiatric hospitals (Istanbul Bakırköy Research and Training Hospital for Psychiatry and Neurology, Ankara Atatürk Education and Research Hospital Psychiatry Unit and Medical School Hospital of Afyon Kocatepe University) between January 2008 and April 2008 were included in the study. All patients were assessed by trained psychiatrists. The Structured Clinical Interview for DSM-IV-TR (SCID) was used to diagnose schizophrenia (8). The SCID assessment, including the assessment of all hallucination symptoms, was based on all available information, including hospital records and information from family members and outside health care providers. The presence or absence of hallucinatory experiences in all sensory modalities and delusions was recorded as part of the SCID interview and formed the basis of the current analysis. Informed consent was obtained from all patients before the interview. The patients, who were unable to provide informed consent and patients, who declined to be interviewed, were approached a second time. If a patient declined second time, he or she was excluded from the study. In addition, patients diagnosed with substance abuse or dependence were excluded. All patients were on antipsychotic medications (typical and atypical antipsychotics).

The patients were born in and lived in either the Western or Central parts of Turkey. Patients were categorized with respect to gender and regions in which they lived. Western group (Group 1) represented the western region of Turkey, and Central group (Group 2) represented the middle region of Turkey. Group 1 included 201 schizophrenic patients admitted to Istanbul Bakırköy Research and Training Hospital for Psychiatry and Neurology; group 2 included 172 schizophrenic patients admitted to the Psychiatry Departments of Ankara Atatürk Education and Research Hospital and the Medical School Hospital of Afyon Kocatepe University. The study was conducted in accordance with the Declaration of Helsinki.

Patients were interviewed and information about age, gender, education, marital status, profession, duration of illness, number of hospitalizations, and age of illness onset was obtained. The last hospitalization was used for the patients who were hospitalized multiple times. The content of delusions was classified according to Huber and Gross's delusion classification system (9) by the first three authors. More detailed content in persecution delusions was classified according to this system as well.

Statistical analyses were performed with SPSS, version 13.0 (Statistical Package for Social Sciences). In this descriptive study, the chi-square tests (for categorical variables) and t-tests (for continuous variables) were used to compare demographic and clinical characteristics across groups. Two-tailed forms were used. Differences were considered significant at $p<0.05$ for all tests.

Characteristics of study areas and hospitals

Istanbul Bakırköy Research and Training Hospital for Psychiatry and Neurology is the largest and oldest psychiatry hospital in Turkey, and has an in-patient bed capacity of 1500. Of these 1500 beds, 600 service mostly acute psychotic patients. Located in Istanbul, the hospital addresses the needs of a population of nearly 20 million inhabitants living in Istanbul and surrounding cities. Treatment resistant, chronic, and severely ill patients apply to this hospital or are transferred from other hospitals in Istanbul or near cities. The patients admitted to the hospital mostly have history of prior hospitalizations.

In the Central region of Turkey stands the Psychiatry Department of Medical School Hospital of Afyon Kocatepe University, housing 20 in-patient beds and also accommodating a 5000-6000 out-patient capacity per year. It addresses the needs of nearly one million patients living in that region. Another hospital in the

middle region of Turkey, Atatürk Education and Research Hospital Psychiatry department is located in Ankara. It has 17 in-patient beds and an outpatient department, which provides mental health services to approximately 20000-25000 individuals per year. Afyon is the centre of an agricultural area and the city has a country-town feel to it. Anatolian culture, which has Eastern cultural contents more than Western, is dominant culture in these two cities.

