

Associational meaning of the emotionally aggressive words in a group of schizophrenic people and in healthy controls. Semantic analysis

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Distributions of associational responses to four words with aggressive emotional shade, obtained from schizophrenic patients and healthy controls have been compared, and significant differences in some content categories have been discovered.

Key words: associational meaning of words, semantic analysis, emotionality, schizophrenia

Introduction

Generally, the studies on language in schizophrenia can be divided into studies concerning the transmitted content, i.e., semantics, and studies dealing with the language structure, i.e., syntax. The problems of expressive and communicative function of a language are also studied. Most authors, however, focus their attention on the content of messages, and claim that it is, first of all, a dysfunction of the semantic system of language that occurs in schizophrenic patients [1, 4, 21, 25, 27, 28].

Usually, it is emphasized that despite the knowledge of the basic senses of words (e.g., ability to give proper definitions of words), patients with schizophrenia encounter difficulties in conceiving all shades of meanings, in differentiating words, in using ambiguous words and in assessment of the occurrence rate of particular words in their native language [6, 17, 21, 31].

The subject of the present study is associational meaning of words, that is, this meaning which is included in the distribution of associational reactions to a given verbal stimulus. In research of this kind it is assumed that distributions of associations reflect not only verbal habits and the language system of the examined persons, but also their knowledge and conceptual system [3, 18, 20].

Since words with heavy emotional load were used as stimuli, we expect that the analysis of contents included in distributions of reactions will allow for an insight into the emotional sphere of the examined persons.

Examined persons

Both the examined persons and the selection of verbal stimuli as well as the course of the associational experiment were precisely described in the previous work [11]. This is why, here, I shall present only the most important information. The examinations covered 128 patients suffering from schizophrenia. The basic criterion of selection included a univocal medical diagnosis of simple or paranoid schizophrenia, and examination with The Minnesota Multiphasic Personality Inventory (MMPI). Apart from the patients who constituted the experimental group, 120 persons who formed the healthy control group were also examined. The examined groups differed significantly on all scales of the MMPI (Only the K-scale differentiated the experimental group and the control one at a significance level $p < 0.05$) [9]. Healthy persons were selected in couples, by sex, age, and education. The level of intellectual efficiency of all persons taking part in the experiment was measured with the help of Wechsler-Bellevue scale. The examined groups did not differ significantly in the subtests of the verbal scale [10].

Method

Verbal stimuli were selected in two phases. The first phase consisted in estimation of the level of emotionality of 166 nouns. Forty one referees (persons with university education or students) performed the evaluation on a five-item scale. In this way, 12 words with the highest values of mean assessment of emotionality and 4 words with the lowest values were selected. The second phase consisted in evaluation of the selected words (mixed with 16 other words) by 12 referees (psychologists and psychiatrists) according to the criterion: aggressive — non-aggressive. Kendall's concordance coefficient was calculated and it proved to be highly significant ($W = 0.6162$; $\chi^2 = 110.9161$; $df = 15$; $p < 0.00001$). The words with an aggressive emotional shade selected in this way include murder, fury, hate and cruelty.

The associational experiment was conducted with each person separately. Stimulus words were presented in a random sequence. The words with an aggressive emotional shade were mixed with twelve other words of various emotional shades (positive, negative and indifferent). The examined persons were asked to respond with individual words for one minute. Verbal responses were recorded on a magnetic tape. Then we measured the time of initial reaction and time intervals that occurred between particular reactions. In this work I analyze only those words which occurred first (after one reaction to each word of each examined person), and only in response to verbal stimuli of an aggressive emotional shade. The analysis concerns the semantic aspect of reaction only.

Method of data analysis

Associational reactions were referred to definitions of stimulus word. The definitions of the words "fury" and "hate" were composed on the basis of semantic analysis of names of emotions performed in the works by Jordanskaja [14] and Wierzbicka

[29, 30]. The analyses are limited only to those meanings, which can be derived from the semantics of the considered words.

The meaning of the word “hate” (feeling — attitude) was defined in the following way:

- A hates C = A feels that he
1. dislikes C very much
 2. wishes C wrong

Pragmatic meaning:

3. it is morally evil.

The definition of the word “fury” (feeling — affect) was adopted straight from Jordanskaja’s paper. The meaning of this word corresponds with negative and active emotion. Fury is so strong an anger that the person experiencing it loses self-control or preserves it with difficulty. Thus, the definition of the word “fury” corresponds with the definition of the expression “is angry” (or “is irritated”) but with an added element of loss of control.

