

The Effect of Delusion and Hallucination Types on Treatment Response in Schizophrenia and Schizoaffective Disorder

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ABSTRACT

The effect of delusion and hallucination types on treatment response in schizophrenia and schizoaffective disorder

Objective: While there are numerous studies investigating what kind of variables, including socio-demographic and cultural ones, affect the delusion types, not many studies can be found that investigate the impact of delusion types on treatment response. Our study aimed at researching the effect of delusion and hallucination types on treatment response in inpatients admitted with a diagnosis of schizophrenia or schizoaffective disorder.

Method: The patient group included 116 consecutive inpatients diagnosed with schizophrenia and schizoaffective disorder according to DSM-IV-TR in a clinical interview. Delusions types were determined using the classification system developed by Gross and colleagues. The hallucinations were recorded as auditory, visual and auditory-visual. Response to treatment was assessed according to the difference in the Positive and Negative Syndrome Scale (PANSS) scores at admission and discharge and the duration of hospitalization.

Results: Studying the effect of delusion types on response to treatment, it has been found that for patients with religious and grandiose delusions, statistically the duration of hospitalization is significantly longer than for other patients. On the other hand, in patients with a delusion of being bewitched, the difference between their PANSS scores at admission and discharge was lower. The types of hallucination did not affect the difference in PANSS scores nor the duration of treatment. However, in case of visual hallucinations, PANSS scores for psychotic exacerbation were higher.

Conclusion: This study shows the association of negative treatment response with delusions of grandiosity and being bewitched and religious delusions. It can be said that delusion types in the schizophrenia spectrum may affect the duration of hospitalization and treatment response.

Keywords: Delusion, hallucination, schizophrenia, schizoaffective disorder, treatment response



ÖZET

Sanrı ve varsanı tiplerinin şizofreni ve şizoaffektif bozuklukta tedavi yanıtına etkisi

Amaç: Sanrı tiplerinin sosyodemografik ve kültürel ne gibi değişkenlerden etkilendiği konusunda fazla sayıda çalışma olmasına rağmen sanrı tipinin tedaviye yanıtına etkisi konusunda fazla sayıda çalışma bulunmamaktadır. Biz bu çalışmada sanrı ve varsanı tiplerinin şizofreni ve şizoaffektif bozukluk tanısı ile yatarak tedavi gören hastalarda, tedavi yanıtına etkisini araştırmayı amaçladık.

Yöntem: Çalışmamıza şizofreni ve şizoaffektif bozukluk tanılıları ardışık olarak yatarak tedavi gören ve klinik görüşme sonucunda Ruhsal Bozuklukların Tanısal ve Sayımsal El Kitabı Yeniden Gözden Geçirilmiş Dördüncü Baskı (DSM-IV-TR) tanı ölçütlerine göre şizofreni ve şizoaffektif bozukluk tanısı doğrulanmış 116 hasta alındı. Sanrı tiplerini belirlemek amacıyla Gross ve arkadaşlarının sanrı sınıflandırma sistemi kullanıldı. Varsanılar işitsel, görsele, işitsel-görsele olarak kaydedildi. Hastaların tedavi yanıtı ise yatış ve çıkıştaki Pozitif ve Negatif Sendrom Ölçeği (PANSS) puanlarının farkı ve yatış süresi ile değerlendirildi.

Bulgular: Sanrı tiplerinin tedavi yanıtına etkisi araştırıldığında; dini ve büyüklük sanrıları olan hastaların, olmayan hastalara göre yatış sürelerinin istatistiksel açıdan anlamlı derecede daha uzun olduğu saptandı. Ayrıca büyü yapılmış sanrıları olan hastalarda yatış ve çıkıştaki PANSS puanları arasındaki fark daha azdı. Varsanılıların tipi, PANSS puanları arasındaki farkı ve tedavi süresini değiştirmemekte idi.

