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Brief Report

Patients With Schizophrenia and Their Everyday Struggle Through the Jungle of Emotional Cues: A Study About the *Theory of Mind* in Patients with Schizophrenia

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The *theory of mind* is the requirement to understand another person's emotions and thoughts, and to interpret and make predictions about the other person's intentions based on that understanding. Research on emotions perception on patients with schizophrenia has shown some difficulties for those to identify emotions in facial expressions or conversational prosody, which would suggest an impairment of the *theory of mind* in patients with schizophrenia. But a deeper look at the results of those studies indicates that patients with schizophrenia do well have the ability to interpret genuine emotional expressions, in contrary to posed expressions. Research has also shown that patients with schizophrenia are very sensitive to negative stimuli. The findings suggest that patients with schizophrenia might not have an impaired *theory of mind* but rather a different kind of *theory of mind* or that they just use their *theory of mind* differently.

Keywords: schizophrenia, theory of mind, hyper-theory of mind, autism, emotion perception

Teori akal budi (*theory of mind*) merupakan syarat untuk mengerti emosi dan pikiran orang lain, dan untuk memaknai dan membuat prediksi keinginan orang itu berdasarkan pengertian tersebut. Penelitian tentang persepsi emosi pada para pasien dengan skizofrenia menunjukkan kesulitan mereka mengidentifikasi emosi pada ekspresi wajah atau *prosody* (pola irama, tekanan, dan intonasi) percakapan, yang menyiratkan suatu kerusakan teori akal budi pada pasien dengan skizofrenia. Namun, hasil pendalaman studi-studi tersebut menunjukkan bahwa para pasien dengan skizofrenia memiliki kemampuan menginterpretasi ekspresi emosional murni, berlawanan terhadap ekspresi yang ditunjukkan. Penelitian juga menunjukkan bahwa pasien dengan skizofrenia sangat sensitif terhadap rangsangan negatif. Temuan juga menyarankan bahwa pasien dengan skizofrenia mungkin teori akal budinya tidak rusak namun hanya berbeda atau mereka hanya menggunakan teori akal budi mereka secara berbeda

Kata kunci: skizofrenia, teori akal budi, hiper-teori akal budi, autisme, persepsi emosi

"Today I had to take the bus. It was so stressful. Lots of people were in the bus. There was this group of young men, laughing. I was not sure whether they were laughing at me or about something else. Then I saw this girl looking at me. She obviously tried to smile, but the result of all her efforts were nothing more than a weird grimace. Her negative energy washed me away like a big wave in the sea, I was overwhelmed. After I acclimatized myself a little, I tried to cheer her up. I didn't know what to talk about, so I told her about my parrot. She became mad at me, but I don't know why, and moved out of my sight. I don't know, but I often feel like people try to avoid me. I feel lonely. " (Sam, 25)

Sam was diagnosed with schizophrenia when he was 20 years old. Schizophrenia is a psychotic disorder which is characterized by the disorganization of associations (Wilson, 2003). Patients with schizophrenia usually have difficulties to see the difference between

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real and unreal experiences, to think logically and to behave appropriately in social situations (Gleitmann, Reisberg, & Gross, 2007).

The symptoms of schizophrenia can be divided into positive symptoms (exhibiting behaviors that healthy people typically do not) like hallucinations, disorganized thinking and disorganized behavior, and negative symptoms (diminished functioning of 'healthy' normal behavior) like reduced emotional expression, social withdrawal, loss of pleasure, difficulty in concentrating and thinking, lack of energy/spontaneity or initiative (Gleitman, Reisberg, & Gross, 2007).

All the symptoms mentioned above have a great impact on the patients' social lives. The impairment in applying conversational rules and planning and implementing strategic social behavior leads to a vicious circle of misunderstandings in social interactions (Brüne, 2005). The consequence is usually frustration, withdrawal and depression. Patients (10-15%) diagnosed with schizophrenia even commit suicide (Birchwood & Jackson, 2001).