Table 1: The sociodemographic characteristics of the sample

	Gender						Region			
	Female (N=158)		Male (N=215)		Total (N=373)		Group 1 (N=201)		Group 2 (N=172)	
Mean age (years)	36.91±11.48		35.73±10.70		36.23±11.03		37.83±9.27		34.36±12.57*	
	N	%	N	%	N	%	N	%	N	%
Marital Status (Statistics)	X^2=21.78 df=3, P= 0.000						X^2=24.67, df=3, P= 0.000			
Married	55	34.8	47	21.9	102	27.3	43	21.4	59	34.3
Single	72	45.6	145	67.4	217	58.2	133	66.2	84	48.8
Widowed	18	11.4	19	8.8	37	9.9	11	5.5	26	15.1
Divorced	13	8.2	4	1.9	17	4.6	14	7.0	3	1.7
Education	X^2=1.62, df=3, P= 0.656					X^2=30.52, df=3, P= 0.000				
Illiterate	13	8.2	13	6.0	26	7.0	19	9.5	7	4.1
Primary school	77	48.7	99	46.0	176	47.2	116	57.7	60	34.9
Secondary school	48	30.4	68	31.6	116	31.1	43	21.4	73	42.4
University	20	12.7	35	16.3	55	14.7	23	11.4	32	18.6
Occupation	X^2=242.07, df=4, P= 0.000						X^2=28.42, df=4, P= 0.000			
Employed	9	5.7	47	21.9	56	15.0	18	9.0	38	22.1
Unemployed	15	9.5	143	66.5	158	42.4	104	51.7	54	31.4
House Wife	117	74.1	0	0	117	31.4	59	29.4	58	33.7
Student	6	3.8	4	1.9	10	2.7	1	0.5	9	5.2
Retired	11	7.0	21	9.8	32	8.6	19	9.5	13	7.6
Family income	X^2=3.37, df=3, P= 0.338					X^2=38.72, df=3, P= 0.000				
Low	39	24.7	67	31.2	106	28.4	48	23.9	58	33.7
Medium	86	54.4	110	51.2	196	52.5	131	65.2	65	37.8
Good	28	17.7	28	13.0	56	15.0	22	10.9	34	19.8
Very good	5	3.2	10	4.7	15	4.0	0	0	15	8.7
Family structure	X^2=4.26, df=1, P= 0.047					X^2=5.02, df=1, P= 0.026				
Core	134	85.4	165	76.7	299	80.4	153	76.1	146	85.4
Wide	23	14.6	50	23.3	73	19.6	48	23.9	25	14.6
Age at onset, years	X^2=4.78, df=3, P= 0.189					X^2=17.19, df=3, P= 0.001				
Before 20	43	27.4	58	27.0	101	27.2	41	20.4	60	35.1
21-30	73	46.5	117	54.4	190	51.1	113	56.2	77	45.0
31-40	26	16.6	30	14.0	56	15.1	38	18.9	18	10.5
After 40	16	10.2	10	4.7	25	6.7	9	4.5	16	9.4
Duration of illness, years	X^2=4.38, df=4, P= 0.357					X^2=29.90, df=4, P= 0.000				
0- 5 years	58	36.9	66	30.7	124	33.3	44	21.9	80	46.8
6-10 years	35	22.3	67	31.2	102	27.4	58	28.9	44	25.7
11-15 years	21	13.4	23	10.7	44	11.8	30	14.9	14	8.2
16-20 years	17	10.8	21	9.8	38	10.2	23	11.4	15	8.8
More than 20 years	26	16.6	38	17.7	64	17.2	46	22.9	18	10.5
Number of hospitalization	X^2=22.11, df=4, P= 0.000						X^2=46.76, df=4, P= 0.000			
1	71	44.9	57	26.5	128	34.3	40	19.9	88	51.2
2	41	25.9	46	21.4	87	23.3	51	25.4	36	20.9
3	17	10.8	32	14.9	49	13.1	29	14.4	20	11.6
4	6	3.8	18	8.4	24	6.4	16	8.0	8	4.7
5 and above	23	14.6	62	28.8	85	22.8	65	32.3	20	11.6
Clinical subtype	X^2=2.24, df=3, P= 0.524					X^2=98.59, df=3, P= 0.000				
Paranoid	87	55.1	102	47.4	189	50.7	73	36.3	116	67.4
Disorganized	16	10.1	25	11.6	41	11.0	14	7.0	27	15.7
Residual	8	5.1	11	5.1	19	5.1	3	1.5	16	9.3
Undifferentiated	47	29.7	77	35.8	124	33.2	111	55.2	13	7.6

*P<0.05

RESULTS

A total of 201 patients from group 1 and 172 patients from the Group 2 were evaluated. The mean (±SD) ages of patients in group 1 and group 2 were 37.83±9.27 and 34.36±12.57, respectively. There were significant differences found in all sociodemographic characteristics between Group 1 and Group 2. Additionally, some parameters including marital status, occupation, family structure, and number of hospitalizations were significantly different between male (n=215) and female (n=158) patients. These characteristics are listed in Table 1.

