

## Disorders in cognition and language vs. communication deviancies in families of schizophrenics

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*The paper reviews main concepts concerning language, cognition and communication in schizophrenic patients as well as their parents, and indicates links between these approaches.*

*Key words:* schizophrenia, information processing, communication

### Introduction

Dysfunctions in processing and transmission of information through the system are often described in different ways, dependent on the researcher's perspective. During recent decades, various models of information processing have become the basis for experimental research in schizophrenia. On the one hand, there are studies regarding series of stages through which stimulus is perceived, selected, stored or processed by the human brain. On the other hand, communication behaviour is examined as the transactional phenomenon. Both perspectives, individual and interpersonal, are confined and they cannot encompass information processing within the system. However, a systematic investigation has been launched recently to identify a correspondence between different levels of communication [10, 24, 25, 44].

### Cognitive and language deficits in schizophrenia

The first direction of research describes cognitive functioning in psychotic disorders using at least three frameworks. These are: 1) capacity models ascribing disturbances in schizophrenia to reduced overall processing capacity; 2) stage models which attribute cognitive deficits in schizophrenia to dysfunctions in an early stage of processing and 3) neurocognitive approach laying stress on the relationships between cognitive performance, symptoms and pathology of different brain structures, e.g. prefrontal cortex [16, 19].

According to the approach, importance is attached to different deficits. Some researchers emphasise that attention deficits are crucial to schizophrenic information

processing disturbances [20, 36]. Differential selective attention deficits have been revealed on distraction tasks [50]. Impairments concern in particular voluntary attention and vigilance, which have to be consciously and continually focused on the task. Automatic, involuntary attention appears to be preserved in schizophrenic patients [4]. In brief, other investigators proposed „overinclusion”, associative or concrete thinking as the terms describing conceptual thinking of schizophrenics [15, 33, 41]. Patients also demonstrate impairments in memory, which are observed already in sensory stores [45]. Performance in recall and recognition tasks suggests organisational defects in long-term memory, resulting in ineffective encoding [8, 21, 27, 28, 29]. Further reported deficits include reductions in the executive functions becoming manifest in planning, decision making, error correction tasks, etc. [56]. It is also proposed that some clinical patterns in schizophrenia could be understood as the consequence of defects in the initiation and internal monitoring of action [17, 52].

A number of studies have supported the hypothesis of impaired language in schizophrenia. Experimental data revealed that schizophrenics have difficulties in taking context into account to adjust their discourse [37], their speech was found less predictable than that of other patient groups or of healthy controls when ‘Cloze’ procedure was used [34, 35, 39]. Schizophrenics had less syntactically complex speech, reduced cohesion and coherence; their fluency of spoken language was also significantly lower [18].

Some authors concluded that speech disruption necessarily mirrors thought disturbance and the formal thought disorder could be termed a language or communication disorder [51]. It is in agreement with the conclusion of this article.

### **Cognitive and communication disturbances in parents of schizophrenic patients**

Many studies demonstrated cognitive impairments in parents of schizophrenics [40]. Among others, in relatives of schizophrenics compared to controls the researchers found: overresponsiveness to associative distracters [6], higher scores on the Object Sorting Test that measures ‘allusive thinking’ [7], higher thought disorder scores in Holzman-Johnson Thought Disorder Index [46], worse functioning on tests of verbal fluency [26], etc. However, it must be pointed out that the degree of deficit seems to be lesser in the parents of psychiatric patients than in the patients themselves.

Family studies on schizophrenia, which addressed the question of communication, were introduced by Georgy Bateson and colleagues [1]. They characterised the interpersonal situation in families of schizophrenics as ‘double bind’. They suggested that certain forms of communication among family members might predispose an individual to schizophrenia. The situation of double bind has got three main elements: contradictory messages, important relationship and inability to clarify messages using meta-communication.

Some years later, M. L. Singer and L. C. Wynne [47] developed a construct of communication deviance (CD). They found that parents of schizophrenics were often unable to establish and maintain a shared focus of attention with a listener during communication. Parents demonstrated levels of communication deviance similar to those of the patients and higher than those of controls [30, 47]. In the manual of assessing

communication during Rorschach test, the authors [48] distinguished the following categories of disturbances:

- 1) closure problems which are the statements inducing a sense of uncertainty, the listener is unsure whether they discuss the same idea with the speaker;
- 2) disruptive behaviour, that is, interruptions of the continuity of the transaction or behaviour that disrupts an established task-set;
- 3) peculiar language and logic: words, syntax, and logic are used in idiosyncratic ways.

Many studies have confirmed the discernibility of parents of schizophrenics from parents of healthy persons or non-psychotic patients on levels of CD. Parental score also proved to be a significant predictor of offspring diagnosis [30].

Subsequent studies developed procedures of measuring CD in situations more representative of actual family transaction than the traditional observation during projective tests. In the 1990s, new procedures and criteria were established for assessment of disorders in communication, for the most part based on the work of M. L. Singer and L. C. Wynne [10, 32].