Research suggests that the roots of the social problems of patients with schizophrenia might lie in the absence or impairment of their *theory of mind*. The term *theory of mind* refers to the ability to understand and interpret one's own and other people's thoughts, desires or intentions. (Bukatko & Daehler, 2004; Sarfati, 1999).

The aim of this study is to get more insight into the emotion perception of patients with schizophrenia. The most prevalent treatment for schizophrenia is medication with antipsychotics. These reduce the major positive and negative symptoms of schizophrenia, but they do not 'repair' the patients' social life. The onset of schizophrenia often means a radical change in the personal lifestyle of the patient, the feeling of alienation and a loss of self-esteem. In bad cases this leads to depression and social withdrawal. But in the worst cases, for about 10-15% of the patients, suicide is the last hope (Birchwood & Jackson, 2001). To help those patients in their everyday social interactions it is therefore important to get to know more about the origin of their problem in social cognition. Based on this new knowledge more effective therapeutically methods like social skills training could be developed.

The present paper aims to answer whether all patients with schizophrenia have problems with the recognition of emotional cues and whether these problems are rooted in the impairment or absence of a *theory of mind*.

This article will first try to give a deeper insight into the meaning of the *theory of mind* and how to test the presence or absence of a *theory of mind.* The second section will deal with research on emotion perception of patients with schizophrenia. The results should give further information about the theory of mind. In the last section, the term *hyper-theory of mind* will be introduced as a possible compromise based solution to the question of a presence, absence or impairment of a theory of mind.

Do Patients With Schizophrenia Have a Theory of Mind?

What is This *Theory of Mind* About?

The theory of mind is the awareness of one's own and others mental states in social cognition like emotions, desires, intentions and beliefs (Bukatko & Daehler, 2004; Sarfati, 1999). In everyday situations we have to recognize, interpret, understand, and predict what the person with whom we are interacting thinks and feels. The requirement for this is a *theory of mind.*

The *theory of mind* normally develops during childhood (between 3 and 4 years, but this can differ from child to child). There are several methods developed to test the presence of a *theory of mind.* One of the most common experiments about the *theory of mind* is the *Sally-Anne task* by Baron-Cohen, Leslie and Frith (1985). In this task Sally puts a marble into her basket and then leaves the room. While she is gone, Anne takes the marble and places it into a box. The task is now to say where Anne believes the marble is hidden. Most three-year olds will say that she will look into the box because they know that the marble is there and are not able to understand that Anne does not know. Children whose *theory of mind* is well-developed (usually at around age 4) are able to place themselves into the shoes of Anne (Smith, Cowie, & Blades, 2007).

Other methods to test the *theory of mind* are tasks to detect and produce deception and pretense, and to distinguish between one's own desires and other persons desires.

Much research was done with autistic children with the conclusion that they have no *theory of mind* because they continuously fail at most false-belief tasks, pretense-tasks, and deception-tasks (Mitchell, 1997).

But how is it with schizophrenia? The fact that most patients have problems in social interactions and tend to withdraw and live a lonely life suggests that they have problems with social cognition. But does that mean that they have no *theory of mind*? The next section will explore research results about the emotion perception of patients with schizophrenia.

Emotion Perception in Patients With Schizophrenia

In social situations people always have to be some kind of a psychologist: They have to observe conversational partners and they have to carefully interpret emotional cues. There are always questions like: What is the other person thinking? What is he/she going to do next? You cannot always expect that your conversational partner verbally explains all the information you need to follow the conversation and you need to understand the conversational partners' intentions. This ability to understand emotional cues and to guess other peoples thoughts, requires a *theory of mind*. To test the *theory of mind* in patients with schizophrenia it is inappropriate to use a *Sally-Anne task* because most patients are already adults. Therefore research on the *theory of mind* in patients with schizophrenia is based on more sophisticated tasks for emotion perception. In this section some of those studies about emotion perception will be explored.