As can be seen in table 2, there were substantial differences in the frequency and type of schizophrenic

Table 2: Frequency and type of schizophrenic delusions

	Gender						Region			
	Female (N=158)		Male (N=215)		Total (N=373)		Group 1 (N=201)		Group 2 (N=172)	
	N	%	N	%	N	%	N	%	N	%
Total	144	91.1	202	94.0	346	92.8	186	92.5	160	93.0
Persecutory delusions	126	79.7	168	78.1	294	78.8	150	74.6	144	83.7*
Reference	99	62.7	139	64.7	238	63.8	116	57.7	122	70.9*
Poisoning	34	21.5	30	14.0	64	17.2	19	9.5	45	26.2**
Religious delusions	24	15.2	34	15.8	58	15.5	22	10.9	36	20.9*
Grandiosity	23	14.6	31	14.4	54	14.5	20	10.0	34	19.8*
Being controlled	15	9.5	31	14.4	46	12.3	12	6.0	34	19.8**
Mind reading	19	12.0	20	19.3	39	10.5	9	4.5	30	17.4**
Jealousy	14	8.9	17	7.9	31	8.3	7	3.5	24	14.0**
Guilt/Sin	8	5.1	16	7.4	24	6.4	1	0.5	23	13.4**
Hypochondria	11	7.0	12	5.6	23	6.2	2	1.0	21	12.2**
Erotomania	13	8.2	8	3.7	21	5.6	5	2.5	16	9.3*
Thought broadcasting	12	7.6	8	3.7	20	5.4	1	0.5	19	11.1**
Thought insertion	4	2.5	14	6.5	18	4.8	2	1.0	16	9.3**
Nihilistic	6	3.8	11	5.1	17	4.6	8	4.0	9	5.2
Thought withdrawal	7	4.4	3	1.4	10	2.7	1	0.5	9	5.2*
Nobility	4	2.5	2	0.9	6	1.6	0	0	6	3.5*
Inferiority	2	1.3	4	1.9	6	1.6	0	0	6	3.5*
Homosexual	0*	0	6	2.8	6	1.6	0	0	6	3.5*
Parasitosis	0	0	2	0.9	2	0.5	0	0	2	1.2
World catastrophe	0	0	2	0.9	2	0.5	0	0	2	1.2
Resurrection	0	0	2	0.9	2	0.5	0	0	2	1.2
Others	4	2.5	6	2.8	10	2.7	9	4.5	1	0.6*

*P<0.05, **P<0.001.

Table 3: Detailed content of persecutory delusions

	Gender						Region			
	Female (N=158)		Male (N=215)		Total (N=373)		Group 1 (N=201)		Group 2 (N=172)	
	N	%	N	%	N	%	N	%	N	%
Persecutory delusions	126	79.7	168	78.1	294	78.8	150	74.6	144	83.7*
Physical/mental injury	115	72.8	140	65.1	255	68.4	119	59.2	136	79.1**
Being followed	62	39.2	79	36.7	141	37.8	44	21.9	97	56.4**
Being killed	59	37.3	75	34.9	134	35.9	52	25.9	82	47.7**
Being watched	32	20.3	36	16.7	68	18.2	18	9.0	50	29.1**
Being bewitched	31	19.6	26	12.1	57	15.3	14	7.0	43	25.0**
Being wire-tapped	15	9.5	15	7.0	30	8.0	1	0.5	29	16.9**
Being attacked	14	8.9	16	7.4	30	8.0	4	2.0	26	15.1**
Being slandered	7	4.4	7	3.3	14	3.8	2	1.0	12	7.0*
Being caught by goblins	5	3.2	6	2.8	11	2.9	0	0	11	6.4**
Being photographed	3	1.9	5	2.3	8	2.1	0	0	8	4.7*
Being caught by devil	2	1.3	6	2.8	8	2.1	0	0	8	4.7*
Others	5	3.2	5	2.3	10	2.7	3	1.5	7	4.1

*P<0.05, **P<0.001.

