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THE LEVEL OF DOGMATISM IN SCHIZOPHRENIA.
A COMPARATIVE ANALYSIS OF UTTERANCE TEXTS
WITH THE USE OF THE SUITBERT ERTEL DOGMATISM QUOTIENT

The paper describes the results of comparative research on the level of dogmatism in the utterance texts of patients diagnosed with paranoid schizophrenia (N=130) and healthy individuals (N=130). The analysis was conducted with the use of the Suitbert Ertel Dogmatism Quotient. The results indicate significant differences between these two groups.

Key words: paranoid schizophrenia, dogmatism, quantitative linguistic analysis

A closed mind: The Milton Rokeach theory of dogmatism

Introduced in 1960, the Milton Rokeach concept of dogmatism was one of the earliest psychological theories focusing on the formal aspect of beliefs and their role in the thoughts and behavior of both individuals and groups. Rokeach turned his attention to the potential similarities between the ways of thinking of people who clearly differ in the content of their accepted beliefs. This similarity is based on the relationship to belief systems other than one's own and may be described in the framework of values as "close-mindedness." A person's belief system is the more closed (dogmatic):

- the more a person's views (or the views of a group) are isolated from each other, resulting in a simultaneous acceptance of opinions that are logically contradictory or that lead to contradiction;
- the more the differences are exaggerated and the similarities diminished between the systems of accepted and rejected beliefs;
- the bigger the difference in the knowledge of one's own belief system in comparison to the rejected beliefs;

- the stronger the dislike and criticism of unacceptable beliefs, whereas the social reality and the current situation are perceived as a form of threat;
- the narrower the time perspective; Rokeach has focused on the particular preoccupation with the future, but it may also be a dogmatic concentration on the past;
- the greater the tendency for absolute trust in positive authority and absolute distrust towards persons holding different beliefs; one could say that this is a sign of strong dependence on authority, more so on the information source than on the communication content;
- the more the judgments made about people are dependent on whether they agree with an individual's accepted authority source; a disagreement with that authority disqualifies it both morally and intellectually.

In Rokeach's opinion (1960), all of these properties of belief systems have a common causal background: they comprise a system of cognitive and defensive reactions that serve as protection from fear. Research conducted by Rokeach has proved that persons with a high level of fearfulness exhibit a greater degree of dogmatism than those who are less fearful. The dogmatic belief structure serves as a protective mechanism and less so as a way of understanding the world: "A closed system is nothing else but a set of protective mechanisms organized in order to create a cognitive framework that acts as a shield for the sensitive mind" (Rokeach, 1960, p. 70). The purpose of a dogmatic belief system is the reduction of fear through the selection of new information and elimination of that which could be threatening. The stronger the sense of danger, the greater the tendency for indiscriminate acceptance of the positive authorities' views, and that leads to the evaluation of all beliefs through the prism of their degree of similarity to one's own beliefs. Dependence on the information source and not on its informational content leads to acceptance of an internal disagreement of beliefs, exaggeration of differences and rejection of views different than one's own. The fear level is thus lower and the belief system of the individual becomes more rigid¹, more schematic, increasingly indiscriminate and resistant to change. The dogmatic belief system also complicates solving new problems that require a detachment from old habits or thinking patterns. It also entails a reluctance to engage in tasks demanding new ways of thinking with a reduced ability to synthesize earlier observations.

According to Rokeach, the source of fear in dogmatic persons may stem from childhood experiences, especially the fear of expressing negative or ambivalent feelings towards parents. It is possible, though, to explain the relationship between the glorification of parents and dogmatism differently. For example, Andrzej Malewski (1961) believes that persons with a high sense of danger who consequently think dogmatically do not speak in interviews about the negative characteristics of their

¹ Rokeach (1960, p. 183) distinguishes rigid thinking from a dogmatic way of thinking. Rigid thinking refers to resistance to changing a single opinion, dogmatic thinking on the other hand means resistance to changing a *whole system of beliefs*.

parents. They also don't want to admit to any unflattering characterizations of their own family, since it would increase their fear related to the threat to their good image. Then, according to Malewski, the repression of hostile feelings towards parents would be not so much the reason for fear in dogmatic persons, but an effect of fear the basis of which are not necessarily childhood experiences.