A is angry with C because of B=A actively experiences a negative emotional state caused by the fact that

1. A is certain of the occurrence of B, whose agent is the person C (C may be identical with A);
2. B is undesirable for A;
3. C is undesirable for A because of B;
4. A wants to influence C so as to prevent the occurrence or repetition of B;
5. A is so angry that he loses self-control or preserves it with great difficulty.

It must be emphasized that the conviction about reality or possibility of occurrence of some definite event is not necessary for feelings-attitudes to arise. The starting point here is the subject’s feeling regarding the positive or negative character of his emotions in relation to something. On the other hand, the conviction about the reality or probability of the occurrence of some event is necessary for feelings-affects to arise.

Formulating the definitions of the words “murder” and “cruelty” we took into account, first of all, those components of meaning, which intuitively seem important in everyday use of a given word. This attitude is in accord with the recently observed tendency to be interested in natural concepts rather than in matrix ones [8, 26]. It also corresponds with the verbal material such as associational data. The basic (logical) meaning was supplemented with an additional meaning called pragmatic (as had already been done in the case of the word “hate”).

The word “cruelty” was defined in the following way:

Cruelty = such an action of person A directed at person C that

1. A harms C;
2. A experiences negative emotions in relation to C;
3. C suffers much;
4. C is helpless;

Pragmatic meaning:

5. it is morally evil;

6. it evokes negative emotions in us.

While in the definition of the word “hate” it was only a desire to harm that was recognized as a necessary condition, the meaning of the word “cruelty” assumes definite action that evokes suffering and sense of helplessness in C.

The meaning of the word “murder” was defined as:

murder = action, in which

1. A deprives C of life, in effect of which
2. C becomes a thing;

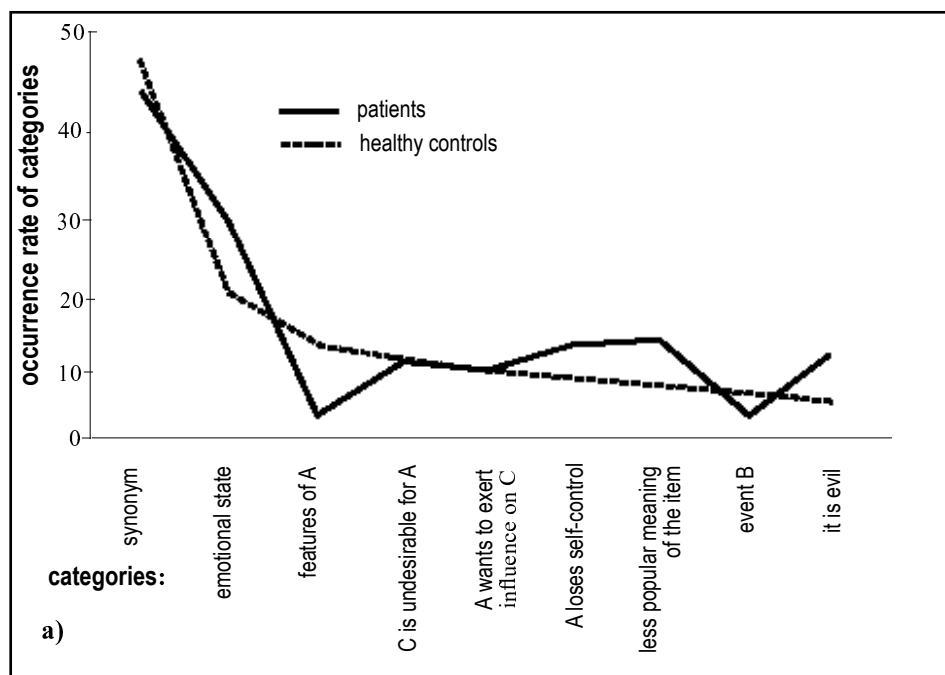
Pragmatic components of meaning:

