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The delusional type of schizophasia: An analysis of schizophatic texts

Urojeniowy typ schizofazji. Na przykładzie analizy tekstów schizofatycznych

Keywords: schizophasia, schizophrenia, delusions, diagnosis of speech-language disorders, cohesion, coherence

Słowa kluczowe: schizofazja, schizofrenia, urojenia, diagnoza zaburzeń mowy, kohezja, koherencja

Abstract

Schizophasia is usually associated with the incoherence of an utterance in its semantic and formal-grammatical dimensions. The article raises the issue of pragmatic incoherence in text and proposes to include in the spectrum of schizophasia also statements relating to delusions. The article's examples of analyses of statements of schizophrenic patients made with the help of scales for assessing schizophasia (TLC, SSRS – in Polish: KSOS) support this thesis. This thesis is confirmed by the examples included in the article of analyses of statements made by people with schizophrenia using scales for assessing schizophasia (TLC, KSOS).

Streszczenie

Schizofazję zwykle kojarzy się z niespójnością wypowiedzi w jej wymiarach semantycznym i formalno-gramatycznym. Artykuł podnosi kwestię niespójności pragmatycznej tekstu i zawiera propozycje włączenia do spektrum schizofazji także wypowiedzi odnoszących się do urojeń. Zawarte w artykule przykłady analiz wypowiedzi osób cierpiących na schizofrenię, dokonane za pomocą skal do oceny schizofazji (TLC, KSOS) potwierdzają tę tezę.



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Introduction

The aim of the article is to define the distinctive features of the delusional type of schizophasia which should be distinguished from disorganised or extremely impoverished utterances primarily regarded as manifestations of speech disorders in schizophrenia. Although speech disorders in schizophrenia are one of the axial symptoms of psychosis, they have for years been the subject of research by a rather small group of researchers [cf. Sims, 1995] as the focus has mainly been on patients' thinking and behavioural disorders related to delusions and hallucinations. Recent years have seen a change in this approach. There is a widespread recognition of the diagnostic value and multidimensionality of speech disorders in schizophrenia and the role of neuroanatomical and neurofunctional changes occurring in the course of the illness as a basis for explaining the emergence of schizophrenic utterances [Kuperberg, 2010; de Boer et al., 2020; Czernikiewicz, Woźniak, 2023].

Schizophrenia vs. schizophasia

The current American Psychiatric Association's diagnostic criteria DSM-5 and the World Health Organisation's International Classification of Diseases ICD-11 distinguish the symptoms needed to diagnose schizophrenia, including delusions, hallucinations, abnormal psychomotor behaviour, disorganised speech, negative attitude, negative symptoms, cognitive impairment and depression [American Psychiatric Association, 2013b; ICD-11, n.d.]. The two approaches are more harmonised than their previous editions. Previously existing types of schizophrenia have been removed. The ICD-11 uses a dimensional model with the category of "symptoms of primary psychotic disorders," which allows coding of individual symptom types: positive symptoms, negative symptoms, depressive symptoms, manic symptoms, psychomotor symptoms and cognitive symptoms.

Understood as a speech disorder occurring in schizophrenia, schizophasia was originally associated with formal thought disorders, particularly the symptom of semantic inconsistency of speech (incoherence, word salad). Even now, the ICD-11 states that thought disorders often manifest as chaotic or unintelligible speech. The DSM-5 has abandoned the term thought disorder in favour of "disorganised speech" as a phenomenon which is more diagnostically measurable. Schizophasia is distinguished from delusions, with both symptoms being classified as positive symptoms of schizophrenia [Andreasen, Olsen, 1982]. The term "positive symptoms" is used in psychiatry to refer to "added on" or "exaggerated" symptoms that do not occur in healthy people (hallucinations, delusions, paranoia, elaborate incoherent speech). The term "negative symptoms" denotes "attritional" symptoms involving loss of abilities (e.g. withdrawal from social contact, apathy, reduced and residual speech). The understanding

of the incoherence of speech in formal and semantic terms referred to the etymology of the term: *schizo-* meaning “I cleave, I split” and *fasis-* meaning “speech” in classical Greek. The term was introduced to psychiatry by Emil Kraepelin to denote the incoherent utterances of psychotic patients.