Sonuç: Çalışmamız büyüklük sanrıları, dini sanrıları ve büyü yapılmış sanrıların olumsuz tedavi yanıtı ile ilişkili olduğunu göstermektedir. Sanrı tiplerinin şizofreni spektrumunda hastanede yatış süresi ve tedavi yanıtı üzerine etkisi olduğu söylenebilir.

Anahtar kelimeler: Sanrı, varsanı, şizofreni, şizoaffektif bozukluk, tedavi yanıtı

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Date of receipt / Geliş tarihi:
January 29, 2015 / 29 Ocak 2015

Date of the first revision letter / İlk düzeltme öneri tarihi:
February 24, 2015 / 24 Şubat 2015

Date of acceptance / Kabul tarihi:
July 8, 2015 / 8 Temmuz 2015

INTRODUCTION

Delusions can be defined as firm thoughts that cannot be explained with a person's cultural structure, not conforming to the visible reality and persisting despite being proven wrong (1). These thoughts, which may present in varieties from extremely impossible ideas to others frequently to be considered realizable, can occur in a significant number of psychiatric or general medical conditions, most notably schizophrenia (1). Appelbaum et al. (2), in a study looking at the relation between disease symptoms and delusion types, found more intense delusions in schizophrenics compared to other symptom categories and observed grandiose and religious delusions in a large proportion of schizophrenic patients. While the belief in these delusions was very strong, a correlation between persecutory delusion and strong negative affect and propensity to act was found.

In other studies, the effect of sociodemographic and cultural variables on types of delusions have been investigated (3-8). Results of these studies support the view that, even though patients in different cultures show similar clinical presentations, the content of their symptoms can be traced back to regional or cultural themes. It can be said that the content of the delusions is correlated to themes frequently found in parallel with sociocultural variations. Sociopolitical, technical, and scientific variations may also affect and modify the content of delusions in schizophrenic patients (7).

There is not a large number of studies examining the effect of delusion types on therapy response and clinical course. The clinical response of patients diagnosed with first-episode schizophrenia has been assessed, finding sexual, religious, and grandiose delusions associated with flat affect to be a strong determinant for a poor clinical outcome (9). In the literature, studies investigating the effect of religious delusions on therapy response and patient conduct are found to report conflicting results (10-12).

Hallucinations are also among the positive signs for schizophrenia. Studies have found that hallucinations are more often accompanied by delusions than by other

positive symptoms of schizophrenia (13-15). As auditory hallucinations go along with neuroanatomical changes, it can be assumed that hallucinations are correlated with the severity of the disease (16-18). A study by Mueser et al. (19) reports that visual hallucinations are correlated with disease intensity. Another study, however, did not find a correlation between hallucinations and disease severity or intensity of delusion (20).

In our study, we aimed at examining the effect of the types of delusion and hallucination on the treatment response in inpatients with a diagnosis of schizophrenia or schizoaffective disorder. We have assessed the effect of delusion and comorbid hallucination types on the duration of hospitalization and changes and rates of symptoms during inpatient treatment.

METHOD

The study included 116 consecutive inpatients diagnosed with schizophrenia or schizoaffective disorder seen at the closed men's ward between Jan 1, 2011 and June 1, 2011, having had their diagnoses confirmed through Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). Ethics committee approval was taken from the Ethics Committee of the Erenköy Psychiatric and Neurological Diseases Hospital. Patients were informed about the study at admission and written informed consent was obtained.

A sociodemographic data form was compiled reviewing the patient interview and the admission forms. All the Positive and Negative Syndrome Scale (PANSS) values for all patients at admission and discharge were recorded by the same interviewer, who was an independent practitioner of psychiatry not currently working at our hospital and having no connection with the patients' treatment process. The content of the delusions was categorized according to the classification system devised by Gross et al. (21). Hallucinations were recorded as auditory, visual, or auditory and visual. Therapy response was assessed comparing PANSS score difference between admission and discharge and duration of hospitalization. Therefore, patients discharged at their own request

were excluded, only patients discharged because of recovery were included in the study.

Sociodemographic Data Form: Patients' age, educational status, marital status, duration of disease, number of hospitalizations, age at first onset of disease, family history, and alcohol/substance use were recorded in the patient data forms.