M. N. Docherty et al. [10, 11, 12] used a linguistic measure of communication style, counting the frequency of unclear references, the instances of unclarity of meaning in speech. They found that conversational speech of schizophrenics and their parents is significantly more often amorphous, obscured and fragmented.

L. Wichström and A. Holte [53, 54, 55] categorised communication acts as confirmatory or disconfirmatory feedback reactions. When the listener accepts the speaker's use of language as a comprehensible and valid expression of his or her perception, emotion or cognition, it can be labelled as a confirmatory reaction. Otherwise, it is defined as disconfirmation and it can have a negative effect on the process of creating self-definitions. L. Wichström and A. Holte found an increased level of disconfirmatory feedback, specifically egocentric utterances and active disqualifications, to be characteristic of communication in families of schizophrenics. They also discovered that the initial amount of disconfirmatory communication acts in parents was a good predictor of the probability that the offspring would develop a mental disorder later in the adulthood.

It must also be noticed that the concept of 'expressed emotion' (EE) and its broadening, the term 'affective style', are, to some extent, affective components of family communication [57]. They include expressions of attitudes of criticism, hostility and overinvolvement displayed by members of the patient's family. When a linguistic analysis was undertaken, there were also empirically detected communication parameters correlated with the high and low EE [3].

### **Complementarity of different approaches in communication studies**

Thought, language and communication seem to be various aspects of the information-processing phenomenon. Transmission of a message is dependent on cognitive and perceptual operations, e.g. encoding, retrieval and decoding. In order to have communication, both the sender and the receiver must share a common code, i.e. language.

Reduced redundancy of the language and the concurrent comprehension difficulties bring about failure at achieving the basic goals of communication.

Most models of communication deviancies in families of schizophrenics include, explicitly or implicitly, the assumption of cognitive disturbances underlying, e.g. uncompleted remarks, paradoxical messages, peculiar language or logic, ambiguous referents, etc. There is some empirical support for the hypothesis of a link between the parents' communication and the offspring's cognitive functioning. Rund and Blakar [43] examined 21 non-chronic schizophrenic patients and their parents, and found that the parents showing most communication deviance had offspring manifesting most cognitive disturbance. Significant correlations occurred between: 1) distractibility index in schizophrenics and problems of attention focusing in parents; 2) inadequate concept formation in parents and the same problem in offspring; 3) the degree of incomprehensible and idiosyncratic speech in patients and the degree of egocentric communication and idiosyncratic speech in parents; 4) level of egocentrism in parental communication and attention disturbances in the offspring. Furthermore, N.M. Docherty [10] found that distractibility was significantly positively correlated with the level of language deviance in parents and in patients with DSM-III-R schizophrenia. In another study, N.M. Docherty et al. [13] showed that high frequency of unclear references in parents' speech predicted the same problem in their offspring, i.e. stable schizophrenic outpatients. Similarly, examining outpatients with DSM-III-R schizophrenia spectrum diagnoses and their parents, B.R. Rund [42] found significant correlation between the lack of intersubjectivity in parents and the measure of short-term memory in patients. Moreover, poor patients' backward masking performance and low long-term memory scores corresponded to a high level of overinvolvement in parents.

There is a substantial overlap between clinical and linguistic measures of communication disorders [22]. Popular symptom scales consist of items describing language disturbances, e.g. schizophasia, alogia, clanging, tangentiality, etc., crucial to communication abilities. Some authors proposed rating scales for assessment of communication disorders based on the clinical expressions of cognitive dysfunctions [37].

There is also a relationship between poor communicative/cognitive capacities and difficulties in social relationships. For example, D.L. Penn et al. [38] found information processing to be significantly related to social competence among individuals with chronic schizophrenia. Among others, paralinguistic and non-verbal skills, abilities important for communication, were related to such measures of information processing as reaction time and number of errors on Wisconsin Card Sorting Test. Some other studies showed that most of the examined patients had difficulties in interacting appropriately within the social milieu also because of the deficits in cognitive skills involved in social inferences, i.e. lack of 'theory of mind' skills [9, 14].

### **Suggestions for therapy of patients and their families**

There are some consequences of the global approach to communication and cognition. It supports a comprehensive trend towards an integrated psychological treatment, influencing patient's intrapsychic conflicts together with his/her social interactions [5, 23]. Both the patient and the parents are affected by disorders in information process-

ing, so they both need professional help, such as social-skills training, family therapy, psychoeducation, etc. The development of cognitive remediation programmes could be of a great value in this area. There are already some promising findings of improvements in patients' cognitive functioning, e.g., in attention training proposed by A. Medalia et al. [31]. The patients from experimental group had made significantly more improvement on Continuous Performance Test than the controls who did not participate in the training. However, there are still many problems and questions concerning strategies and effectiveness of this new form of rehabilitation that have to be addressed [for review see: 2, 49]. From the perspective presented in the article, generalisation of the changes achieved on one level of functioning to another can be expected.

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