Rokeach in his research also demonstrates that situations that are a source of threat lead to similar results of belief dogmatization as those of fear fixed in an individual's personality from early-childhood events. This occurs at least as long as the threat continues. For example, the resolutions of the Catholic Ecumenical Council were even more dogmatic if there was a perceived threat to that institution during the preceding period. The dogmatism quotient in the Church's resolutions was directly proportionate to the magnitude of the punishments considered for those people who did not accept them, and to the magnitude of the authority figures to whose leadership they had subscribed to.

At the same time, as Rokeach acknowledges, the more closed (dogmatic) the belief system of an individual, the greater seems to be the perceived threat in his/her environment. Internal fear becomes externalized and leads to the distortion of reality, creating "a semblance of understanding the world" (Rokeach, 1960, p. 60).

Contemporary research has confirmed that dogmatic persons are characterized by a higher level of aggression, hostility and discontent in comparison to non-dogmatic individuals (Heyman, 1977). They feel socially alienated more frequently and are characterized by restlessness, low self-esteem, distrust and lack of spontaneity (Sexton, 1983).

Dogmatism in schizophrenia: Theoretical assumptions

The belief system described by Rokeach (1960) of being defensive, schematic, biased and hostile has often been referred to as the "paranoid system" (pp. 76, 349 and others) and suggests an association with a delusory view in schizophrenic patients. Antoni Kępiński (2001) has written about the despotism of persons with schizophrenia, especially in the early stage of the disease, including their rigidity of opinions and dislike for continued dialog.

Delusions, a basic symptom of paranoid schizophrenia, are defined as "false opinions about reality that do not change either through argumentation or any other evidence" (Cierpiałkowska, 2007, p. 276), frequently with a persecutive character (Wciórka, 2002, p. 262), thus triggering emotions of hostility and a sense of endangerment. Also, the escalation of the fear occurring in schizophrenia "frequently goes beyond the boundaries of human imagination" (Kępiński, 2001, p. 243). It takes on the form of disintegrating fear, shattering the structure of the patient's world, and causing feelings of chaos and of being lost. This is amplified in the early stage of schizophrenia, and it later weakens because "the patient gets used to the change of self and of the surrounding world" (Kępiński, 2001, p. 247). According to Kępiński

(2001, p. 247), the lowering of the fear level helps with “the crystallization of the delusional structure” which introduces a “pathological order” protecting the patient from a sense of complete chaos. Similar to the Rokeach dogmatic belief system, Kępiński’s schizophrenic delusions – especially the constant, compact and systematized ones – comprise a form of “protection from disintegration” (Kępiński, 2001, p. 226) and from increasing fear.

Certain similarities between dogmatic persons’ and schizophrenic patients’ mechanisms of coping with fear and a sense of endangerment lead us to form the hypothesis that the dogmatism level in the group of schizophrenic patients should be significantly higher than in the group of healthy individuals:

H₁ Level of dogmatism in patients with diagnosed paranoid schizophrenia should be significantly higher than in the group of healthy individuals.

The higher fear level and the intensification of the delusional world view in patients with the positive syndrome of schizophrenia (Cierpialkowska 2007, Mueser, Gingerich, 2001, Kępiński 2001) also suggests that within the study group the level of dogmatism in patients diagnosed with the positive syndrome of schizophrenia should be considerably higher than in the group of patients with the negative syndrome (Andreasen, Crow, 1979):

H₂ Level of dogmatism in patients with the positive syndrome of schizophrenia should be considerably higher than in patients with the negative syndrome.

We have used the Suitbert Ertel Dogmatism Quotient (1986).

The Suitbert Ertel Dogmatism Quotient

The search for connections between an individual’s psychological process and the lexical choices made by him/her on the platform of psychology has been popularized by the works of Pennebaker and Stone (2003). Their research was based on the assumption that words used by people – their grammatical forms, sounds, length, and grouping within specific semantic categories – supply information about the psychological processes of each individual independently of the context of usage. This has also been emphasized by Ida Kurcz (1987) in her considerations. She has written that “in the superficial expression, with a more frequent usage of a certain class of expressions, some patterns of thinking and interpreting reality become apparent” (Kurcz, 1987, p. 294). It is a view also shared by psychologists who are part of the narrative psychology approach (Janusz, Gdowska, and de Barbaro 2008), who view narration as “a way of understanding the world” (Trzebiński, 2002).

