

Assessment of formal thought disorder: The relation between the Kiddie Formal Thought Disorder Rating Scale and clinical judgment

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Received 15 April 2005; received in revised form 12 December 2005; accepted 12 January 2006

Abstract

The presence of formal thought disorder (FTD) in childhood is sometimes viewed as a possible precursor of psychotic symptoms or adult schizophrenia. It is possible to assess FTD in childhood in a valid and reliable manner, by using the Kiddie Formal Thought Disorder Rating Scale (K-FTDS). However, training and rating procedures are very time consuming, and may be particularly difficult during clinical assessment. The aim of this study was therefore to compare the clinician's rapid judgment of FTD to the detailed ratings of the K-FTDS. The K-FTDS was administered to 172 consecutively referred children, aged 6 to 12 years and subsequently rated by two blind raters. The same criteria, as used in the K-FTDS (illogical thinking, loose associations, incoherence, and poverty of content of speech), were rated by nine clinicians. The overall agreement between K-FTDS scores and FTD scores as rated by the clinician was low. The clinician's judgment of FTD did not correspond very highly with ratings on the K-FTDS. Thus, although detecting FTD has important clinical value, the assessment of its presence or absence seemed to depend highly on which measure was used.

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Keywords: Thought disorder assessment; Loose associations; Illogical thinking

1. Introduction

Formal thought disorder (FTD) has been a central characteristic of schizophrenia since the first descriptions of this disorder by [Bleuler \(1911\)](#). The presence of FTD prior to the onset and during the whole course of the disorder suggests that it is connected to the core pathophysiology of schizophrenia ([Ott et al., 2002](#)). It remains one of the core symptoms of schizophrenia, and refers to a disturbance in thought processes ([American](#)

[Psychological Association, 1994](#)). In the Diagnostic and Statistical Manual of Mental Disorders—III (DSM-III) ([American Psychiatric Association, 1980](#)), FTD is described as the presence of illogical thinking, loose associations, incoherence, and poverty of content of speech. Speech is considered to reflect the underlying thought processes, thus symptoms of FTD are represented in how a person verbally presents his/her thoughts to a listener ([Werry, 1996](#); [Asarnow and Karatekin, 2001](#)).

FTD was originally considered as part of the positive symptoms of schizophrenia and referred to the structural characteristics of speech, such as illogical associations and incoherence. This type of thought disorder was

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distinguished from disturbance of thought content (e.g., delusions) and perceptions (e.g., hallucinations). More recently FTD has been divided into two subtypes: negative, characterized by poverty of expression in speech production, and positive, characterized by loosening of associations (Ott et al., 2001).

FTD in children has been demonstrated to be a possible precursor of future psychotic episodes and even of schizophrenia (Parnas et al., 1982; Ott et al., 2001). FTD can be reliably assessed in childhood (Caplan et al., 1989). For instance, the Thought Disorder Index (TDI) has been shown to be a valid and reliable assessment tool to measure thought disorder in children (Arboleda and Holzman, 1985). Results from a follow-up study showed that thought disorder as measured with the TDI remained stable over time (Metsänen et al., 2006). Many other studies of childhood schizophrenia used another standardized instrument to measure FTD in children, the Kiddie Formal Thought Disorder Rating Scale (K-FTDS) (Caplan et al., 1989; Van der Gaag, 1993; Werry, 1996; Caplan et al., 2000; Asarnow and Karatekin, 2001; Volkmar, 2001; Hollis, 2002; Remschmidt, 2002; Volkmar and Tsatsanis, 2002; Rosenbaum Asarnow et al., 2004). The K-FTDS assesses four symptoms of FTD, based on DSM-III criteria (American Psychiatric Association, 1980): illogical thinking, loose associations, incoherence, and poverty of content of speech. Illogical thinking is rated when the child uses inappropriate causal utterances and provides the listener with unfounded or illogical explanations. Loose associations are rated when the child suddenly changes the topic of conversation, to an unrelated topic, without preparing the listener for this topic change. Incoherence is rated when a rater is unable to understand the contents of the child's speech, because of a scrambled syntax. And poverty of content of speech is rated when the child provides the listener with adequate length of speech, but does not elaborate on the topic (Caplan et al., 1989; Caplan et al., 2000).

Caplan et al. (1989) compared K-FTDS scores of 4- to 12-year-olds with DSM-III schizophrenia ($n=16$) and schizotypal personality disorder ($n=4$) to those of normal control children ($n=29$). Results indicated that scores of illogical thinking and loose associations differentiated children with schizophrenia from normal controls. These findings were replicated by Caplan et al. (2000) in a larger study of 88 children with DSM-IV (American Psychiatric Association, 1994) schizophrenia and 190 normal controls aged between 7 and 13 years. Blind ratings of the K-FTDS correctly classified 85% to 87% of the children with schizophrenia, and 73% to 82% of the normal controls.

The K-FTDS was also used to assess FTD in other child psychiatric groups. Recently, Van der Gaag et al. (2005) showed that high FTD scores were found in children with autism, lower rates were found in children with Attention Deficit Hyperactivity Disorder (ADHD), and children with anxiety disorders showed no signs of FTD on the K-FTDS. The K-FTDS, although valuable, can be considered a 'laboratory test' (Werry, 1996), or 'research instrument' (Hollis, 2002), and it is often not practical for clinicians to perform the detailed rating process (Caplan, 1994), because training and rating itself are very time consuming. Therefore, the K-FTDS is not likely to become part of a clinician's regular psychiatric evaluation. Nevertheless, symptoms of FTD are clinically important, and it would be relevant to know whether the clinician is able to rapidly rate these symptoms without extensive training and rating procedures. However the sensitivity of the clinician's ability to detect FTD and the correspondence of this evaluation with an independent measure of (i.e., the K-FTDS) has not been studied before.

Therefore, the aim of this study was to determine the association between blindly rated K-FTDS scores, and clinicians' ratings of FTD based on standardized psychiatric assessment. We hypothesized that the agreement between the clinician and the K-FTDS would not be high. A K-FTDS rater was specifically instructed to focus on the formality of the speech only. Although the clinician was provided with the same descriptions of the FTD signs, we expected clinical judgment to also be influenced by the content of the child's speech, and not only the formality. If for instance, the child would show signs of hallucinations or delusions, we would expect the clinician to rate signs of FTD to be present, whereas a K-FTDS rater would not attend to signs that reflect the mere content of the speech, but would only judge whether the speech is logically sound.

The main focus of this study was to assess agreement between two different instruments in rating FTD. Sample characteristics such as age and intelligence quotient (IQ) may have influenced the results. Therefore, a secondary aim of this study was to assess whether age and IQ correlated with FTD.

2. Methods

2.1. Subjects

The sample consisted of 172 children, aged between 6 and 12 years ($M=9.4$, $S.D.=1.8$), 78.5% boys ($n=135$) and 21.5% girls ($n=37$). All 172 children

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