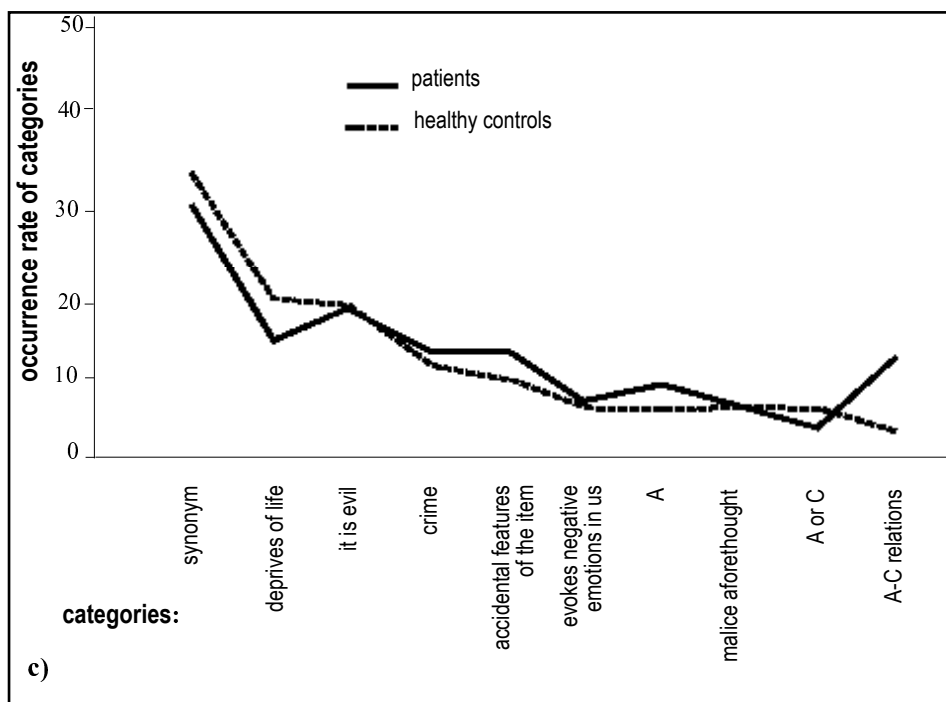
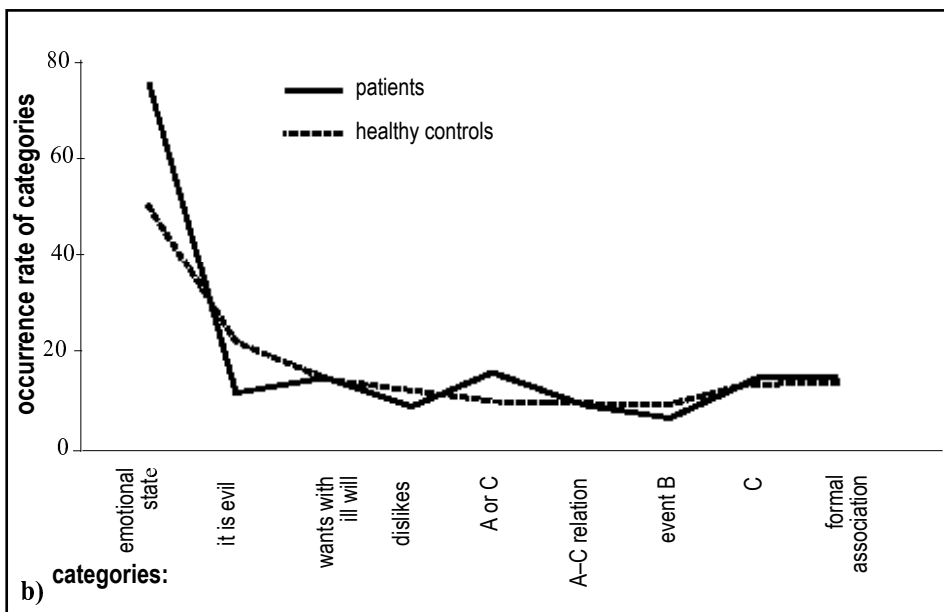
3. this action is of criminal character;
4. may be performed with malice aforethought;
5. is morally evil;
6. is connected with negative emotions.