Huang, et al. (2009) investigated the influence of conversation prosody (the rhythm, stress, and intonation of speech) on emotion and intention identification in schizophrenia. The subjects (one group of patients with schizophrenia and one healthy control group) had to listen to audio files of simulated conversations and answer questions about the mental state of the speaker. The results showed that the schizophrenia patients performed as well as healthy persons in the identification of positive emotions. Nevertheless the patients did show a remarkable deficit in recognizing negative emotions, which might be caused by the avoidance of negative stimuli (Loughland, Williams, & Gordon, 2002). The findings lead to the conclusion that patients with schizophrenia are well able to identify emotions (in conversation prosody), but have some difficulties with posed negative emotions. Even though they seem to have problems in the identification of negative stimuli, which might have other reasons, it cannot be said that the *theory of mind* is totally impaired or absent in patients with schizophrenia. A critique on this study is that it did not pay attention to the subtypes of schizophrenia. There might well be a distinction between the abilities of paranoid schizophrenia patients and non-paranoid schizophrenia patients in the identification of emotional cues. Another problem is that the conversations were simulated which means that the presented emotional cues were not authentic.

Davis and Gibson (2000) did pay attention to the distinction between subgroups of schizophrenia and the distinction between posed and genuine emotional cues. In their study they used 4 groups of participants: patients with paranoid schizophrenia, patients with non-paranoid schizophrenia, patients with depressions and a healthy control group. The subjects were asked to watch videotapes which showed facial expressions of the six basic emotions (happiness, sadness, anger, surprise, disgust and fear). All were either posed facial expressions or genuine facial expressions. The results showed that all participants were more accurate in the identification of posed expressions of happiness than in the identification of genuine facial expressions of happiness. But in the identification of posed facial expressions of anger, sadness, fear, disgust and surprise, the control group was most accurate. Interestingly the paranoid schizophrenia patients were the most accurate of all groups in the identification of genuine facial expressions of negative emotions and surprise. The scores of the non-paranoid schizophrenia patients were quite similar to those of the healthy subjects, albeit a bit lower. These findings also lead to the conclusion that patients with schizophrenia have no deficits in emotion perception. The finding that patients with paranoid schizophrenia have problems with the identification of posed negative facial expressions therefore cannot be explained by an impairment of the *theory of mind*. Davis and Gibson (2000) rather explain this problem as the general problem of paranoid schizophrenia patients to understand stereotypical social presentations of emotions and to accept their validity.

In a study conducted by Lucrezia LaRusso (1978), the scores of paranoid schizophrenia patients were compared with those of healthy subjects in the identification of genuine and posed facial expressions. In line with Davis and Gibson (2000) she concluded that the paranoid schizophrenia patients in the posed-faces condition did not perceive less emotional cues than healthy subjects. She rather suggests that the paranoid schizophrenia patients perceived more cues and more subtle cues which lead the subjects to confusion and resulted in a wrong answer. Watzlawick, Beavin and Jackson (1967) suggested that the problem of paranoid schizophrenia patients is to distinguish between what they see and what they 'should see'.

They in fact show more empathy than healthy subjects and are able to see through the social façade (Truax & Mitchell, 1971). People always try to conform to social norms and follow conversational rules. For example it is common to answer the question "How are you" with a "Fine.", even if you are feeling terrible. In another situation, when a host asks you how you like the meal, you might answer with "very good" even though you think that you never ate anything worse. Patients with schizophrenia usually fail at following those conversational rules and just say what they really think. In contrary to this, healthy subjects accept the so called 'social façade'.

So do the patients with schizophrenia or rather the patients with paranoid schizophrenia have a much stronger ability to perceive emotional cues and thus not an impaired *theory of mind* but a *'hyper-theory of mind'* (Abu-Akel & Bailey, 2000)? The following section will go deeper into the assumption of the '*hyper-theory of mind'*.

The 'Hyper-theory of Mind'

The term '*hyper-theory of mind'* was first introduced by Abu-Akel and Bailey (2000). Abu-Akel and Bailey agree with the argumentation of LaRusso (1978) that the problem of patients with paranoid schizophrenia is not that they are not able to perceive and interpret emotional cues, but that they just get too many additional and subtle cues. Abu-Akel and Bailey call this 'overattribution of knowledge' to others. The patients with schizophrenia just have too many competing hypotheses about other people's mental states so that they cannot decide which one is wrong or right which then leads to inaccurate inferences.