The search of German psychologist Suitbert Ertel (1986) was founded on a similar assumption. The procedure he uses is based on counting the frequency of

usage of certain classes of word forms in comparison to the frequency of appearance in the analyzed text of word forms that belong to contrasting classes according to the preceding word classes. He assumes that the isolated Quotients of Speech Styles are a behavioral manifestation characteristic of a given person's cognitive style, understood as a relatively consistent form of the human way of organizing internal mental activities.

In his research Ertel has used the following Quotients of Speech Styles: Impersonal References Quotient, Plurality Quotient, Classification Quotient, Nominalization Quotient, Abstractness Quotient, and Dogmatism Quotient².

The Dogmatism Quotient has been the most interesting to us in the context of the subject of our paper. It refers to attempts at finding some structural characteristics of language expressions that might reflect this cognitive property, referred to by Rokeach (1960) as dogmatism. In Ertel's opinion, this quotient may reveal such cognitive tendencies as: "close-mindedness," connecting, definitiveness and orderliness. It is expressed in the proportion of Group A lexemes (such as: always, never, everyone, all, none, completely, entirely, doubtless, must, should, it is forbidden, necessarily, etc.) to Group B lexemes that comprise an opposing class (sometimes, rarely, many, few, hardly, almost, perhaps, doubtful, also, possibly etc.). In Ertel's research these lexemes have been ascribed to six semantic linguistic dimensions: 1) alwaysness – not alwaysness, 2) allness – not allness, 3) extremeness – moderateness, 4) certainty – uncertainty, 5) exclusion – inclusion, 6) necessity – possibility. The first extreme is the diagnostic limit for dogmatic thinking and is simultaneously descriptive of such features of language and thought as: reluctance to change (alwaysness), high degree of generality (allness), going to extremes, intensity, radicalism (extremeness), belief in the truthfulness of judgments, decisiveness, firmness (certainty), close-mindedness, rigidity, isolation (exclusion), the sense of being under pressure, and lack of the freedom of choice (necessity). Ertel clearly refers here to Rokeach's theory, and particularly to such elements of the belief system as: rigidity, reluctance to change, exaggeration of differences, radical judgmentalism with strong conviction of the validity of those judgments, combined with internal isolation and rejection of influences.

All of the above-mentioned quotients of the content analysis of texts have been used by Ertel in the analysis of the vocabulary collected in a frequency dictionary of the French language by Juilland, Brodin and Davidovitch. This dictionary has been divided into five linguistic styles according to the types of texts used for the calculations: drama, novels, essays, daily newspapers and scientific texts. Ertel posited that his proposed quotients assume different values in the above-listed kinds of texts. And indeed, all quotients, except for the Dog-

² The Quotients of Speech Styles and the method of counting them in the context of research on schizophrenia have been covered in detail in the paper: M. Obrębska, T. Obrębski (2010), *The characteristics of some features of schizophrenic patients' utterances. Comparative analysis based on Suijbert Ertel's Speech Style Quotients. Preliminary research report.*

matism Quotient, increase with the transition from drama to scientific texts in the provided order. The Dogmatism Quotient for the same types of texts shows an opposite tendency: it decreases with the transition from drama to scientific literature, except for the dimension of exclusion – inclusion that does not change in these particular kinds of texts.

As Ida Kurcz (1987) has noted, it is the Dogmatism Quotient that Ertel has paid special attention to, for example by counting its values for texts by the same author but written in different time periods. Thus, with that perspective he has compared Hitler's speeches before and after his rise to power, and Kant's texts from different periods of his career, showing an obvious increase in the Dogmatism Quotient, including the increase of Hitler's power and the maturation of the views of the prominent philosopher.

The authors' own research

In order to verify the above-described hypotheses, we conducted research involving 132 hospitalized psychiatric patients diagnosed with paranoid schizophrenia (52 women and 80 men, among them 12 persons with higher education, 48 with secondary and 72 with elementary or elementary and vocational). This research was carried out at five large neurological and psychiatric care centers in Poland: the Regional Hospital for Mental Health and Psychiatric Patients in Gniezno, the Regional Hospital for Mental Health and Psychiatric Patients in Cibórz, the Regional Neuropsychiatric Hospital in Kościan, the Józef Babiński Hospital for Neurological and Psychiatric Patients in Kraków, and the Independent Public Hospital for Neurological and Psychiatric Patients in Międzyrzecz. All of the evaluated persons provided written consent to participating in the research and agreed to have their utterances recorded on a dictaphone. With the help of the Scale PANSS tool (Andreasen, 1984), and in consultation with both the treating physician and an experienced psychiatrist, the patients were divided into two groups: the positive syndromes (80 individuals) and the negative syndromes of schizophrenia (52 individuals). Next, the patients were shown five photographs with different levels of complexity, selected by experts and approved by the Ethical Commission of the IP UAM, and each patient was asked to describe what he or she saw in them. All utterances were recorded on a dictaphone. A similar procedure was applied to the healthy persons comprising the control group. The control group (n=130) was matched to the research group by sex, age and education level, with the health condition as the most significant variable setting them apart.