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I): A structured clinical interview instrument developed by First et al. (22) for the diagnosis of major DSM-IV axis I disorder and published by the American Psychiatric Association. It has been adapted to Turkish, and a validity and reliability study has been carried out (23). In our study, we only used the psychosis module to confirm the diagnoses.

Positive and Negative Syndrome Scale (PANSS): A 30-item semi-structured instrument to perform psychopathological measurements related to positive, negative, and general symptoms of schizophrenia. Of the 30 psychiatric parameters assessed by PANSS, 7 belong to the positive syndrome subscore, 7 to the negative syndrome subscore, and the remaining 16 to the general psychopathology subscore. Each item is assessed by severity on a scale from 1 to 7. Four measurements are taken: positive, negative, and general psychopathology scores and total PANSS score (24). A validity and reliability study for Turkish was made by Kostakoglu et al. (25).

Classification of Delusions: According to this classification system, if in a patient more than one delusion content was found, they were counted separately. However, in patients for whom this classification system was applicable, non-specified types of delusional content were not entered into the table. For patients identified with persecutory delusions, subtypes of persecutory delusions and persecutors were classified again according to Gross et al.'s system (21).

Statistical Analysis

The data obtained were analyzed using the statistical package SPSS for Windows. To determine the effect of delusion content on therapy indicators (duration of treatment and difference in PANSS scores between admission and discharge), Mann-Whitney U test was used, for measuring the impact of hallucination types on therapy indicators Kruskal-Wallis test.

RESULTS

Of the patients included in the study, 100 had a diagnosis of schizophrenia and 16 schizoaffective disorder. All patients were male, with a mean age of 38.37 ± 11.46 years. Mean duration of disease was 14.59 ± 10.98 years, mean age at onset 23.77 ± 6.38 years. Age at first hospitalization was 26.41 ± 7.41 years, mean duration of hospitalization 22.85 ± 9.70 days. Eighty two of the patients (70.7%) were single, 16 (13.8) married, 18 (15.5%) divorced or separated.

Table 1: Persecution subtypes and persecuting persons in patients with persecutory delusion

Persecution subtypes in patients with persecutory delusion	Total (n=109)	%	Persecuting persons in patients with persecutory delusion	Total (n=109)	%
Suffering physical or mental harm	96	88.00	Members of own family	56	51.30
Being followed	32	29.30	Not specified	44	40.30
Getting killed	21	19.20	Neighbors- friends	31	28.40
Being bewitched	21	19.20	Jinn	10	9.17
Conversations being intercepted	5	4.58	Police - military	5	4.58
Being singled out	5	4.58	Politicians	3	2.75
Being assaulted	3	2.75	Satan	3	2.75
Being seized by Satan	3	2.75	Hadji - hodja	2	1.83
Be obstructed	1	0.92	Men	1	0.92
Having one's photo taken	1	0.92	Women	1	0.92
Getting maligned	1	0.92			

