

# Reading the Mind in the Eyes: Theory of Mind in Acute Psychosis and Schizophrenia

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**Abstract** - Background: The extant literature indicates that patients with acute psychosis or schizophrenia, as well as non-psychotic first-degree relatives of patients with schizophrenia, all exhibit “Theory of Mind” (TOM) impairments. Objective: To assess TOM functioning and identify its correlates among a sample of patients with acute psychosis, schizophrenia and healthy controls. Methods: Case control study conducted on 20 patients with acute psychosis, 40 patients with schizophrenia and 60 healthy control volunteers. Patients admitted at Okasha Institute of Psychiatry, Ain Shams University Hospitals, diagnosed using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). Severity of symptoms assessed by the Scale for the Assessment of Positive Symptoms and the Scale for the Assessment of Negative Symptoms, while volunteers were assessed by General health questionnaire. All groups were assessed by Reading the mind in the eyes test (RMET). Results: There was significant difference between patients with schizophrenia who scored worse at the RMET than patients with acute psychosis while both have TOM deficit in comparison with the control group. No significant correlation between age or gender in all the three groups and their TOM functioning. There was significant negative correlation between duration of illness of patients with schizophrenia and their TOM functioning. In patients with acute psychosis group, negative symptoms were negatively correlated with the TOM functioning, while in patients with schizophrenia group positive and negative symptoms were negatively correlated with their TOM functioning.

**Key words:** theory of mind; schizophrenia; acute psychosis

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## Introduction

Social cognition is a broad term that refers to the mental processes that underpin social interactions, it consists of sub-domains: theory of mind (TOM), attribution bias, social knowledge, social perception and emotional processing [1]. It is a multidimensional construct that incorporates a wide range of

abilities related to how people think about themselves and others and interpret social information [2]. Generally, social cognitive abilities can impact broadly a person’s life, including processes that influence the number and quality of interpersonal relationships, the likelihood of success in work and personal achievement, and the ability to manage finances and basic self-care activities [3]. So, cognitive skills represent evolved capacities that are highly important for social communication and interpersonal functioning [4].

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The ability to infer mental states (e.g., beliefs, wishes, intentions, imagination, and emotions) that cause actions is referred to as the TOM [5]. There's a lot of evidence to say that TOM deficits are linked to poor social functioning [6]. Furthermore, poor performance on TOM tasks is associated with social behavioral abnormalities [7].

TOM research has been very active, and many different TOM tests have been created. The Sally-Anne or classic false belief task has been used in hundreds of studies as the most prevalent TOM appraisal approach. [8]. Meanwhile, the tests and tasks already developed often focus on clinical populations in which the performance would be inferior to the general population [9]. The Research Domain Criteria (RDOC) was developed by the National Institute of Mental Health (NIMH) to help with new methods of classifying mental diseases based on observable behavioral and neurobiological measures, RDOC is a research framework designed to integrate many levels of information (from genomics to self-report) to better understand the basic dimensions of functioning underlying the full range of human behavior, from normal to abnormal [10]. NIMH Systems posited that Social Processes mediate responses in interpersonal settings of various types, including perception and interpretation of others' actions [11].

Psychosis is not a diagnosis but a symptom or set of symptoms that can have many different causes, psychosis may be transient, intermittent, short term or part of a longer-term psychiatric condition. Psychotic disorders have a devastating impact on the lives of patients and families, producing substantial morbidity and mortality. Early identification and evaluation of the onset of psychosis is an important health concern as outcomes are improved with earlier detection and intervention [12].

Schizophrenia is a serious and debilitating psychiatric disorder that affects nearly 1% of the world's population, it is a heterogeneous syndrome characterized by perturbations of language, perception, thinking, social activity, affect, and volition [13,14]. Acute psycho-

sis is a common psychiatric emergency that may present to health services [15]. Its onset is acute or even abrupt within 48 hours. Their response to antipsychotic drugs is very good and their outcome is usually favorable in spite of the fact that they are usually recurrent. The level of post episodic outcome is more favorable in acute psychosis than in schizophrenia [16].