Table 4: Frequency and type of persecutors in the persecutory delusions

	Gender						Region			
	Female (N=158)		Male (N=215)		Total (N=373)		Group 1 (N=201)		Group 2 (N=172)	
	N	%	N	%	N	%	N	%	N	%
Total	121	76.6	159	74.0	280	75.1	136	67.7	144	83.7**
Non-specific	42	26.6	74	34.4	116	31.1	69	34.3	47	27.3
Family members	55*	34.8	52	24.2	107	28.7	45	22.4	62	36.0*
Neighbors	34*	21.5	27	12.6	61	16.4	20	10.0	41	23.8**
Family of partner	8	5.1	6	2.8	14	3.8	1	0.5	13	7.6**
Police, army	7	4.4	18	8.4	25	6.7	2	1.0	23	13.4**
Friends	9	5.7	15	7.0	24	6.4	1	0.5	23	13.4**
Goblins	5	3.2	13	6.0	18	4.8	1	0.5	17	9.9**
Spy	6	3.8	12	5.6	18	4.8	2	1.0	16	9.3**
Medical staff	4	2.5	9	4.2	13	3.5	0	0	13	7.6**
Devil	2	1.3	7	3.3	9	2.4	0	0	9	5.2*
Men	5	3.2	4	1.9	9	2.4	0	0	9	5.2*
TV announcer	5	3.2	2	0.9	7	1.9	5	2.5	2	1.2
Dead persons	2	1.3	2	0.9	4	1.1	0	0	4	2.3*
Imagined Lover	2	1.3	1	0.5	3	0.8	0	0	3	1.7
Women	0	0	2	0.9	2	0.5	0	0	2	1.2
Political authorities	0	0	2	0.9	2	0.5	1	0.6	1	0.5
Religious leaders	0	0	1	0.5	1	0.3	1	0.5	0	0
Others	3	1.9	10	4.7	13	3.5	4	2.0	9	5.2

*P<0.05, **P<0.001.

Table 5: Frequency and type of schizophrenic hallucinations

	Gender						Region			
	Female (N=158)		Male (N=215)		Total (N=373)		Group 1 (N=201)		Group 2 (N=172)	
	N	%	N	%	N	%	N	%	N	%
Auditory hallucinations	104	65.8	132	61.4	236	63.3	109	54.2	127	73.8**
Voices conversing	38	24.1	56	26.0	94	25.2	23	11.4	71	41.3**
Voices commenting	44	27.8	45	20.9	89	23.9	18	9.0	71	41.3**
Voices ordering	32	20.3	48	22.3	80	21.4	16	8.0	64	37.2**
Voices threatening	16	10.1	20	9.3	36	9.7	6	3.0	30	17.4**
Voices from goblins	10	6.3	11	5.1	21	5.6	2	1.0	19	11.0**
Voices from God	6	3.8	9	4.2	15	4.0	3	1.5	12	7.0*
Voices from dead person	7	4.4	6	2.8	13	3.5	1	0.5	12	7.0*
Voices from the Prophet	6	3.8	4	1.9	10	2.7	0	0	10	5.8**
Thought echo	4	2.5	5	2.3	9	2.4	0	0	9	5.2*
Voices from Devil	4	2.5	5	2.3	9	2.4	1	0.5	8	4.7*
Voices from Atatürk	0	0	1	0.5	1	0.3	1	0.5	0	0
Others	23	14.6	40	18.6	63	16.9	46	22.9	17	9.9*
Visual hallucinations	54	34.2	58	27.0	112	30.0	52	25.9	60	34.9
Seeing Goblins	11	7.0	14	6.5	25	6.7	5	2.5	20	11.6*
Seeing dead person	9	5.7	7	3.3	16	4.3	5	2.5	11	6.4
Seeing the Prophet	7	4.4	4	1.9	11	2.9	0	0	11	6.4**
Seeing Devil	4	2.5	6	2.8	10	2.7	1	0.5	9	5.2*
Seeing God	4	2.5	5	2.3	9	2.4	1	0.5	8	4.7*
Seeing Saint	5	3.2	3	1.4	8	2.1	1	0.5	7	4.1*
Seeing Atatürk	1	0.6	1	0.5	2	0.5	0	0	2	1.2
Seeing aliens	1	0.6	2	0.9	3	0.8	0	0	3	1.7
Others	31	19.6	33	15.3	64	17.2	37	18.4	27	15.7
Olfactory hallucinations	10	6.3	11	5.1	21	5.6	2	1.0	19	11.0**
Tactile hallucinations	5	3.2	4	1.9	9	2.4	1	0.5	8	4.7*
Gustatory hallucinations	1	0.6	2	0.9	3	0.8	0	0	3	1.7