This is in line with the findings of Russel, Mauthner, Sharpe, & Tidswell (1991) concerning autistic persons, that the *theory of mind* of autistic persons might be intact and they just fail to show or prove this because they cannot inhibit reality in their answers to false-belief questions. This hypothesis can also be expanded to the problems of schizophrenia patients with the interpretation of posed facial expressions. They might see which emotion the posed facial expression is supposed to show, but when asked, what kind of feeling the person expresses, the schizophrenia patient answers with the truth, the true feeling behind the pose, instead of what the researcher 'wants' to hear.

In addition Abu-Akel and Bailey (2000) point out that schizophrenia patients' *theory of mind* is – in contrary to autistic persons - normally developed, but by the onset of the disorder does the patient gradually lose the ability to use his/her *theory of mind* appropriately.

Method

Article Search

The present paper aimed to answer whether all patients with schizophrenia have problems with the recognition of emotional cues and whether these problems are rooted in the impairment or absence of a *theory of mind*. To find information, theories, and relevant research suitable to answer the research question, an article search was done using the following databases: Psychological and Behavioral Sciences Collection (EBSCO), PsycARTICLES (EBSCO), PsycINFO (EBSCO), PubMed, and Google Scholar. Key terms primarily used in this article search were: *schizophrenia, theory of mind, hyper-theory of mind, autism, and emotion perception.*

Results and Discussion

The question that this study aimed to answer was whether patients with schizophrenia have a *theory of mind*. A *theory of mind* allows people to interpret other people's feelings which are not always so obviously shown. This also explains why results of research on the recognition of emotional cues in facial expressions (Davis & Gibson, 2000; LaRusso, 1978) and conversational prosody (Huang et al., 2009) showed more accuracy in the recognition of posed faces or simulated conversations for healthy subjects. Genuine facial expressions are often more difficult to interpret. Our society dictates us to be decent and polite and suppress our feelings, which makes it difficult to use the *theory of mind*. It often leads to misinterpretations and misunderstandings. The studies mentioned in this article show that patients with schizophrenia have problems in recognizing posed negative emotions in speech and in posed facial expressions (Huang et al., 2009; Davis & Gibson, 2000; LaRusso, 1978). However, they are well able to recognize positive emotions in speech or facial expressions and they are even more accurate in recognizing genuine facial expressions (Davis & Gibson, 2000; LaRusso, 1978). But what does that mean regarding the theory of mind of patients with schizophrenia? LaRusso (1978) suggests that the problem

of patients with schizophrenia in recognizing posed emotional cues is not an explanation for an absence of their theory of mind but rather the patients' problem to accept the social façade. Thus, an impairment of the theory of mind? Abu-Akel and Bailey (2000) deny this and offer another explanation for this phenomenon: the '*hyper-theory of mind'*, the assumption that schizophrenia patients get too many emotional cues which 'normal' people do not see and therefore sometimes misinterpret the emotions of other people.

The present findings are very valuable for the development of new therapy methods in the treatment of schizophrenia. They suggest that we cannot place the patients with schizophrenia into the same category as autistic persons who are unable to understand the mental world of their follow men, which makes them to social outsiders. Patients with schizophrenia do well understand the mental world, maybe better than healthy people do, but just fail to properly use the rules of etiquette. Thus, patients with schizophrenia would be helped more with social skills training where they have to learn to accept the social masquerade of their fellow men, learn the display rules of our society and to suppress their emotions when it is required. With this new ability patients could have fewer problems in their social life, thus avoiding many misunderstandings and delicate situations. They could integrate into society with all their rules and no longer be social outsiders anymore. This would remarkably reduce the suicide- and depression-rate among patients with schizophrenia.

To find out more about the different *theory of mind* in patients with schizophrenia, further research concerning the '*hyper-theory of mind'* and the roots of the patients' tendency to avoid negative stimuli would be helpful.

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