Patients with schizophrenia exhibit impaired social cognition, which appears as difficulties in identifying emotions and feelings. Social cognition is more heavily linked to functional outcome in schizophrenia than neurocognition, according to studies [17]. Social cognition impairment in schizophrenia does not appear to be linked to IQ or achievement on non-social cognitive tasks [18].

The majority of people with schizophrenia do not have full symptom remission. However, a combination of psychosocial treatments and medications can be used to treat this disorder [19]. Even though when patients with schizophrenia are comparatively free of psychotic symptoms, many also struggle with communication, motivation, self-care, and forming and sustaining interpersonal relationships. They are less likely to complete the training necessary for skilled work due to illness during the key career-forming years of life (ages 18 to 35). As a result, many people with schizophrenia struggle not only with their thoughts and emotions, but also with social and job skills and experience [11]. Many community-based rehabilitation programs for patients with schizophrenia have developed intensive services to improve their social cognition and quality of life [20].

Emerging data from recent studies indicates that patients with schizophrenia show substantial social cognitive impairments in emotion processing (affect perception and regulation), social perception, attribution style, and mentalizing or "Theory of Mind" [21]. Meanwhile a huge body of research postulates that an impairment of the theory of mind mechanism may explain the social interaction deficits in schizophrenic patients [22].

The aim of the current study was to assess and compare TOM functioning among a sample of patients presenting with schizophrenia and acute psychosis as well as healthy volunteers. And to identify the correlation between sociodemographic data, symptom profile, disease severity and theory of mind.

## Subjects and Methods

### Study design

This is a cross sectional case-control comparative study. Cases were recruited from inpatients of the Okasha Institute of Psychiatry, Ain Shams University Hospitals; also, volunteers were recruited from employees and workers of Okasha Institute of Psychiatry.

### Participants

The sample consisted of a patient group and a control group. The patient group: consisted of two subgroups of patients; Group (A) constitutes 20 patients with the diagnosis of acute psychosis and Group (B) constitutes 40 patients with the diagnosis of schizophrenia. Patients were admitted to Okasha Institute in the period between November 2016 and May 2017. They were diagnosed as acute psychosis or schizophrenia using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). The sample includes both genders in the age range 18-45 years old. Patients were excluded in case of presence of psychiatric comorbidity, mental retardation, developmental disability, neurological disorder and / or the presence of uncontrolled medical conditions as indicated by clinical history, physical examination, or laboratory findings.

The control group: Group (C) constitutes 60 volunteers in the age range 18-45 of both genders. Volunteers who consented to take part in the study and scored less than 4 on the General health questionnaire were included. Volunteers scoring more than 4 by General health questionnaire, with mental retardation, developmental disability, neurological disorder and / or having uncontrolled medical condition as indicated by clinical history, physical examination, or laboratory findings were excluded.

Sample size was calculated using PASS 11.0 sample size calculation program and based on a study carried out by Andy Field [23]. In a one-way ANOVA study, sample sizes of 60 cases which subdivided into 20

(patients with acute psychosis) and 40 (patients with schizophrenia); in addition to 60 controls was adequate to achieve 82% power to detect differences among the means versus the alternative of equal means using an F test with a 0.05 significance level. The size of the variation in the means was represented by their standard deviation which was 2.19. The common standard deviation within a group was assumed to be 5.35.

### Procedures

The study protocol was approved by the Ethical Committee of the Faculty of Medicine, Ain Shams University. A written informed consent was signed by both patient and control groups involved in the study. Patients were assessed immediately before their discharge after receiving their medication and other treatment modalities.

Structured Clinical Interview for DSM-IV the Arabic version [24,25]. Clinical severity assessments include the Scale for the Assessment of Positive Symptoms (SAPS) and the Scale for the Assessment of Negative Symptoms (SANS) [26,27]. SAPS and SANS measure the severity of psychopathology in adult patients with schizophrenia, schizoaffective disorder and other psychotic disorders, in general, the time set will cover the past month. In addition to using a clinical interview, the investigator should also draw on other sources of information, such as direct observation, reports from the subject's family, reports from nurses, and reports from the subject himself. SAPS is split into 4 domains include (hallucinations, delusions, bizarre behaviour, and positive formal thought disorder), and within each domain separate symptoms are rated from 0 (absent) to 5 (severe), closely linked to SANS which is split into 5 domains include (Affective flattening or Blunting, Alogia, Avolition-Apathy, Anhedonia-Asociality and Attention), and within each domain separate symptoms are rated from 0 (absent) to 5 (severe), the last item describing each major type of positive symptom is an overall global rating. This should be a true global rating taking into account both the nature and the severity of the various types of symptoms observed.