The utterance texts were transcribed in the format of the Transcriber software. Two recordings from the research group turned out to be unintelligible, hence the results of 130 persons from the research group and 130 from the control group were included in this study. The text analysis was conducted with the use of a software package called UAM Text Tools (Obrębski, Stolarski 2006) created at the Department

of Mathematics and Computer Science at UAM and combined with additionally written programs.

Based on Ertel's (1986) examples and the results of the pilot study (Obrębska, Obrębski 2010), a preliminary list of 325 words related to the above-characterized semantic dimensions of the language was generated from all the words uttered throughout the study. It consisted of 67 adjectives, 17 adjectival pronouns, 122 adverbs, 14 adverbial pronouns, 9 pronouns, 19 numerals, 42 particles and 42 verbs. This list was presented to five experts with a background in linguistics whose task it was to assign the words from the list to Ertel's categories. For this research we selected 273 words for which the coefficient of concordance of the experts' choices was the highest. Their numbers, including the division into particular dimensions, have been collated in Table 1.

In a number of cases the utterance texts did not contain any of the words for a given dimension. In such a case, the text was disqualified from evaluation for that dimension. In Table 2 we have collated the numbers of texts used to calculate the results for the particular dimensions.

Results

The original method of calculating the Dogmatism Quotient proposed by Ertel was based on calculating the proportion of lexemes from Group A, diagnostic for dogmatism, to the lexeme Group B, comprising the opposite lexeme class.

In this research, the weighed sum was counted instead of a simple count of word occurrences. The weight assigned to each word equaled 2, 3, 4 or 5, and it corresponded to the number of linguistics experts who qualified that word for inclusion in a given dimension. The greatest effect on the value of the quotient for a certain dimension was achieved by the words for which the unanimity of the experts in approving them for that dimension turned out to be the highest. The value of the quotient for a given dimension was calculated as a sum of the dogmatic words' weights within a certain dimension divided by the sum of weights of all words, both dogmatic and non-dogmatic, for that dimension.

The general value of the Dogmatism Quotient was calculated in the same way, including the words from all dimensions. In the case of words simultaneously qualified for several dimensions, the highest of the weighed values for those particular dimensions was taken into consideration.

Figure 1 compares the mean values of the quotients taking into account the division into three groups: the control group of healthy individuals, patients with negative schizophrenia symptoms and patients with positive symptoms. Figure 2 compares the mean values differentiating for only two groups: the control group and the research group (with the positive and negative patients' data combined). In both graphs we have presented the quotients calculated for particular dimensions and the general Dogmatism Quotient indicated in boldface.

Table 1. Number of words in particular dimensions

	Total words combined	Dimension alwaysness – not alwaysness	Dimension allness – not allness	Dimension extremeness – moderateness	Dimension certainty – uncertainty	Dimension exclusion – inclusion	Dimension necessity – possibility
Dogmatic words	139	23	37	70	80	16	34
Non-dogmatic words	134	25	16	29	60	18	61
Total	273	48	55	99	140	34	95

Table 2. Number of utterances containing words from particular dimensions

	Total utterances combined	Utterances of the control group	Utterances of negative syndrome patients	Utterances of positive syndrome patients
Allness	250	126	45	79
Necessity	255	130	45	80
Extremeness	255	127	48	80
Alwaysness	147	64	21	62
Certainty	259	130	49	80
Exclusion	190	94	23	73
Total	259	130	49	80

Figure 1. Comparison of the mean values for the quotient (three groups)

