

IRONY COMPREHENSION IN SCHIZOPHRENIA

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ABSTRACT

One of the deficits associated with schizophrenia is the language disorder. While classic analyses of the problem have focused on the traditional linguistic levels (Chaika 1974; Covington et al. 2005), schizophrenic patients have been demonstrated to exhibit deficits in comprehending nonliteral forms of discourse (Brüne and Bodenstein 2004; Sponheim et al. 2003; Rapp et al. 2008). The aim of the present study is to analyse irony comprehension in paranoid schizophrenia. Ten male patients were asked to choose the most appropriate interpretations of ironic and literal scenarios. They chose literal paraphrases significantly more often than a matched control group, which points to the existence of a figurative language comprehension deficit in schizophrenia.

Keywords: schizophrenia, irony comprehension, figurative language

1. Introduction

Schizophrenia is a common and debilitating mental illness (Frith and Cahill 2001). One of the main diagnostic features of the illness is a language disorder (Marini et al. 2008), characterised by a wide array of disturbances that occur at various levels of language. Classic analyses of the phenomenon have focussed on traditional linguistic levels (Chaika 1974; Covington et al. 2005). However, schizophrenic patients have been demonstrated to exhibit deficits that extend beyond the domains of formal linguistics. For example, more recent research has shown that they experi-

ence difficulty in comprehending nonliteral forms of discourse, such as idioms, similes, proverbs, metaphors and metonymies (Brüne and Bodenstein 2004; Sponheim et al. 2003; Rapp et al. 2008). Such patients have also been reported to have problems understanding irony, which is believed to be the most difficult and the least predictable type of figurative language.

In the experiments by Cutting and Murphy (1990) and Drury et al. (1998), schizophrenic patients tended to provide literal rather than figurative interpretations of ironic remarks. Poor performance on irony was demonstrated in the study by Kim et al. (2008), where one of the tasks was the Irony and Metaphor Task. Similar results were obtained by Mo et al. (2008).

One of the few experiments devoted solely to irony comprehension in schizophrenia is a study by Marjoram et al. (2005), in which participants were asked to describe two types of cartoon images, physical ones and ones which required inferring mental states, and to rate them on humour and difficulty (Marjoram et al. 2005). Schizophrenia patients performed significantly worse than a control group in both experimental conditions. The experiment was replicated by Stratta et al. (2007). Here, too, two sets of cartoon images were used to probe the appreciation of irony. In the one set, patients had to be able to infer the mental state of the depicted characters to understand the jokes, while in the other there was no such need, as the pictures contained slapstick humour. Contrary to Marjoram et al.'s (2005) results, Stratta et al. (2007) report a substantial relationship between positive symptoms – symptoms which are not typically experienced by healthy people, e.g. hallucinations and delusions – and the performance on the set which involved mentalising.

2. Methods

The aim of the study was to answer three questions concerning irony comprehension in schizophrenia: (1) whether patients indeed have difficulty understanding ironic utterances, as indicated by studies by Kim et al. (2008) and Mo et al. (2008), (2) whether they exhibit a bias towards interpreting irony literally, and (3) whether the possible problems with

comprehension are evenly represented across the patient group or are they subject to individual variation.

To address these questions, a questionnaire was designed and conducted testing the comprehension of ironic utterances in both schizophrenia patients and healthy control participants. A number of short two-sentence scenarios were designed and then subjected to a thorough pretest in which 40 judges rated them on their irony and literalness on a seven point Likert scale, ranging from one (very literal) to seven (very ironic). Only the most salient ironic instances were selected for the experiment. Finally, three short interpretations (figurative, literal, and unrelated) were created for each scenario.

Ten male patients diagnosed with ICD-10 (International Classification of Diseases) paranoid schizophrenia, mean age 26,4 (range 20 to 36) and educational level 12 ± 3 agreed to take part in the experiment and signed a written consent. A control group of ten healthy volunteers was matched for gender (male), age (mean 23,3; range 19 to 30) and level of education (14 ± 3). Exclusion criteria for the control group included past or present mental illness.

The study took place in the psychiatric ward of Karol Jonscher's University Clinical Hospital in Poznań. Each patient was tested individually. The subjects were presented the stimuli on a computer screen and asked to read out a dialogue (see the example below) and imagine a situation in which two people could have had such a conversation. Then, they were to choose – out of the three available interpretations (figurative, literal or unrelated) – the one which best expressed what the second person meant, as shown in the example below:

- A: Whenever danger approaches, he is the first one to run away.
- B: He is a true hero.
 - a) He is courageous.
 - c) He is cowardly.
 - c) He is a journalist.

No time limit was imposed on the participants.

3. Results

The analysis of responses of the patients and the controls to ironic dialogues reveals that almost half (46.15%) of the responses provided by the patients were incorrect (see Table 1). Moreover, the vast majority of the errors made by the patients were literal.

	TOTAL			
	Schizophrenia group		Control group	
	Nr	%	Nr	%
TOTAL	13	100	13	100
correct	7	53,85	12,4	95,38
incorrect	6	46,15	0,6	4,62
literal	5	38,46	0,5	3,85
unrelated	1	7,69	0,1	0,77

Table 1. The number and percentage of correct, incorrect, literal, and unrelated responses provided by the patient group and the control group

The significance of the literal to unrelated error ratio was tested in the patient group, and the result reached statistical significance ($p=0.010$; $p<0.05$). The ratio failed to be significant ($p=0.104$) in the control group. The overall results in the distracter literal dialogues do not show major differences in the performance of schizophrenics as opposed to controls. However, major individual differences in the performances of the patients were observed: there was one patient who chose literal paraphrases for all ironic dialogues, and another one who made no error on the irony task.

4. Discussion

As was hypothesised on the basis of previous research (Kim et al. 2008; Mo et al. 2008), the schizophrenic patients made more mistakes in the understanding of ironic dialogues than the healthy controls, which points to the existence of a comprehension deficit in the condition. Moreover, the patients tended to choose literal rather than unrelated paraphrases of the ironic utterances. Importantly, this result reached statistical signifi-

cance. Finally, the distribution of the irony comprehension deficit was found to be uneven. Patients varied dramatically with respect to the degree of this deficit, with some being unable to detect irony at all, and others having virtually no problem performing the experimental task.

5. Conclusions

Apart from confirming the existence of an irony comprehension deficit in schizophrenia, the study has pointed to a number of issues that need further research. The experiment should be replicated on a larger population. The individual differences observed indicate that more sociodemographic variables need to be controlled for. The patient group should be more homogeneous – this could be achieved by testing cognitive abilities, the effects of cognitive fatigue, verbal intelligence and immediate memory recall, so as to minimise the influence of individual differences. Also, it would be interesting to test the comprehension of various types of irony, and to use different task types. Such analysis, including both qualitative and quantitative data, could yield interesting results and shed more light on the processes underlying irony comprehension deficit in schizophrenic patients.

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