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Thought Disorder Index: A longitudinal study of severity levels and schizophrenia factors

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Abstract

Background: Thought disturbances are commonly associated with psychiatric disorders, especially schizophrenia. Our aim was to clarify whether thought disorders are only stable at certain severity levels and in the presence of certain schizophrenia factors of the Thought Disorder Index (TDI) scale. Furthermore, we also examined the significance of genetic status and the psychiatric disorder for the persistence of TDI severity levels and factors.
Methods: The thought disorders of 158 adoptees genetically at high-risk or low-risk for schizophrenia participating the Finnish Adoptive Family Study of Schizophrenia were evaluated twice at a mean interval of 11 years. Thought Disorder Index (TDI) was used to assess the severity levels and schizophrenia factors. TDI identifies 23 different items of thinking disturbances, which are weighted along a continuum of severity.
Results: Thought disorders at the 0.50 and 0.75 severity levels and idiosyncratic verbalization indicative of the schizophrenia factors turned out to be stable phenomena throughout the follow-up period. The adoptees' genetic or psychiatric status was not associated with the results.
Conclusions: The study shows that the stability of TDI seems to be related to the most severe categories of thought disorders. However, of the specific schizophrenia factors, idiosyncratic verbalization, but not confusion and fluid thinking, showed stability over time. Although idiosyncratic verbalization does not necessarily represent the most severe type of thought disturbance, it turned out relatively stable and we can speculate that idiosyncratic verbalization have some predictive value, too.

Keywords: Stability of thought disorder; Schizophrenia; Adoption study; Severity levels and schizophrenia factors of TDI

1. Introduction

Ever since Kraepelin (1896/1919) described the disordered thinking of schizophrenic patients as "derailments", and Bleuler (1911/1950, 1924) represented schizophrenic thought as "loosening of associations", thought disorder has been generally accepted to be present in schizophrenic patients. Subsequent studies have also shown that disturbances in thinking occur in other psychiatric disorders as well (Caplan et al., 2001; Dunayevich and Keck, 2000; Dykens et al., 1991; Edell, 1987; Gandolfo et al., 1991; Rubin and Arceneaux, 2001; Smith et al., 1991; Wilcox et al., 2000; Wolff, 1991a,b). Previous research has revealed that thought disorder is not a single model of thinking but manifests in many forms and ranges in severity from mild to severe. Thought disturbances can vary in the different phases of the person's disorder and between different

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psychiatric disorders (Holzman et al., 1986). The changes in the quantity and quality of thought disorder in one patient can be a good measure in assessing the efficacy of treatment. While earlier studies have shown that the quantity and quality of thought disorder differ in different psychiatric conditions, the distinctive types of disordered thinking can also direct the diagnostic evaluation (Holzman et al., 1986).

Johnston and Holzman (1979) found that high levels of thought disorder distinguished psychotic patients from a normal control group. Qualitative distinctions turned out to be the best way to differentiate between psychiatric groups (Holzman et al., 1986). Holzman et al. (1986) found that manic patients produced more often combinatory thinking and intrusions of irrelevant ideas. Thought disorders in mania are also playful and humorous. The thinking of schizophrenic patients is characterized by interpenetrations of one idea into another and idiosyncratic and peculiar words. According to Shenton et al. (1987), many aspects of similarity and congruence are present in the thought disorders of schizoaffective and schizophrenic patients. The schizoaffective-manic patients produced a large number of idiosyncratic verbalizations, autistic thinking, and confusion (Shenton et al., 1987). The qualitative differences of thought disorder led Holzman et al. (1986) to identify factors characteristic of schizophrenic patients – fluid thinking, confusion and idiosyncratic verbalization.

Numerous studies have been made to examine the nature of thought disorder in psychiatric patients. However, only a few reports have focused on the stability of disturbed thinking processes. Previous investigations have shown that thought disorders are rather stable only among schizophrenic patients (Adair and Wagner, 1992; Earle-Boyer et al., 1986; Marengo and Harrow, 1988). However, the severity of thought disorder has shown some stability across all diagnostic groups (Marengo and Harrow, 1997).

1.1. Aims of the study

Our recent findings indicated that thought disorder, assessed with total TDI scores (TD_R), had remained stable during the 11 years of follow up and was independent of the person's genetic or psychiatric status among adoptees participating in the Finnish Adoptive Family Study of Schizophrenia (Metsänen et al., 2005). In this study, we explored further the stability of TDI, focusing especially on the severity levels (0.25, 0.50, 0.75) and the specific factors, called Holzman's schizophrenia factors (fluid thinking, confusion, and idiosyncratic verbalization), of the TDI scale among the adoptees at high genetic risk for schizophrenia and their controls. Our aim was to clarify whether thought disorders are only stable at certain severity levels and in the presence of certain schizophrenia factors of the TDI scale. Furthermore, we also examined the significance of genetic status and psychiatric disorder for the persistence of TDI severity levels and factors. The following hypotheses were tested: (1) thought disorders are only stable at the highest severity levels; (2) thinking problems in schizophrenia factors are stable; (3) genetic status does not affect the stability of TDI severity levels and schizophrenia factors, but psychiatric status is associated with the stability of thought disorders.

2. Methods

2.1. Sample

The subjects covered in this report are part of the total sample of the Finnish Adoptive Family Study of Schizophrenia ($n = 1741$) (Tienari et al., 1987, 2000). The total Finnish national sample of high-risk (HR) adoptions includes the adoptive families of all the children adopted away by women hospitalized because of schizophrenia (or paranoid psychosis) in Finland during 1960–1979 (Tienari et al., 1987). Women were excluded if they had an organic brain syndrome, severe mental retardation, primary alcoholism (preceding schizophrenia), or any other major physical illness (Tienari et al., 1987, 2000, 2003).

The final sample included 190 genetically high-risk (HR) offspring whose biological mothers had verified DSM-III-R diagnoses of the broad schizophrenia spectrum (Kendler et al., 1996; Tienari et al., 2000, 2003). The broad schizophrenia spectrum included the following diagnoses: DSM-III-R schizophrenia, the odd-cluster personality disorders (schizotypal, schizoid, and paranoid personality disorders plus avoidant personality disorder), nonschizophrenic nonaffective psychoses (schizoaffective, schizophreniform, and delusional disorders and psychotic disorder not otherwise specified), and affective psychoses (bipolar and depressive disorders with psychotic features).

The control sample of 192 adoptees at low genetic risk (LR) had biological mothers with nonspectrum diagnoses or No Psychiatric Disorder (NPD). The experienced psychiatrics made diagnoses by using the DSM-III-R criteria obtained through review of initial and subsequent hospital and clinic records and personal interviews. Adoptees were excluded if they had been adopted by a relative, adopted abroad, or adopted after the age of four years (Tienari et al., 1987, 2000, 2003). The evaluations of the adoptees' psychiatric status and thought disorders were part of the study. The adoptees were examined in the same manner at the initial assessment and after a mean interval of 11 years. The high-risk (HR) adoptees' mean follow-up period was 11 years, while the low-risk (LR) adoptees were followed up for 12 years. The difference was not statistically significant.