*P<0.05, **P<0.001.

delusions experienced by the two groups. A total of 346 patients (92.8%) experienced delusions. Delusions of persecution and reference were most frequent in both genders and both groups. Delusions of poisoning and erotomania were more prevalent in female patients than in male patients (21.5% and 8.2%, respectively). Of the 21 delusional themes, 17 demonstrated significant differences in frequency between the two groups. Of these 17 themes, 16 exhibited higher frequencies in group 2.

Persecutory delusions were observed in 78.8% (n=294) of the total sample (Table 3). The frequencies of all of the persecutory delusions except one (others) were significantly different between two geographical groups. Physical/ mental injury tended to be more frequent in both male gender and Group 1. Detailed content of persecutory delusions are shown in table 3. We also determined the frequency of different types of persecutors in the persecutory delusions. Of the 18 persecutors, 11 were significantly different in frequency between the two groups. Non-specific persecutors, family members and neighbors were the most prevalent persecutors in our sample. Among persecutors, family members and neighbors were more frequently observed in females than in males (Table 4).

We also examined the frequency and type of schizophrenic hallucinations. A total of 236 (63.3%) patients had auditory hallucinations and 112 (30.0%) patients had visual hallucinations. The most frequent auditory hallucinations were hearing voices conversing and hearing voices commenting. Seeing goblins was the most prevalent theme among visual hallucinations. There were no significant sex differences found in the content of hallucinations. In relation to region, hallucinations of auditory, olfactory, and tactile nature tended to be more frequent in group 2 than in group 1 (Table 5).

DISCUSSION

To our knowledge, this is the first study examining the phenomenologic differences of both delusions and hallucinations in the two different geographic regions of Turkey. One of the main findings of this study is the high prevalence of delusions (92.8%) in subjects with schizophrenia, which is consistent with previous reports (2,10). This finding supports the notion that delusions are the prominent symptoms which appear in schizophrenia (11).

The first and second most frequent delusions were persecutory and reference delusions, respectively, in the present study. Persecutory delusions have been reported to have higher frequencies in the extant literature. The most frequent tendency was extraordinary threatening of environment and it seems that persecutory delusions were rarely influenced from culture and time (10,12,13). The frequency of persecutory delusions may be explained by the high frequency of paranoid schizophrenia. Also, it has been suggested that the preponderance of these delusions may be the projection of emotional uneasiness of the subjects with schizophrenia to the external world and represent the anxiety of a human being in front of others (2). In addition, the excess of patients with delusions of persecution may partly be because these patients are more likely to be brought to hospital for treatment because of a lower tolerance threshold for such patients (7).