A more precise, contemporary view of schizophasia is proposed by Andrzej Czernikiewicz and Tomasz Woźniak [2001; 2023], who define it as a speech disorder characterised by a loss of coherence of speech, its disintegration at the pragmatic, semantic and formal-grammatical levels. In the vast majority of cases, schizophasia should be understood as a loss of the communicative function of language, occurring in the course of schizophrenia, particularly its chronic forms (ICD – 11, 6A.20.2). It should be emphasised, however, that a diagnosis of schizophasia refers to the recognition of a speech disorder rather than of schizophrenic psychosis, and as such should not be linked only to schizophrenia (although schizophrenia is the most common cause). The definition of schizophrenia discussed here is based on criteria independent of aetiology as the possibility of schizophrenic disorders occurring also in people without schizophrenia must be assumed, for example in those under the influence of psychoactive substances or individuals acting under conditions of severe stress.

Pragmatic Language Disorder vs. delusions

The new quality of Czernikiewicz and Woźniak’s definition of schizophasia consists in the recognition of the pragmatic dimension of utterance consistency as well as the admission of the possibility of multilevel impoverishment of utterances as types of schizophasia. Following Charles W. Morris [1938], the classical theory of language understood as a semiotic system adopts three dimensions of the linguistic sign: semantic, syntactic and pragmatic. The semantic dimension is conceived in terms of the relationship between a linguistic sign and the reality which it refers to, the syntactic dimension represents the formal relationship between signs within a language, and the pragmatic dimension involves the relationship between a sign and its receiver, the interpreter of the sign.

In considering the consistency of an utterance, in addition to the recognised categories of the coherence of an utterance (understood as semantic coherence) and its cohesion (understood as grammatical cohesion), it is also necessary to consider the compatibility of the content of an utterance with the intersubjective perception of reality. If an utterance is, from the viewpoint of the recipient(s), associated with a distorted, erroneous and nonsensical recognition of reality despite being formally correct and realising internal semantic connections, it is likely to be rejected in its entirety as inconsistent with the socially accepted interpretation of the world. The ability to properly assess the reality is of great significance from the point of view of survival: it is associated with taking actions that are vital for the life of the individual

and society, therefore it is important from an evolutionary standpoint. Hallucinations and delusions occurring in schizophrenia often prevent the correct recognition of reality and lead to the construction of utterances which are based on delusions and incompatible with the world as perceived by neuronormative individuals. At this point, a thesis can be put forward about the recognition of this type of delusional, pragmatically incoherent statements as one of several types of schizophasia.

To begin with, symptoms such as hallucinations and delusions should be discussed. It is possible to define the term “hallucination” as describing a perception that occurs despite the absence of an external stimulus acting on a given sense organ (which helps differentiate it from “illusion,” which is an incorrect interpretation of the actual stimulus) [Grzywa, 2000, p. 118]. Further, it is necessary to distinguish “hallucination” from “delusion,” which is a belief, a cognitive construct that is characterised by features such as falsity (inconsistency with the reality), subjective certainty as to its veracity, non-falsifiability (not being subject to any counter-arguments), inconsistency with the prevailing views and norms in a given environment (unreliability of the content in the opinion of others from the same environment), direct connection of the delusion with the person who utters it, exaggerated emotional attitude to the content constituting the delusion (it is impossible to talk or think about something else) [Grzywa, 2000, p. 207].

The origin of hallucinations is explained by a disruption of neurotransmission, particularly in the left temporal and frontal lobes, as well as an increase in the activity of deep brain structures, both of which are observed in people with schizophrenia. Hallucinations can also be induced in healthy people by administering psychoactive substances to them [Grzywa, 2000, pp. 130–142]. Delusions, on the other hand, can be interpreted as the result of a transformed way of perceiving and experiencing the world, as a mental product which is shaped linguistically and uttered. Through delusions, individuals adjust to an altered perception of reality in an effort to make his behavior understandable and safe for them [Feldmann, 1989; Kapur, 2003]. In this approach, delusions arise from a combination of internal stimuli generated by neurochemical processes and cultural factors which give rise to delusional interpretations of the world and are based mainly on remembered narratives. Mastering the narrative, understood as a procedure for interpreting the world using language, plays an important role in the occurrence of delusions. Children with schizophrenia are found to have low narrative skills and no delusions meeting the criteria cited above. It is only in teenagers that the first elaborate delusional systems are encountered [Woźniak, 2005]. In addition, delusions reveal the role of cultural context, which influences their content. Delusions are typically divided according to their content, with the following types: reference, persecutory, guilt, grandiose, religious, hypochondriacal, erotomantic, infidelity, nihilistic, misidentification of people, induced [Bhandari, 2008, p. 93]. However, the way in which they are realised may vary: a person who believes in shamanism may interpret his or her hallucination (e.g. hearing voices) as contact with

spirits while someone believing in UFO theories as receiving information through an implant inserted by aliens. It is worth noting the overall great influence of cultural narratives such as religions, history, and ideologies on people's interpretation of the world, their daily choices and decisions as well as their normal functioning.