Reading the mind in the eyes (REMT) (Mental state decoding) (eyes task), the Arabic version [5,28]. According to Research Domain Criteria (RDOC) recommendation REMT was considered as an advanced TOM test [11]. The "Reading the Mind in the Eyes" test is a simple but advanced Theory of Mind test. The Eyes test assesses the ability to distinguish others' mental states from expressions in the eye area of the face, because participants must put themselves in the

mind of the person shown in the photograph and attribute a valid mental state to them. However, because the judgments can only be on the basis of facial expression, subjects view 36 photos of the eye region of different faces and choose the most accurate descriptor word for the thought/feeling that is portrayed. Four possible options are presented with each photo, and a glossary of mental state terms is provided for reference. Scores represent the overall number correct (ranging from 0 to 36), the higher the score the better the Theory of mind function.

The Arabic version of General health questionnaire, to detect psychiatric distress related to general medical illness and to assess 4 aspects of distress: Depression, Anxiety, Social impairment & Hypochondriasis [29]. It is a Self-report questionnaire Composed of 28 items; patients base their responses on their health state over the past two weeks. Administration time is usually approximately 5 minutes. Total score ranges from 0 to 28. Higher scores indicate a greater probability of psychiatric distress. Total scores that exceed 4 out of 28 suggest probable distress. In our study, subjects scoring more than 4 are excluded. Reading the mind in the eyes (Mental state decoding) (eyes task), the Arabic version [5,28]. By the end of the study data were analysed using IBM SPSS statistics software version 22.0.

## Results

### Socio-demographic variables

Group (A) consisted of 14 males and 6 females (70% and 30%), age range = 18 - 33 years with mean  $25.62 \pm 4.11$  years, 65% ( $n = 13$ ) of sample were single and 25% ( $n = 5$ ) were married. Group (B) consisted of 34 males and 6 females (85% and 15%), age range = 19 - 45 years with mean  $29.11 \pm 8.15$  years; 72.5% ( $n=29$ ) were single and 20% ( $n = 8$ ) were married. Group (C) consisted of 46 males and 14 females (76.70% and 23.30%), age range = 18 - 45 years with mean  $27.01 \pm 7.12$  years, 48.30% ( $n = 29$ ) were single and 40% ( $n = 24$ ) were married.

There was no statistically significant difference between group A and group C in age, gender and marital status. Also, there was no statistically significant difference between group B and group C regarding age and gen-

der While there was statistically significant difference between group B and group C in marital status ( $p = 0.002$ ). There were significantly lower percentages at group B of married patients than the volunteers in the group C.

### Clinical variables

Regarding Age of onset of group (A) ranged from 17 - 33 years with mean value  $24.4 \pm 4.59$ . While in group (B), age of onset ranged from 17 - 32 years with mean value  $23.52 \pm 4.51$ . There was no statistically significant relation between group A and group B regarding age of onset ( $p = 0.482$ ). Duration of illness of group (A) ranged from 0.50 - 1.13 months with mean value  $0.87 \pm 0.17$  months. While in group (B), duration of illness ranged from 12 - 117 months with mean value  $77.64 \pm 24$ . There was statistically significant increase in duration of illness in group (B) more than group (A) ( $p = 0.00001$ ).