Table 2: Effect of delusion type on therapy indicators

			Duration of treatment			PANSS difference				
			Mean	Standard deviation	p	z	Mean	Standard deviation	p	z
Presence of persecution	no	7	27.00	10.08	0.153	-1.428	57.86	20.51	0.468	-0.725
	yes	109	22.59	9.66			52.53	23.82		
Persecution type										
Being bewitched	no	90	22.21	9.20	0.125	-1.535	54.13	24.30	0.046	-1.993
	yes	19	25.76	11.49			47.10	19.54		
Being followed	no	31	22.37	9.54	0.213	-1.244	50.67	23.10	0.343	-0.947
	yes	78	24.13	10.13			58.59	24.26		
Suffering physical or mental harm	no	16	24.75	8.46	0.228	-1.204	57.80	20.33	0.690	-1.816
	yes	93	22.46	9.93			51.82	24.18		
Getting killed	no	88	22.69	9.94	0.344	-0.946	50.79	22.97	0.166	-1.384
	yes	21	23.57	8.69			62.19	24.68		
Type of persecutor										
Unspecified	no	62	22.54	9.92	0.393	-0.855	49.10	22.55	0.050	-1.960
	yes	47	23.29	9.46			57.98	24.24		
Members of own family	no	54	24.57	10.98	0.225	-1.214	51.42	20.32	0.361	-0.963
	yes	55	21.02	7.79			54.39	26.76		
Friend - neighbor	no	81	22.41	9.03	0.669	-0.669	52.51	23.29	0.561	-0.582
	yes	28	24.17	11.55			53.90	24.86		
Grandiose delusion	no	86	21.68	9.33	0.008	-2.645	53.70	24.08	0.128	-1.521
	yes	23	27.61	9.88			49.43	21.64		
Religious delusions	no	80	21.93	10.07	0.013	-2.483	53.77	24.81	0.515	-0.650
	yes	29	25.62	8.01			50.10	19.61		
Delusion of poisoning	no	91	22.87	9.72	0.916	-0.118	51.07	23.15	0.125	-0.125
	yes	18	22.78	9.82			62.56	24.26		

PANSS: the Positive and Negative Syndrome Scale. To determine the effect of delusion types on duration of treatment and PANSS difference, Mann-Whitney U test has been used.
PANSS difference: Difference between the PANSS scores at admission and discharge.

Table 3: Effect of hallucinations on therapy indicators

			Duration of treatment			PANSS difference		
			Mean	Standard deviation	p	Mean	Standard deviation	p
Hallucination	No	36	23.95	9.09	0.524	48.23	23.69	0.338
	Auditory	38	21.37	8.17		53.32	19.33	
	Visual	5	27.20	12.44		74.80	14.24	
	Auditory and visual	30	22.43	11.76		55.23	27.73	

PANSS: the Positive and Negative Syndrome Scale. To determine the effect of hallucinations on duration of treatment and PANSS difference, Kruskal-Wallis test has been used.
PANSS difference: Difference between the PANSS scores at admission and discharge.

Of the 116 patients in the study, 109 (94.0%) showed persecutory delusions (Table 1). Beyond these, the most common delusions in order of frequency were religious delusions in 29 patients (25.0%), grandiose delusions in 23 patients (19.8%) and delusions of poisoning in 18 patients (15.5%). Delusions of jealousy were found in 12 patients (10.8%), hypochondriac delusions and erotomaniac delusions in 5 patients each (4.3%), sinfulness/guilt delusions in 3 patients (2.4%), death delusions in 2 patients (1.6%), near-death delusion and

homosexuality delusion in 1 patient each (0.8%). In patients with persecutory delusions, most frequently found were delusions of being subjected to physical/mental violence in a total of 93 cases (85.3%), followed by delusions about being followed (71.5%), getting killed (19.2%), and being bewitched (17.4%) (Table 1). Persecutors in patients with persecutory delusions were frequently members of their own family (55 patients, 50.4%). In 47 patients, the type of persecutor was unspecified (43.1%), in 31 patients it was a friend or neighbors (28.5%) (Table 1).

Patients' mean PANSS score was 109.64 ± 23.18 at admission and 56.78 ± 17.39 at discharge.

Assessing the effect of delusion types on response to treatment, it was found that patients with only religious delusions ($p=0.013$, $z=-0.650$) and grandiose delusions ($p=0.008$, $z=-2.645$) had a significantly longer duration of hospitalization than patients without these delusions. Analyzing the correlation of persecution subtypes and persecutors with therapy parameters, it was seen that the difference between PANSS scores at admission and discharge was significantly smaller in patients with delusion of being bewitched ($p=0.046$, $z=-1.993$) and those with unspecified persecutor ($p=0.050$, $z=-1.960$) (Table 2).

The hallucination type did not change the difference between PANSS scores at admission and discharge and the duration of therapy (Table 3). However, in the presence of visual hallucinations, the severity of psychotic relapse (PANSS 1) was seen to be higher ($p=0.017$).

