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Relation of formal thought disorder to symptomatic remission and social functioning in schizophrenia

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Abstract

Objective: The aim of this cross-sectional study is to examine the relation of formal thought disorder (FTD) with symptomatic remission (SR) and social functioning in patients with schizophrenia.
Method: The study was carried out with a sample consisting of 117 patients diagnosed with schizophrenia according to DSM-IV. The patients were assessed with the Positive and Negative Syndrome Scale (PANSS), the Thought and Language Index (TLI), and the Personal and Social Performance Scale (PSP). We used logistic regression in order to determine the relation between FTD and SR and linear regression to identify the strength of association between FTD and social functioning.
Results: Logistic regression analysis revealed that poverty of speech (odds ratio: 1.47, $p < 0.01$) and peculiar logic (odds ratio: 1.66, $p = 0.01$) differentiated the remitted patients from the non-remitted ones. Linear regression analysis showed that the PSP total score was associated with poverty of speech and peculiar logic items of the TLI ($B = -0.23$, $p < 0.01$, $B = -0.24$, $p = 0.01$, respectively).
Conclusion: Our findings suggest that poverty of speech and peculiar logic are the specific domains of FTD which are related to both SR status and social functioning in patients with schizophrenia.

1. Introduction

Thought disorders are one of the fundamental symptom clusters of schizophrenia. Disorders of *thought form* that are characterized by deficiency in organizing thought in a definite logical sequence for a certain goal, and disorders of *thought content* such as delusions and obsessions are considered within thought disorders. In chronic stage, impairments in thought form are more frequent rather than impairments in thought content [1].

Formal thought disorder (FTD) has been identified in two subcategories in the literature: Positive and negative FTD. Positive FTD, determined by features such as derailment, perseveration, circumstantiality, tangentiality, blocking and incoherence, is known to be one of the key features of psychotic episodes, and usually diminishes or disappears as acute episodes alleviate [2,3]. Negative FTD, on the other hand, identified by poverty of speech and poverty in content of speech, persists after alleviation of acute episodes [4]. Antipsychotic medication often helps to diminish FTD, and progression can be enabled in speech performance [5]. Particularly positive thought pathology is reduced with antipsychotic treatment [6]. Negative FTD is not considerably affected by medication and "residual thought pathology" continues even after remission has been achieved [6].

Ongoing existence of FTD refers to unfavorable prognosis and is accepted as a strong predictor of relapse [7]. In particular, negative FTD is associated with poor response to treatment [8], and it is less likely to achieve remission in patients with schizophrenia having negative FTD [2]. Further, presence of FTD at onset of schizophrenia increases relapse rate [9].

In severe mental disorders such as schizophrenia, social functioning is an important dimension as well as symptoms in phases of diagnosis and assessment. Even in the condition when remission of symptoms has been attained, social functioning of patients with schizophrenia may not improve

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entirely [10]. The European Group on Functional Outcomes and Remission in Schizophrenia (EGOFORS) stated that the functional deficits mostly experienced by patients with schizophrenia were in social relationships (40%), work (29%), and daily life activities (17%) [11].

FTD may disrupt individuals' interpersonal skills during interactions [12] through affecting one's perception [13], reasoning and communication skills [14]. Patients with schizophrenia have difficulty in following the common rules of dialogue, such as relevance to the topic, kindness and emphathizing [15]. Additionally, they are not able to adjust their speech to the traditional norms of talking and correspondingly fail in language skills which hinders information sharing among themselves and the ones they are in communication with [13]. In these ways, FTD leads to worse social functioning and it's important to emphasize that worse social functioning is associated with clinical deterioration. Longitudinal studies denote that employment is related to better clinical outcomes [16,17]. Patients with severe mental illness who do not work tend to have clinical deterioration, particularly in negative symptoms [16]. Moreover, the longer duration of employment they receive, the better social networks they have [16]. As for schizophrenia-spectrum disorders, being employed alters the course of the disorder in terms of symptom severity, psychiatric hospitalization, life satisfaction, and global well-being [17]. EGOFORS reported that the patients involved in full-time work/study had better functioning and fewer symptoms compared to the patients involved in part-time work/study [18].

In vast amount of research on FTD, association of positive and negative FTD with acute and chronic phases of schizophrenia has been reported [2–4,19–23]. Besides, the relationship between FTD and social functioning has been evaluated in various studies [12–14]. In this current state of knowledge, we sought to identify the specific FTD domains having association with both symptomatic remission (SR) status and social functioning. Moreover, as far as we know this is the first study using the remission criteria suggested by the Remission in Schizophrenia Working Group (Andreasen et., 2005) by which the objective criteria of remission would be applied in order to determine the relationship between domains of FTD and SR in schizophrenia.

The aim of this cross-sectional study is to examine the relation between FTD and SR in patients with schizophrenia. The other aim of this study is to identify the relation between FTD and social functioning.

2. Methods

2.1. Participants

The study was carried out with a sample consisting of 117 patients (40 female, 77 male) aged between 18 and 65 and diagnosed with schizophrenia according to the DSM-IV criteria [24]. Patients having electroconvulsive treatment were excluded from the study. All the patients were Turkish native-speaking. They were recruited from the Schizophrenia Outpatient Unit of Psychiatry Department of Dokuz Eylul University, School of Medicine.

Using the remission criteria developed by the Remission in Schizophrenia Working Group [25], 45 patients were assessed as "remitted" and 72 patients as "non-remitted". In defining the remitted patients, we used only the symptom criterion of the Andreasen group, we did not include the time criterion (duration of 6 months). The remitted patients scored 3 or less on the following items of The Positive and Negative Syndrome Scale (PANSS): P1-Delusions, P2-Conceptual disorganization, P3-Hallucinatory behavior, N1-Blunted affect, N4-Passive/apathetic social withdrawal, N6-Lack of spontaneity and flow of conversation, G5-Mannerism/Posturing, and G9-Unusual thought content.

The study was approved by the Ethics Committee of Dokuz Eylül University School of Medicine.

2.2. Procedures

After providing written informed consent to participate in the study, the patients were assessed using PANSS in order to be assigned to the remitted or the non-remitted group. The evaluation of FTD and social functioning were made subsequent to the assessment of pychiatric symptoms, all at one point in time by a trained psychologist.

2.3. Measures

2.3.1. Psychiatric symptom assessment

2.3.1.1. The Positive and Negative Syndrome Scale. PANSS was used to assess the symptom severity of the patients. PANSS includes Positive Symptoms Subscale, Negative Symptoms Subscale and General Psychopathology Subscale [26,27].

2.3.2. Formal thought disorder

2.3.2.1. The Thought and Language Index. The Thought and Language Index (TLI) was developed for assessing FTD under standardized conditions [20]. Participant is required to produce eight one-minute speech samples in response to the eight standard pictures taken from the Thematic Apperception Test (TAT) [28]. The two-factor structure of the Turkish version of TLI has a Cronbach alpha value of 0.75 with a high interrater and test–retest reliability [29]. It comprises impoverishment of thought and disorganization of thought subscales. Impoverishment of thought subscale consists of three items: Poverty of speech, weakening of goal and perseveration. Disorganization of thought subscale includes five items: Looseness, peculiar word use, peculiar sentence construction, peculiar logic and distractibility. The entire interview is recorded on audiotape and then transcribed. These transcribed speech samples are assessed according to the TLI manual. As to the TLI manual, a score of 0.25, 0.50,