Regarding the severity of symptoms; Group (A) SAPS total score mean value was ( $3.15 \pm 3.13$ ), while hallucinations mean value was ( $0.61 \pm 0.33$ ); delusions mean value was ( $3.15 \pm 3.13$ ); thought control mean value was ( $0.00 \pm 0.00$ ); bizarre behaviour mean value was ( $0.00 \pm 0.00$ ); Formal thought mean value was ( $0.00 \pm 0.00$ ). While group (B), SAPS total score mean value was ( $6.03 \pm 5.74$ ) while Hallucinations mean value was ( $1.30 \pm 2.50$ ); delusions mean value was ( $4.10 \pm 3.48$ ); thought control mean value was ( $0.15 \pm 0.70$ ); bizarre behaviour mean value was ( $0.33 \pm 1.05$ ); formal thought mean value was ( $0.08 \pm 0.47$ ).

SANS of group (A) total score mean value was ( $3.35 \pm 2.34$ ), while Blunting mean value was ( $1.6 \pm 2.09$ ), alogia mean value was ( $0.5 \pm 1.10$ ); avolition mean value was ( $0.25 \pm 1.12$ ); anhedonia mean value was ( $0.60 \pm 1.43$ ); attention mean value was ( $0.75 \pm 1.41$ ). While SANS of group (B) total score mean value was ( $6.73 \pm 7.25$ ), while blunting, mean value was ( $2.40 \pm 3.51$ ); alogia, mean value was ( $0.83 \pm 1.80$ ); avolition mean value was ( $2.00 \pm 2.34$ ); anhedonia mean value was ( $0.60 \pm 1.43$ ); At-

tention, mean value was  $(0.85 \pm 1.58)$ . As shown in Table (1) there was significant difference between group(A) and group (B) in total

score of SAPS, Hallucination, total score of SANS and Avolition ( $p < 0.05$ ).

**Table 1.** Comparison between group(A) and group (B) regarding SAPS and SANS scores

	Acute psychosis	Schizophrenia	t-Test	p value
Saps				
Range	0-11	0-21		
Mean±SD	3.15 ± 3.13	6.03 ± 5.74	4.350	0.041
Hallucination				
Range	0-3	0-8		
Mean±SD	0.61 ± 0.33	1.30 ± 2.50	4.22	0.021
Delusion				
Range	0-11	0-15		
Mean±SD	3.15 ± 3.13	4.10 ± 3.48	1.060	0.307
Thought control				
Range	0-0	0-4		
Mean±SD	0.00 ± 0.00	0.15 ± 0.70	0.911	0.344
Bizarre behavior				
Range	0- 0	0-5		
Mean±SD	0.00 ± 0.00	0.33 ± 1.05	1.910	0.172
Formal thought				
Range	0-0	0-3		
Mean±SD	0.00 ± 0.00	0.08 ± 0.47	0.496	0.484
Sans				
Range	0-8	0-30		
Mean±SD	3.35 ± 2.43	6.73 ± 7.25	4.070	0.048
Blunting				
Range	0-5	0-14		
Mean±SD	1.60 ± 2.09	2.40 ± 3.51	0.877	0.353
Alogia				
Range	0-4	0-6		
Mean±SD	0.50 ± 1.10	0.83 ± 1.80	0.751	0.456
Avolition				
Range	0-5	0-8		
Mean±SD	0.25 ± 1.12	2.00 ± 2.34	9.961	0.003
Anhedonia				
Range	0-5	0-7		
Mean±SD	0.25 ± 1.12	0.60 ± 1.43	0.917	0.342
Attention				
Range	0-4	0-7		
Mean±SD	0.75 ± 1.41	0.85 ± 1.58	0.057	0.812

**Table 2.** Comparison between all groups regarding REMT score

REMT score	Group (A)	Group (B)	Group (C)
Range	16-23	9-27	22.0- 32.0
Mean	19.30	17.20	26.18
Standard Deviation	2.00	3.78	2.27
F value		15.403	
P value		0.001	

**Table 3.** Correlation between REMT, SAPS and SANS scores in group (A) and group (B)

REMT score		Group (A)	Group (B)
SAPS	Pearson Correlation	- 0.410	- 0.543
	P	0.072	0.000
SANS	Pearson Correlation	- 0.563	- 0.454
	P	0.010	0.003

### Theory of mind

Group (A) REMT score ranged from 16 - 23 with mean value  $19.30 \pm 2$ . Group (B) REMT score ranged from 9 - 27 with mean value  $17.20 \pm 3.78$ . While group (C) REMT score ranged from 22 - 32 with mean value  $26.18 \pm 2.27$ . On Comparing group (A) and group (C) regarding eye test there was statistically significant difference ( $p = 0.0001$ ). Also, comparison between group (B) and group (C) regarding eye test revealed statistically significant difference ( $p = 0.0001$ ). Comparison between group (A) and group (B) regarding eye test revealed statistically significant difference ( $p = 0.024$ ). Table (2) shows Comparison between all groups regarding REMT score where there was statistically significant difference between the 3 study groups, where ( $p$  value 0.001).