DISCUSSION

In the present study, most commonly found in order of incidence were religious delusions and delusions of poisoning. There are numerous studies indicating that persecution-type delusions represent the most commonly seen type of delusions in patients diagnosed with schizophrenia (3,7,26).

In our study, the analysis of the correlation between delusion types and response to therapy showed that in patients with religious and grandiose delusions, the duration of hospitalization was statistically significantly longer than in other patients ($p=0.013$, $p=0.008$). A study assessing first-episode schizophrenia patients came to a result consistent with our study, finding that sexual, religious, and grandiose delusions are strong determinants for poor response (9).

Apart from the correlation between religious delusions and poor response, one study found that individuals with religious delusions at their first psychiatric presentation have higher symptom scores compared to other types of delusion. The same study

determined that at the time of their presentation at the hospital, these patients had been prescribed more antipsychotic drugs, and their social functionality was lower (11).

Some studies are focusing more on the impact of religious faith on therapy response than on religious delusions (12,27-29). While it is assumed that persons interested in religion are healthier than those not concerned with religion (27), these results change in studies dealing with schizophrenia. In one study, patients were separated according to their religiosity and according to the presence of religious delusions. After a 4-week routine treatment, no difference was found in the response to short-term therapy between the patient groups according to either of the two classifications (12). Another study from Europe assessing basic therapeutic approaches to schizophrenia found intense religious faith, among other factors, to be a strong determinant for a poor long-term course (28). One study compared patients with religious delusions, those with other delusions, and patients without delusions from the perspective of spiritual coping, finding that the severity of the disease was not higher in patients with religious delusions, but their compliance with medication was not good (29). It was determined that about half of the patients with delusions used spiritual coping and were more religious than patients without delusions; however, patients with religious delusions received little support from a religious perspective (29).

These studies emphasize that, while the correlation between religious delusions and poor response to therapy in schizophrenic patients was not found to be statistically significant, this result needs to be evaluated in the context of a broad range of concomitant variables, including stigmatization for serious non-compliance with the treatment (29,30). An important recurrent finding is that male gender is the most important indicator for poor response to therapy in these patients (10,11).

In our study, we compared the PANSS scores at admission and discharge according to types of delusion and types of persecutors, finding only for patients with a delusion of being bewitched and in

cases with unspecified persecutor a distinctively lower recovery rate. We did not find any studies in the literature reporting any effect of these two parameters on the therapy response.

The small size of the difference in symptom scores after therapy for patients with a delusion of being bewitched may be related to the fact that this type of unusual thought and experience in daily life being accepted by a relevant section of society may lead to more resistant thought disorders in these patients.

We found that the presence of hallucinations and their type did not affect the response to therapy; however, in the presence of visual hallucinations, disease scores at first admission were higher. This result is consistent with studies reporting that visual hallucinations correlate with disease severity (19).

As to the limitations of the study, we included only male patients, used a cross-sectional approach and, as specified above, were not entirely able to separate certain types of delusions during their classification.

It can be assumed that among delusional disorders, patients with persecutory, somatic, and erotomanic delusions have a better prognosis than those with grandiose and jealousy delusions (31). In this regard, the number of studies made with schizophrenia and

schizoaffective disorder is smaller and results are inconsistent. What is striking in our study is that we could show a correlation of grandiose delusions, religious delusions, and the delusion of being bewitched with unsuccessful therapy outcome.

In future studies, it is necessary to consider subjective religious faith and to undertake follow-up studies assessing the impact on the period after the development of the psychopathology and researching the effect of the delusion types on the long-term course of the disease.

Contribution Categories	Name of Author
Development of study idea	E.T., E.E.K.
Methodological design of the study	E.E.K., S.K., E.T.
Data acquisition and process	G.A., S.E., E.E.K.
Data analysis and interpretation	E.E.K., S.K., G.A.
Literature review	E.E.K., S.E.
Manuscript writing	E.E.K., S.K., G.A., S.E.
Manuscript review and revision	S.K., E.T.

Conflict of Interest: Authors declared no conflict of Interest.

Financial Disclosure: Authors declared no financial support.

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