It can therefore be assumed that delusions arise from experienced and memorised information that may have been stored after a previous abnormal perception. These impressions are juxtaposed with ways of interpreting the world stored in long-term memory from prior to the illness and are interpreted in terms typical of a given culture. Delusions become permanently embedded in the person's personality. As such, they become an additional cause of impaired information filtering, which is a factor disrupting cognitive processes and information processing [cf. Grzywa, 2000, pp. 217–225]. A good example can be the delusions of Daniel P. Schreber, perhaps the world's best-described psychiatric patient, who describes the transformation of his body into a woman under the influence of the sun-god in his diaries from the early 20th century:

When the rays approach, my breast gives the impression of a pretty well-developed female bosom; this phenomenon can be seen by anybody who wants to observe me with his own eyes. I am therefore in a position to offer objective evidence by observation of my body. A brief glance however would not suffice, the observer would have to go to the trouble of spending 10 or 15 minutes near me. In that way anybody would notice the periodic swelling and diminution of my bosom. [...] I venture to assert flatly that anybody who sees me standing in front of a mirror with the upper part of my body naked would get the undoubted impression of a female trunk [...] [Schreber, 1988, p. 207].

Schreber's elaborate delusional system was interpreted differently by Sigmund Freud, Eugen Bleuler, Carl Gustav Jung and many others. For the researcher of linguistic behaviour, the overall formal-semantic correctness of the text accompanied by its pragmatic inconsistency is the most important fact regarding the analysed passage. A comprehensive assessment of language disorders in schizophrenia is therefore necessary, all the more so because the aforementioned American Psychiatric Association DSM–5 study of 2013 describes the dimensions of speech and behavioural disorders in schizophrenia in such a way that it establishes:

Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated). At least one of these must be (1), (2), or (3):

1. delusions
2. hallucinations
3. disorganized speech (e.g., frequent derailment or incoherence)
4. grossly disorganized or catatonic behavior
5. negative symptoms (i.e., affective flattening, alogia, or avolition)...” [American Psychiatric Association, 2013a, p. 50].

Diagnosis of schizophasia

The world's most popular scale for assessing speech disorders in mental illness is the Scale for Assessment of Thought, Language, and Communication (TLC) designed by Nancy C. Andreasen from the University of Iowa in 1979 [Andreasen, 1979a; 1979b; 1980; Andreasen, Grove, 1986]. TLC is an index of potential clinical symptoms of schizophasia. It is a psychometric-clinical, non-standardised tool. The scale includes a description of 18 linguistic phenomena assessed on the basis of observation or a tape recording of a conversation. This scale was translated into Polish and popularised through Chernikiewicz's research [Chernikiewicz, 1998; 2004; Chernikiewicz, Woźniak, 2012]. The TLC scale includes the linguistic phenomena presented in Figure 1.

1. **Poverty of speech:** a reduction in the amount of spontaneous speech, resulting in answers to questions that are short and devoid of additional information.
2. **Poverty of content of speech:** statements are adequate in length but convey little information; language becomes strange, overly abstract or excessively concrete, there are repetitions and stereotypes.
3. **Pressure of speech:** an increase in the amount of spontaneous speech compared to situational or social expectations; speech is loud, emphatic, difficult to interrupt, at a rate of more than 150 words per minute.
4. **Distractible speech:** during speech or discussion, the sender interrupts the text or sentence abruptly, focusing attention on the current external stimuli.
5. **Tangentiality:** the response to the question from the outset is oblique (tangential) or not related to the subject of the question at all.
6. **Derailment:** patterns of spontaneous speech in which utterances deviate from the main thread; several unrelated texts are observed in a single utterance.
7. **Incoherence:** speech patterns in which the text is broken down at the sentence (utterance) level, often defying the rules of grammar.
8. **Illogicality:** speech patterns in which conclusions are not reached logically.
9. **Clanging:** speech patterns in which sounds are decisive in the choice of words.
10. **Neologisms:** new verbal formations whose origin seems to be incomprehensible.
11. **Word approximations (metonyms):** using ordinary words in new, often private ways or creating new terms from words that are generally known.
12. **Circumstantiality:** patterns of indirect speech, overloaded with details (but without the features of pressure of speech).
13. **Loss of goal:** inability of the utterance to reach the natural conclusion of the text (but without the evident characteristics of deviation).
14. **Perseverations:** continuous use of words or sentences on a repetitive basis (except for socially conditioned repetitions).