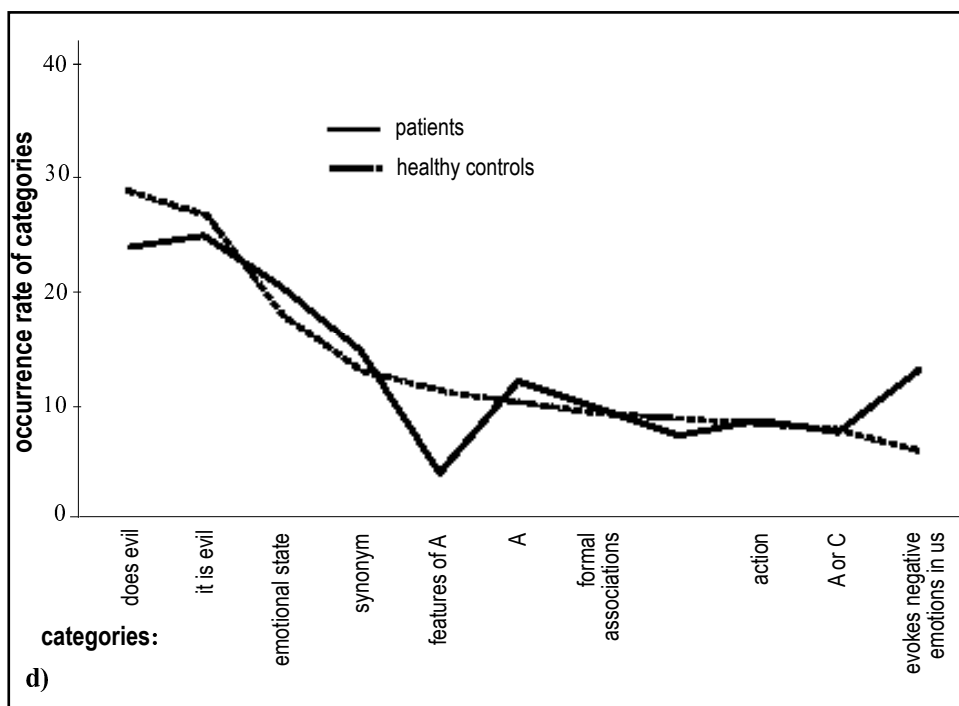
Definitions of stimulus words became the source of content categories, according to which associational reactions were classified. For instance, categories connected with the stimulus word “hate” included: A or C (e.g., “a person”, “a man”), C (e.g., “to an enemy” or “towards someone”), A-C relation (e.g., “disagreement”, “quarrel”, “treason”), dislikes (e.g., “animosity”, “antipathy”, “dislike”), emotional state (e.g., “feeling”, “state”, “emotions”, “fury”, “anger”), wants to do ill (e.g., “revenge”, “struggle”, “vindictiveness”, “persecuting”, “persistent”), very (e.g., “great”), this is evil (e.g., “unwanted”, “vile”, “destructive”, “evil”).

Results

Fig. 1. Occurrence rates of particular content categories in response to stimulus words:
The frequency of occurrence of particular content categories in both examined







groups in response to words with aggressive emotional shade (“fury”, “hate”, “murder”, “cruelty” is illustrated in Fig. 1.

As we can see in the graphs a-d in Figure 1, the examined groups differed least in the case of the word “murder”, and most in the case of the word “hate”. In spite of certain differences (e.g., more frequent use of the category “emotional state” in the words “hate” and “cruelty” by patients or more frequent use of the category “features of A” in the words “fury” and “cruelty” by healthy controls), similarity of semantic categories occurring in both groups is striking. The most frequent categories are the same, and the frequency of their occurrence is also similar. No categories occurred that would be specific for one group only. Associational material reflects the main components of meaning included in definitions, and, therefore, is concordant with the intuitive knowledge of language users about meanings of words. It is a fact, however, that — although small — discrepancies exist and suggest certain differences between

Table 1

Significance of differences between the group of healthy controls and that of patients with schizophrenia in particular content categories

Stimulus word	Content category	Occurrence rate		Chi ²	df	Significance
		Controls	Patients			
fury	Features of A Second, less popular meaning of the word	9	> 2	4.455	1	0.035*
		6	< 14	3.20	1	0.074
hate	Hateful	24	> 9	6.818	1	0.009**
	Emotional state	46	< 71	4.445	1	0.035*
cruelty	Evokes negative emotions in us	2	< 11	6.231	1	0.013*

* $p < 0.05$; ** $p < 0.01$

the group of patients and healthy controls. Table 1 shows the frequencies of occurrence of those semantic categories, in which the differences achieved the level of significance or were close to this level.

The results included in table 1 confirm that the stimulus word, which differentiated most strongly between healthy controls and schizophrenic patients, was “hate” (< 0.01). Schizophrenic patients more often emphasized that it was an emotional state and more rarely evaluated it as evil. Associational reactions to the words “fury” and “cruelty” differentiated the examined groups on the reliance level ($p < 0.05$). In the case of the word “cruelty”, the patients were more often concentrated on the category “evokes negative emotions in us” (e.g., “terrible”, “repulsive”, “fear”, “panic”). In the case of the word “fury”, the patients mentioned “features of A” (e.g., “nervy”, “character trait”, “irritability”) more rarely. They more often mentioned the non-definitional category connected with the second meaning of the stimulus word (e.g., “illness”, “mad dog”, “canine”) — the latest difference was merely close to significance. Reactions to the word “murder” did not differ significantly in the two examined groups.