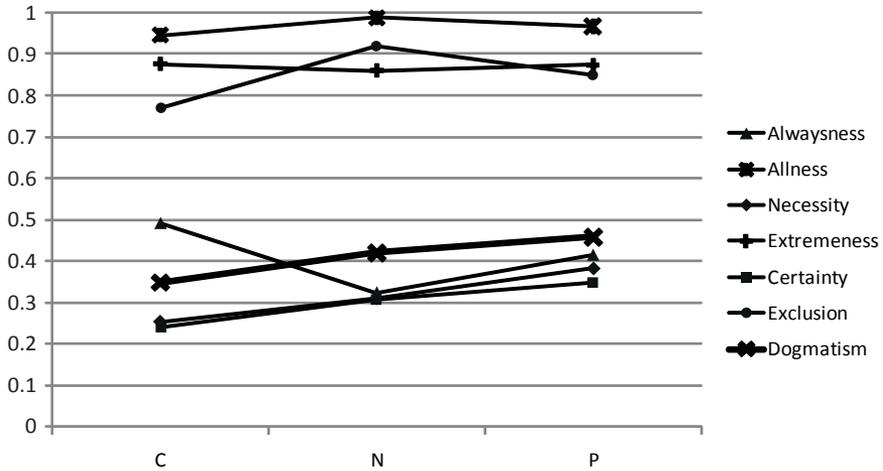
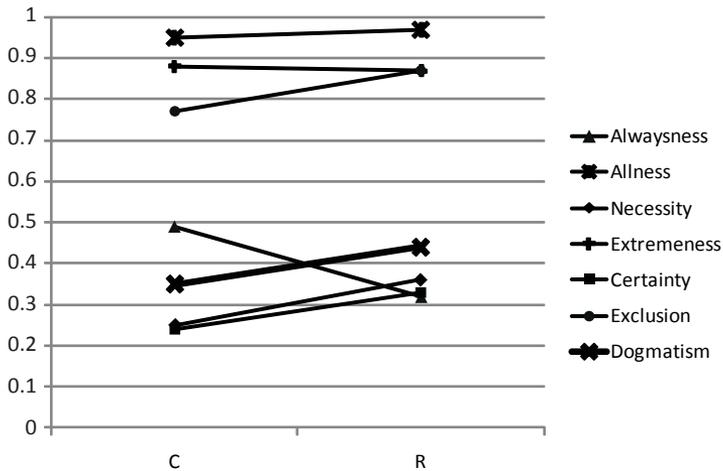


Figure 2. Comparison of mean values for the quotient (two groups)

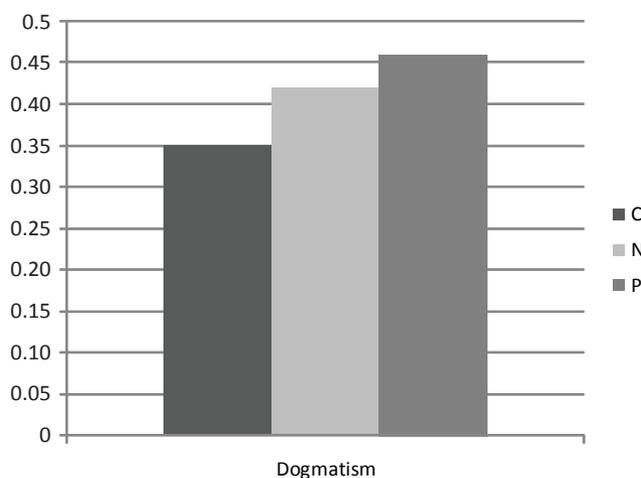


In order to establish the level of importance of the discovered differences, we conducted a variance analysis applying the Tukey HSD Test. The analysis was completed both with the division into three groups: control (c), positive patients (p), and negative patients (n), as well as with the differentiation for only two groups: control (c) and research (r). The results of the statistic analysis are presented in Table 3. The columns in which the analysis results exhibited statistically intrinsic value of the average differences at the level of $p = 0.05$ have been boldfaced.

Table 3. Comparison of average rates for particular dimensions of dogmatism, results of the Tukey HSD Test