The most common persecutor in persecutory delusions was an unknown individual; the second was family and other relatives. It has been found that in Pakistani patients, the persecutors are usually family members and neighbors and it has been suggested that the delusion of being persecuted by neighbors or family members is typical of cultures with strong family ties (3). Gender differences in the perception of the persecutors are also consistent with the social and cultural roles both are expected to play; that is, women have to keep themselves confined to family affairs, while men have to venture outside to face the challenges of a harsh world (7). In Turkey, after marriage, women put into practice the domestic tasks they have learned. The necessary tasks, such as taking care of the children and the husband, are limited to the house. The house is the main place of activity for women. Austrian patients, when asked to identify their persecutions, are likely to state that they were uncertain. This combination of uncertain persecutors and "all of them seem to know" feelings attracts attention, and so Western populations are considered to have an anonymous myth (10). So the two clear persecution types seem to reflect the differences in the socialization process between the two cultures. The frequency of ambiguous features like "all of them seem to know" reflect the Western characteristics of our region, while family-related persecutors may reflect Turkey's large family structure and Eastern aspects of culture (14).

Delusions of being poisoned constituted the third most frequent (17.2%) content area in our study. Fujimori et

al. (15) commented on the frequency of being poisoned in Chinese patients by discussing the reality that Chinese patients eat dinners with their families and friends. In this current study, delusions of poisoning were significantly more frequently reported in middle Group 2. Similar to China, in the Central and Eastern regions of Turkey (14), eating with relatives is a common traditional behavior. Also, another common behavior in Turkey is to mix drugs into the foods of acutely psychotic patients by their families; thus, the different taste of the food may create beliefs of being poisoned in the patient. These data reflect both the European and Asian aspects of Turkey.

The fourth most frequent delusion reported was that of a religious theme and they were especially common in male patients. Such religious delusions concern being controlled by the devil, so they are often treated by the act of exorcising. Recently, it has been demonstrated that the prevalence of religious delusions in schizophrenia is associated with cultural factors and religious delusions are therefore secondary phenomena in schizophrenia, and not inherent to the illness process (16). The vast majority of the population in the Republic of Turkey is Muslim; next two largest groups are Christians and Jews. Therefore, it is not surprising that religious delusions reflect Islamic themes in the present study. For example, a 24 year-old male patient, whose real name was Isa (Jesus in Turkish), was saying; "I'm Jesus, I'm the Messiah, I've been sent to the Earth again" as seen part of Islamic faith. In addition, it has been suggested that religious rituals and expectations of the family play a major role in the genesis and maintenance of delusions (17). In our study, delusions of religious were also significantly more frequently reported in Central group 2. This finding may explain by the fact that regional rituals and expectations of families in Middle Anatolia are more important than the other regions of our country.

Another category of delusions pertains to notions of guilt and sin. Delusions of guilt and/ or sin were less frequent than most other delusions in our study. It has been demonstrated that delusions of guilt/ sin were less frequent in Asia than in Europe and it has been suggested that this may be related to shame culture in Asian countries in contrast to guilt culture in European countries (18). Another factor which might responsible for low frequencies of guilt delusions in Turkey is the Turkish system of religious values. According to Islam, if anyone sins, he only gives harm to himself, not to the God. On the other hand, Christians believe that the sin is being committed against God (19).

The fifth most frequent delusion category was grandiose delusions. In past studies, it was reported that grandiose delusions usually occur in approximately 13-25% of provincial male schizophrenic patients (11,20). Perhaps it is not surprising that some people's aspirations of fame and success can be achieved only in delusions. Moreover, the ideas of grandiosity in an underdeveloped society with social and economic uncertainties may have served the purpose of wish-fulfillment on the part of deprived ones. The preponderance of themes of grandiosity, i.e. being a star and an important person, and physical and psychic powers among men and economically advantaged patients is in a developing country with social and cultural roles both are expected to play in society, especially in a traditional one (7). Usually, grandiose delusions are more frequent in the rural population with lower educational levels and among males. The frequency of grandiose delusions in males may be because of the inequality in sharing social roles (3,14). In our study, grandiosity was significantly more frequently reported in Central group 2 and males.