15. **Echolalia:** speech patterns in which the recipient echoes the phrases of the person asking questions, usually with his or her intonation.
16. **Blocking:** interrupting sequences of sentences by blocks lasting at least several seconds, without the sender being aware of these interruptions.
17. **Stilted speech:** artificial, formal, formulaic, preachy utterances with a different speech genre than expected.
18. **Self-reference:** thematic conversion of the speech to the person of the speaker, despite the general or neutral subject of the text set out.

Figure 1. The Scale for Assessment of Thought, Language, and Communication (TLC) by Andreasen edited by Czernikiewicz

Source: Czernikiewicz, 2004, cf. also: Czernikiewicz, Woźniak, 2012.

Constructing the TLC scale, Andreasen remained in the perspective of the dichotomous nature of schizophasic symptoms and distinguished between “positive” and “negative” disorders of thought, language and communication. Positive symptoms included pressure of speech, tangentiality, derailment, incoherence and illogicality whereas negative ones comprised poverty of speech and poverty of content of speech [Andreasen, 1979a].

The second scale used in Poland is the Short Schizophasia Rating Scale (SSRS, in Polish: Krótka Skala Oceny Schizofazji – KSOS), which was developed by Woźniak [Czernikiewicz, 2004; Woźniak, 2008; Czernikiewicz, Woźniak, 2012]. Similarly to the TLC, the tool is psychometric-clinical in nature and non-standardised. The categories of the SSRS are shown in Figure 2.

1. Grammatical cohesion.
 - 1.1. Assessment of syntactic impoverishment.
 - 1.2. Assessment of linear connotation disorders.
2. Semantic coherence.
 - 2.1. Occurrence of idiolectal neologisms (words not motivated by the language system).
 - 2.2. Occurrence of paronyms (building statements based on similarity of sound).
3. Pragmatic coherence (discourse construction strategies).
 - 3.1. Assessment of speech intelligibility.
 - 3.2. Assessment of concreteness of speech.
 - 3.3. Persistence of at least two of the symptoms from points 1 and 2 in longer speech fragments.

Figure 2. The categories of the Short Schizophasia Rating Scale (SSRS)

Source: Woźniak 2008.

From the perspective of the linguistic sign dimensions, the SSRS takes into account a global, three-dimensional evaluation of an utterance in its grammatical, semantic and pragmatic aspects.

1. Grammatical cohesion is related to the sign-to-sign relationship and concerns the formal-grammatical exponents of intra-textual connections. In the case of schizophasia, two issues are considered, namely impoverishment of the syntax of speech (if the number of isolated sentences and equivalents exceeds 60%) and disorders of linear connotation (considering all unusual word combinations not appearing in other utterances of language users), including structures such as: *...I was testing my conscience on hand grenades, ...these are the peasants of human forests and logging..., ...light years are like three hundred trillion lemons to one...*).
 2. Semantic coherence concerns the sign-object relationship. Semantic disorders are related to impairments in naming and interpreting reality, but also to the type of syntactic-semantic links within an utterance. In assessing this category, consideration is given to idiolectal neologisms (words whose neither word structure nor meaning can be explained based on the lexical-grammatical system of a given language) and the phenomenon of paronymy (the use of sound similarity to link words in an utterance).
 3. Pragmatic coherence is expressed in the relationship between the sign and the user (users, interpreters) of the sign. In practice, it refers to the communicative strategies of discourse construction. The speaker has to follow the social rules of utterance construction, i.e. to speak in a way that is appropriate to the situation and social ranks of the interlocutors. In addition, in order to be comprehensible, the sender must address a single (though sometimes collective), well-defined audience. In this category, the phenomena considered most relevant to schizophasia include the assessment of intelligibility and concreteness of speech. Interpretation is assessed by analysing longer fragments of text. The following factors may contribute to the incomprehensibility of schizophasic speech:
 - a) revealing fragments of verbal hallucinations;
 - b) addressing recipients who are the result of auditory hallucinations as part of an interaction with a real interlocutor;
 - c) talking off-topic (e.g. persistent reference to delusions) or in a way inappropriate to the situation (e.g. lack of recognition of the conversation situation and the social rank of the interlocutor: a patient at a clinic speaks to a doctor using very direct language and demands unspecified details about the sale of a car);
 - d) presenting fragments of speech related to delusions;
 - e) introducing multiple unrelated threads;
 - f) losing the intention of speech.
- g) Concreteness of speech is evaluated on the basis of the following criteria:

- h) incorporation of currently dominant stimuli (randomly heard words, text fragments in the patient's field of vision, names of objects in the immediate vicinity);
- i) randomness and arbitrariness of associations while ignoring the relationships arising from dependencies between concepts;
- j) disruption of the logic of the text.

It should be added that disorders of pragmatic coherence also result in the disclosure of grammatical and semantic disorders in longer fragments of speech. Conversely, very rarely does the disclosure of delusional content take place without semantic and formal-grammatical disorders.

Analysis and evaluation of delusional narratives

It is essential to assess the statements of schizophrenic patients using the scales described to prove that delusional narratives belong to schizophasia disorders. An extract from a conversation with a 15-year-old adolescent suffering from paranoid schizophrenia will be presented first.

...A – I have also seen a vision of the (errr) end of the world//
 B – you have seen the vision of the end of the world? this is very interesting// can you tell me about it/ or you can?
 A – have you heard about the world trade center?
 B – about the world trade center? I have//
 A – the third tower is to be made// to be added to these two//
 B – is that so?// but those two are damaged//
 A – and also this third one / the big one they want to add / and when they explode / they will destroy the entire globe//
 B – I understand//
 A – and then I'll have to move to mars or jupiter//
 B – how about us?
 A – because on the spo / because on this / errr / on / the end / there're black spots on the sun / and just / less and less is happening / it's cold//
 B – so / is it that / the moment that they've built the three towers / in the place of the world trade center / they can go off?
 A – this will be point ziro prom ziro//
 B – this will be point ziro prom ziro /and they may go off?
 A – they may go off / but it won't destroy poland//
 B – I understand // it won't destroy poland//
 A – poland is tough / because the palace of culture is made in the same way as the world trade centre//

B – uhm//

A – and they won't destroy the palace of culture//

B – they won't?

A – just because // have you heard of the holy scapular?//

B – sorry?

A – the holy scapular//

B – the holy scapular // well yes / I know what it is / the scapular//

A – it is put on from behind / so that no evil person would attack you / because it's evil//..."

It should be noted that the SSRS assessment points to syntactic simplification, an absence of connotational disorders and the occurrence of idiolectal neologisms. The major problem of the utterance is its incomprehensibility. It is impossible to accept the interpretation of the vision of the end of the world through the explosion of the World Trade Centre, taking into account the special role of Poland, which is "secured" by the Palace of Culture and Science in Warsaw. The respondent scores 6/15 in the SSRS, indicating mild schizophasia while the TLC scale diagnoses the boy as having significant schizophasia due to the grave severity of tangentiality and the significant amount of stilted speech.

The following reflections of a 39-year-old man on why people believe in God seems to confirm the involvement of auditory hallucinations in the formation of delusions since the utterance includes an overlay of another interaction, presumably a reaction to hearing voices.

...then I was flying into the outer space/he told me to fly/he told me to look for that sun// and the sun can be shone// the one who has a sign (unintelligible) some will shine and from the rhyme/ light a cigarette and fear will bring me down or something// once there was this one/ that op/ I opened the pole/ once/ that was before the merchant it was/ I opened the sky the same way// a shepherd I was// carrying bags/ and I felt silly// I didn't understand these people// and now I've understood everything// there are lots of things like this/ that I don't understand//(change in tone of voice) you press it/ there's probably a switch here/ (unintelligible) and I do hear that voice/(returning to normal tone) maybe la/ maybe from another land/ maybe more of a god came//...

He receives a maximum score of 15/15 points in the SSRS, which denotes severe schizophasia and identification of the symptoms in all categories. The utterance is also rated as severe schizophasia on the TLC scale, as a result of the accumulation of derailment, stilted speech and lexical phenomena such as clanging or neologisms.

