

## Thinking within the spectrum: schizophrenic thought disorder in six Danish pedigrees

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### Abstract

Formal thought disorder (FTD), a major symptom of schizophrenia, is known to aggregate in families. Our aim was to examine the specificity of FTD in the schizophrenia spectrum disorders and the hypothesized linear aggregation of FTD within pedigrees. Six individuals with a diagnosis of schizophrenia were identified in the Copenhagen High-Risk study and each pedigree was centered on one of the six original schizophrenic probands' nuclear families. The 329 pedigree members in the study were considered at risk for schizophrenia spectrum disorders because most were genetically related to the originating schizophrenic probands. The participants were administered the Copenhagen Interview of Functional Illness to determine diagnoses and the Thought Disorder Index (TDI) was used to assess FTD. Individuals with a schizophrenia diagnosis had higher global levels of FTD, exhibited more severe types of FTD, and had a qualitatively different type of FTD than did participants with other diagnoses or no mental illness. Individuals with Cluster A diagnoses exhibited more FTD and FTD similar in quality to participants with schizophrenia. These results support the construct of a spectrum of schizophrenia conditions. There was a generally high level of FTD in the pedigrees, in part due to assortative mating in this sample. However, there was no apparent pattern of linear aggregation of FTD within the families.

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### 1. Introduction

Both Kraepelin (1971) and Bleuler (1950) argued that disturbances in thinking are primary features of

the syndrome we now know as schizophrenia. Although their views generated much research, almost a century later we are still trying to define, measure, and probe the mechanism of *formal thought disorder* (FTD), which refers to disturbances in the way or mode of thinking, as distinguished from its content.

Bleuler (1950) suggested the existence of a spectrum that includes *latent schizophrenia*, a term

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Table 1

Thought Disorder Index (TDI) categories and levels of severity with examples<sup>a</sup>

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0.25 SEVERITY LEVEL

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INAPPROPRIATE DISTANCE, e.g., loss or increase of distance: (“Owl head?”) “The way that it stares. That it’s very direct. It just sits completely still and stares like that at you.”

FLIPPANT RESPONSE: (You said “blood” and that was negative?) “Yeah, but blood is negative if it is flowing” (Patient laughs).

VAGUENESS: “. . . there was that hole there. . . also a color, there was a kind of emptiness in it, or something like that. . . It was like monochrome, there wasn’t anything behind it.”

PECULIAR VERBALIZATIONS AND RESPONSES: “Chocolate tears.”

WORD-FINDING DIFFICULTY: “What do you call those hard-shelled bugs? Beetle? No, that’s not it. . . I’ll say beetle, I think that’s the name of a bug.” (Johnston and Holzman, 1979)

CLANGS: (What does Travesty mean?) “I think of the treasure and the dynasty.” (Johnston and Holzman, 1979)

PERSEVERATIONS, e.g., perseverative idea carried through several items: (What does Remorse mean?) “Means whenever you’re mourning, whenever your loved ones are dead or something.” (What does Sanctuary mean?) “Means cemetery.” (What does Matchless mean?) “Is like whenever someone dies and leaves a match behind. Means they’re matchless.” (Johnston and Holzman, 1979)

INCONGRUOUS COMBINATIONS, e.g., inappropriate activity response: “Flies, that fall to their knees.”

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0.50 LEVEL

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INTERNAL–EXTERNAL RESPONSE: “There are two people, they are running towards a gate. . . They are transparent, so you can see their organs. Inner organs.”

RELATIONSHIP VERBALIZATION, e.g., an allusion back to an earlier one: “I think it looks like a fly in the head. There’s the fly from before in the head.”

IDIOSYNCRATIC SYMBOLISM: “The red, that’s the security between the children and the parents.”

QUEER RESPONSES: “But, like I said, a double moment of baleen in the middle.”

CONFUSION: “Some people smoking matches and burning cigarettes.” (Solovay et al., 1987)

LOOSENESS: “. . . you have to at least be smaller than a crab. . . you could feel a little inferiority complex, right? Feel that here were powers so big that you couldn’t really make it. . . You get out in something. . . when you are so small, you can’t really control. . . can’t explain your opinions.”

FABULIZED COMBINATIONS, IMPOSSIBLE OR BIZARRE: “It looks like two angels that are holding hands under a fountain. One angel has a butterfly in its hand, it has lifted wings.”

PLAYFUL CONFABULATIONS: “An evil witch doing a square dance. . . She had her dress like this and she was do-si-do-ing.” (Solovay et al., 1987)

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Table 1 (continued)

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0.50 LEVEL

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FRAGMENTATION: “a leg, an arm, a face, hot cha cha.” (Holzman, 1999)

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0.75 LEVEL

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FLUIDITY: (“You said an old woman or a turtle cut in half?”) “That was my first impression, there were turtle heads, but then it’s, when you sit and stare at it, then it can become, something else.”

ABSURD RESPONSES: “There is a butterfly in the middle and two people, it can be both man and woman, it can also be woman and man.”

CONFABULATIONS: “They are two lizards arguing, and then they are just about to lose their sense of reality.”

AUTISTIC LOGIC: “Yes, that’s that red spot that I connect with a dying heart or something like that. (Dying heart, what makes it look like that?) . . . because the back of the body is missing, and there’s blood splattered on both sides, there where the back of the body should continue.”

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1.00 LEVEL

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CONTAMINATION: “A human bird creature.”

INCOHERENCE: “The two spots, where the beam of light is coming in the middle and is about to break through the whole way down between the two spots. . . That it breaks through and tries to split the two. . . Dirty spots. (And you said something about eyes?) Right between the eyes it’s about to split. The light beam is about to break between two eyes. Two round, white dots where there are two spots, like it is in each side of the eyes, right? Because it is about to come through the beam of light. About to come through so that it splits until it hurts.”

NEOLOGISMS: “Dustheads.”

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<sup>a</sup> Examples without cited references are translated from the current study.

roughly equivalent to the contemporary construct of schizotypal personality disorder. He observed that there is often “only a quantitative increase in the [trait] anomalies seen in the parents and siblings” of schizophrenics. Thus, although FTD has been found in schizophrenic patients, subclinical forms of FTD have also been observed.

Meehl (1989, 1962), influenced by Rado (1956), suggested that cognitive slippage, in milder forms, is a potential phenotypical indicator of vulnerability to schizophrenia. As such, FTD has been emphasized as an important indicator of genetic vulnerability to schizophrenia. Findings from high-risk studies such as the Copenhagen High Risk (Mednick et al., 1987) and the Danish Adoption study (Kety et al., 1976)

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