Another area of delusions includes those regarding jealousy and erotomania. In the present study, jealousy delusions were more common in females than males. It has been suggested that incidences of delusions of sex, jealousy, and rape sensitively reflect traditional sexual rigidity, sexual morality, and public order (4). We suggest that the frequency of jealousy delusions in females is result in part because it is a usual way of complaining about the lack of interest of their husbands and may serve as the foundation for accusing their husbands of illegitimate relationships. Otherwise, in our sample delusions of erotomania were more common among females. This can be related to the marital status of female patients. Most of them were single in both groups, so they would be more prone to develop delusions about being loved secretly. This finding is consistent with the reports indicating that erotomanic delusions are more common in single patients (14,21).

Another area of focus in the present study regards schizophrenic hallucinations. The studies have indicated that cultural factors affect both the expression of hallucinations and the sensory systems involved (22,23).

It is suggested that in societies and epochs where 'visions' are given positive religious or social connotations, visual hallucinations are more frequent than in those in which 'visions' are not viewed as favorably (22). Azhar et al. (24) examined phenomenological differences in hallucinations between schizophrenic patients in various areas of Malaysia. There were significant differences in experiences of the Malays of Penang and Kelantan, indicating that culture affects the phenomenology of hallucinations even among people of the same race, but from different regions. In addition, some reports from Saudi Arabia, where visual and auditory hallucinations are a common occurrence, and their content is related to cultural background (1).

It has been reported in several studies that visual hallucinations are more common in non-Western cultures than in European cultures, where auditory hallucinations dominate the phenomenology of psychoses (12,25); however, it appears that visual hallucinations were relatively more frequent in the west than in the present (26). In our study the most frequent hallucinations were auditory hallucinations, a finding which corroborates prior studies. The most frequent subtypes of auditory hallucinations were voices ordering, voices conversing, voices commenting, and voices threatening; they were all significantly more frequent in middle group 2. Voices from prophets and voices from goblins were also significantly more frequent in Central group 2. In related studies (1,27), most patients from a Saudi sample reported that the content of their voices was religious in nature. The high frequency of religious content of auditory hallucinations, like hearing voices from prophets and goblins, in our study, can be explained by the dominance and strength of religious beliefs on peoples' lives in Eastern regions of Turkey.

The universe of Islam includes various classes of beings beside humans, such as Jinn (goblins), Shaitan (satanic beings) and Farishta (angels). Moreover, the existence of them has been acknowledged very clearly in Al-Quran, the Holy book of Muslims (28) which encourages people to visualize and believe in culturally and religiously sanctioned images and ideas. It is possible, accordingly, that a greater acceptance of 'seeing spirits (goblins)' in traditional Turkish culture may lead either to a lower threshold for the experience of visual hallucinations, or to an increased willingness to report them, resulting both in a high frequency of such delusions (5). This can explain the high frequency of religious visual hallucinations such as seeing God, goblins, the Prophet, the Devil and saints in middle group, which reflects the strong religious beliefs and perceptions in the middle and eastern parts of Turkey.

The main limitation of our study is that there may be some differences at some variables such as education and marital status between the regions. It is possible that these variables have the significant effects on the phenomenology of delusions and hallucinations. The second limitation is that all patients were receiving antipsychotic treatment in the present study and the treatment may have some effects on the frequency and distribution of delusions and hallucinations. For example, the Schneiderian delusions may be resistant to the treatment and this condition might be a cause of the differences of the phenomenology of delusions and hallucinations.

In summary, this current study investigated the relationship between the content of delusions and hallucinations with sociocultural structure and environmental factors. Our findings supported previous reports that demonstrated persecution as the most frequent delusional theme in a variety of cultures. It also demonstrates that there are significant differences in the phenomenology of schizophrenic delusions and hallucinations between different geographic regions of the same country. We suggest that although cultural factors are important in phenomenology of delusions and hallucinations, immediate environment, time, life conditions, and also gender seem to be important factors in these connections. But we must keep in mind that this study is based on case note data. Case reports notes record symptomatology as elicited, perceived, and interpreted by the psychiatrist or other mental health professionals.

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