Extended delusional systems include comprehensive explanations of the world and even one's own life story. An example would be the case of an 18-year-old man who is at the onset of psychosis and whose entire utterances remain in a virtual world created by his mind. In this view, the world is the playing field of secret

organisations that use unknown technologies and also involve the narrator himself in the collaboration.

...I won't say anything more// this is my secret// how I got into the CIA/ this I shall not say/
I can tell you everything/ but what I know about the CIA is my secret//

B – but I wasn't asking you about the CIA, I was asking you about the KGB//

M – KGB is a childish thing/ radecznica¹/ of radecznica? which one? opium? heroin? or an-
droid injection? just which injections/ say it//

B – android injection// this got me interested//

M – it's a childish thing/ this is an android injection man is getting android// man under con-
trol// android floppy discs/ one floppy disc doesn't do/ what four do for the brain/ and this is
how you control every KGB agent/ this is how you destroy agents from the NIK²/ destroy every
man from the NIK// brain transplants/ hitler/ stalin/ heimler/ and that's how the whole KGB
got fucked up/ that's why the KGB as they say is stalin/ hitler/ heimler/ stalin is the one//

B – stalin / say it again//

M – the one with stalin's brain is the man who works in the antarctic// the one with hitler's
brain is a formula one driver// heimler/ robert k.// it's three brains/ satanic ones// I'm the de-
coded fourth one //

Assessment with the SSRS scale indicates severe schizophasia (score 15/15), while the TLC scale points to significant schizophasia, due to the high severity of content poverty.

Overall, it should be stressed that significant or severe schizophasia is found in all the cases cited and it is caused by the clear manifestation of delusions in the patients' utterances. This is indicated by both clinical (TLC) and linguistic (SSRS) data.

Conclusions

The conclusions drawn from the analyses of schizophasic texts presented in the article confirm the existence of a delusional type of schizophasia and correspond largely with the findings concerning the structural and functional brain abnormalities present in schizophrenia.

Distinctive features of the delusional type of schizophasia include:

- 1) misjudgement of reality based on delusions;
- 2) persistent reference to the content of one's own delusions regardless of the subject of the utterance;

1 A town in the Lublin Province where the psychiatric hospital is located.

2 The Supreme Audit Office is the top independent state audit body whose mission is to safeguard public spending in Poland.

3) possible preservation of correct syntactic-semantic relations of utterances although these also become disintegrated in more severe cases.

An analysis of the clinical picture of schizophrenia confirms the importance of schizophasia in the picture of psychosis and observed neuroanatomical and neurofunctional changes manifested during the course of the illness [Liddle, 1996; de Boer et al., 2020]. Taking into account the location of the area of language disorders in schizophrenia, contemporary research on the function and performance of individual brain areas leads to similar conclusions as the interpretation of the breakdown of speech in its syntactic, semantic and pragmatic dimensions in the perspective of functional disorders of the links in the speech chain. The concept that is the most useful in this case is that of Peter F. Liddle, who speaks of three schizophrenic syndromes [Liddle, 1987; 1996], namely:

1. Psychomotor poverty including poverty of speech, flattening of affect and slowing of movement.
2. Disorganisation referring to formal thought disorders characterised by associative looseness, poverty of content of speech and unadjusted affect.
3. Reality distortion in which delusions and hallucinations prevail.

Dominance of delusions and misrecognition of reality is accompanied by loss of pragmatic coherence of speech. This is associated with changes in the parahippocampal region of the left temporal lobe which relate to variations in the cytoarchitectonics of the anterior hippocampal region as well as the dominant temporal lobe and increased regional cerebral blood flow (rCBF) in the medial and anterior region of the left temporal lobe and lateral prefrontal region (left frontal lobe). The rCBF factor is an important measure of neuronal activity. Above-normal activity of these areas results in hallucinations and other perceptual abnormalities, leading to the activation of the described mechanisms for the formation of delusions and misjudgement of reality, with no impairment symptoms or signs of syntactic and semantic incoherence [cf. Grzywa, 2000].

So as to further analyse the loss of coherent speech in its different dimensions together with their neuroanatomical and neurofunctional correlates, it would be clearly necessary to conduct studies of larger groups of people with schizophrenia, taking into consideration language analysis and neuroimaging.

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