Discussion of results

In the collected associational material, we find two indicators that direct our attention to the cognitive functioning of patients suffering from schizophrenia. They are: a more frequent occurrence of the category “emotional state” in reference to the word “hate”, and a more frequent occurrence of the category “the second, less popular meaning of the item” in reference to the stimulus word “fury”. The second, less popular meaning of the stimulus word is less strongly connected with the definition of a given concept. This is why the patients’ greater concentration on it may indicate their tendency to

stress the less important features of stimuli. Thus, we may speak of a certain justification of the opinions of all those researches who emphasize the disturbed selection in schizophrenic patients or the patients' inclination to expand the limits of concepts [2, 5, 7, 16, 19, 23, 25]. Concentration on the less popular meaning of the stimulus may also indicate lesser speech predictability in patients with schizophrenia [6, 27, 28]. Besides, as Fejgenberg suggested [22], it may show that they are inclined to level the probabilities of occurrence of various meanings of words. The most frequent use of the category "emotional state", although it is an adequate way of reacting, supports the hypothesis of the excessive need of categorization, i.e., of emphasizing the most important features. Thus, in the group of schizophrenic patients we have two opposite tendencies: a tendency to stress the less important senses and an inclination to emphasize the most fundamental meanings.

While the suggestions described above, regarding the intellectual specificity of schizophrenic patients, are based on rather frail foundations (statistically significant differences, but only in two content categories), the interpretations concerning emotional reactions of these patients seem more coherent and satisfactory (though they still remain in the sphere of suppositions). The more frequent use of the category "emotional state" may be treated as an expression of the need for a distance from the emotions involved in the stimulus word, satisfied by classifying it in the superior category. Similarly, the "slip" towards a less popular meaning of the stimulus word may issue from the desire to "flee" from the emotional content of the presented stimulus. However, another interpretation of the above facts is also possible. Maybe, the patients with schizophrenia were able to "keep cool" and respond "more objectively", because the words-signals did not activate their own unaccepted emotions in themselves. This interpretation is in accord with the detection of a significantly longer reaction time in the group of healthy controls in response to the stimulus word "hate" [11]. Prolongation of reaction time can be treated as a result of some additional interfering factors, in this case, probably, of emotions. In this context, the lesser need of schizophrenic patients to condemn hate, expressed in a lower occurrence rate of the category "it is evil", seems understandable. It might be said that the patients proved more tolerant to the feeling of hate, included it among emotional states and did not exaggerate its negative effects. Maybe, they were also better at distinguishing feelings and actions, because the word "cruelty" made them protest more strongly by using the category "evokes negative feelings in us" more often than healthy controls. Thus, the patients retained their ability to react emotionally and, one would like to say, reacted in a more mature and adequate way than healthy persons would. Thus, in the collected associational material we find certain support for the views of the authors [34, 35, 36] who emphasize the adequacy of emotional reactions in those "who feel more and understand in a different way"¹ The less frequent use of the category "features of A" by the patients in response to the stimulus word "fury" is difficult to interpret. As can be seen in figure 1, a similar tendency occurred also in the case of the word "cruelty". Maybe, this was caused by a lesser identification of schizophrenic patients with a subject experiencing this kind

¹ Antoni Kępiński: *Schizofrenia [Schizophrenia]*, PZWL, Warsaw 1972.

of emotions (person A).

Concluding, we can say that in the collected associational material we find certain justification for the views of researchers like the Chapmans, Faibish [17], and Willner [31] who claim that there occur certain, delicate changes of word meanings in schizophrenic patients. Wróbel's suggestion [32, 33] that the process of schizophrenia disturbs, first of all, semantics of speech also seems justified. Disturbances of the semantic plane of speech of schizophrenic patients were also detected by Czernikiewicz, Woźniak and Łoza [1]. Finally, we must emphasize that a more "superficial" analysis of frequency of associational reactions did not reveal any differences as regards contents between the group of patients and healthy controls [12]. This indicates the fact that differences between the results obtained in different studies on schizophrenia are caused not only by heterogeneity of the examined groups of patients, but also, and, maybe, to the greatest extent, by the methodology of data processing, which is not always taken into account in various literature surveys.

Conclusions

Associational reactions of patients suffering from schizophrenia differed from those of healthy controls in some content categories. These differences covered reactions to three stimulus words: "hate", "fury" and "cruelty". The stimulus word "murder" did not differentiate reactions of the two groups.

Two opposite tendencies were observed in the group of schizophrenic patients. One was a tendency to stress less important meanings, the other - to emphasize the most essential senses.

The detected differences in occurrence rates of some semantic categories allow for a hypothesis about different emotional reactions of persons suffering from schizophrenia. This difference might be interpreted as greater emotional adequacy of reactions to the presented stimuli.

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