Pair	Diff	Lwr	UPR	p adj
Allness				
n-c	0.042	-0.003	0.086	0.070
p-c	0.020	-0.016	0.056	0.399
p-n	-0.022	-0.069	0.026	0.534
r-c	0.028	0.001	0.055	0.042
Necessity				
n-c	0.057	-0.025	0.138	0.230
p-c	0.129	0.062	0.196	2.6e-5
p-n	0.072	-0.016	0.160	0.129
r-c	0.103	0.053	0.153	5.7e-5
Extremeness				
n-c	-0.016	-0.082	0.051	0.844
p-c	-0.002	-0.058	0.054	0.996
p-n	0.014	-0.058	0.086	0.894
r-c	-0.007	-0.048	0.034	0.735
Alwaysness				
n-c	-0.168	-0.409	0.074	0.230
p-c	-0.077	-0.248	0.094	0.538
p-n	0.091	-0.151	0.333	0.648
r-c	-0.100	-0.233	0.033	0.141
Certainty				
n-c	0.067	-0.003	0.137	0.063
p-c	0.107	0.047	0.166	8.9e-5
p-n	0.040	-0.036	0.115	0.433
r-c	0.092	0.0483	0.135	4.2e-5
Exclusion				
n-c	0.151	-0.001	0.303	0.053
p-c	0.080	-0.022	0.182	0.153
p-n	-0.070	-0.226	0.086	0.537
r-c	0.097	0.018	0.176	0.017
Dogmatism				
n-c	0.071	0.006	0.137	0.029
p-c	0.110	0.054	0.165	1.5e-5
p-n	0.038	-0.033	0.109	0.412
r-c	0.095	0.054	0.136	6.5e-6

Figure 3. Differences in the levels of dogmatism in the evaluated groups



Statistically significant results were found among the following groups:

- Research group and control group for the dimension of allness – not allness,
- Positive patients and control group, and research group and control group for the dimension of necessity – possibility,
- Positive patients and control group, and research group and control group for the dimension of certainty – uncertainty,
- Research group and control group for the dimension of exclusion – inclusion,
- Negative patients and control group, positive patients and control group (research and control) for the general Dogmatism Quotient.

These results demonstrate that the following dimensions have been essential to this analysis: allness – not allness, necessity – possibility, certainty – uncertainty and exclusion – inclusion.

Discussion

In the theoretical part we have posited two hypotheses about the existence of differences in the levels of dogmatism between a group of patients diagnosed with paranoid schizophrenia and healthy individuals, and within a group of schizophrenic patients. The results provided above have partly confirmed the two hypotheses, as shown in Figure 3.

The difference between the research group and the control group has turned out to be statistically significant (at the level of $p=0.05$), with the dogmatism level in patients with diagnosed paranoid schizophrenia higher than in the healthy individuals. According to the Rokeach understanding of dogmatism, the belief structure in patients with schizophrenia is more rigid, i.e. less flexible or susceptible to change.

These patients' world view is characterized by greater radicalism and conviction of the truthfulness of their statements.

These differences have become particularly significant for the dimensions of allness – not allness, necessity – possibility, certainty – uncertainty and exclusion – inclusion, thus indicating a high level of generality and going to extremes in forming their judgments, strong and irrefutable belief in their truthfulness, cleverness and decisiveness in their expression, and lack of openness to engage in dialog.

These results confirm the general impression given by the schizophrenic patients during the research process. Their description of photographs was accompanied by great certainty of expression and a strong belief in its truthfulness. The patients seldom expressed doubts and took less time to ponder the content of their utterances. One of the patients recognized himself in all of the photographs, and was able without hesitation to provide an exact date and place where the photos were taken. Any attempts at undermining the patients' opinions were met with hostility. The healthy individuals most often wondered about different interpretive possibilities, expressed doubt and asked for additional explanations. They also asked more questions and were not that certain of their utterances.

Consistently with the posited hypothesis, the level of dogmatism in patients with positive schizophrenic syndromes turned out to be higher than in the group of patients with negative ones. However, this difference was not statistically significant. The selection criteria for the research group, such as good patient contact and a consciously made decision to join this research, obviously eliminated patients with acute psychotic symptoms. Despite this preliminary selection and the consequent exclusion from the research of patients with pathological levels of fearfulness and advanced delusions (thus theoretically patients with the highest level of dogmatism), the variance analysis has provided the greatest differentiation within the groups and the highest (above average for the group) individual results on the scale of dogmatism, in particular in the group of patients with positive schizophrenic syndromes. Patients with the highest individual scores were the ones who were recently hospitalized with the first episode of schizophrenia and delusions as the dominating symptom. The high level of fearfulness along with the delusional experiences and the novelty of these experiences led to the stiffening of their beliefs and the "closedness" of their minds. This could serve as the basis for the assumption that the most dogmatic patients – with the highest level of fearfulness and hostility – were those who did not agree to join the research, in this way revealing the radicalism of their attitudes and the extremism of their judgments.

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