### The Correlation between sociodemographic data and theory of mind

There was no statistically significant correlation between REMT score and age in all

studied groups; group (A), group (B) and group (C). Also, there was no statistically significant correlation between REMT score and gender in all studied groups; group (A), group (B) and group (C).

### The Correlation between clinical variables and theory of mind

There was no significant correlation between REMT score and age of onset nor Duration of illness in group (A). Likewise, there was no significant correlation between REMT score and age of onset, while there was significant negative correlation between REMT score and duration of illness  $p = 0.031$  in group (B). Regarding the correlation between REMT, SAPS and SANS scores, there was a statistically significant negative correlation between REMT and SANS scores in group (A)  $p = 0.010$ , and statistically significant negative correlation between REMT with both SAPS and SANS scores in group (B) ( $p = 0.000, 0.003$  respectively), as shown in Table (3).

## Discussion

There is now extensive evidence that patients with schizophrenia have impaired Theory of Mind (TOM). Despite this, little is known about how factors such as broad clinical, cognitive, and drug traits influence the exact magnitude of the TOM deficit observed during task performance [30]. The current study sample groups were mostly matched sociodemographically and fit for the comparative study (i.e. a homogenous sample).

### Theory of mind deficits

The main aim of our study is to assess and compare theory of mind among the three groups, using Reading mind in the eye scale [28]. All patients were assessed by REMT, patients with acute psychotic episode performed significantly better than patients with schizophrenia but still worse than control groups. In agreement with our findings were the results of Geraci and associates' study [31], as they compared the performance of healthy controls, discharged and hospitalized patients with schizophrenia on three well known TOM tasks, outpatients and inpatients with negative or positive schizophrenia performed worse than controls on three different TOM tasks. On the Eye Test, control subjects (27.7) performed better than the outpatients (20.1), inpatients with positive schizophrenia (17.5) and inpatients with negative schizophrenia (18.1). Another agreement came from Egyptian study by Nassar and associates, the mean score of patients with schizophrenia was (15.77) worse than control group.

Regarding results about TOM deficit in acute psychosis group, similar results were established by the study by Ayesa-Arriola and associates, where a large sample of first episode psychosis (FEP) patients analysed with a longitudinal 3-year follow-up design, using REMT on "159 control" their mean was (23.77) while around '152 FEP' performed worse than the controls and their mean REMT score at base line was (21.03), reassessed after one year was (21.33) and after 3 years was (21.31) [32]. Fur-

thermore, using another scale to assess TOM functioning as in a study done by Abdel-Hamid and associates, who used computerized theory of mind (TOM) test consisting of a picture sequencing task and a questionnaire, TOM deficits existed in patients with schizophrenia more frequently than controls [33]. These findings might reflect that the psychotic process has a negative impact on one's ability to read social situations and understand emotions through reading eyes. Yet it might also reflect that deficit in theory of mind might be a risk factor for psychosis [34].

### Correlates of theory of mind "Socio-demographic"

The current study did not find any correlation between REMT score and age in all groups, and those results were matched with Charernboon and Patumanond study, Bora and associates' study [9,35]. Also, it did not show any correlation between gender and TOM functioning in all studied groups this goes hand with a study conducted by Fernandez-Gonzalo and associates, who did not find any correlation between gender and REMT score either in the First episode psychosis group or control group [36]. In contrast to our finding, are the results of Csukly and associates, they found that male patients with schizophrenia performed worse than females on TOM tasks, the major limitation of Cuskly's study was the relative small number of male participants while in our study the limitation there were small number of female participants, which made the negative results regarding the difference in mentalizing abilities between male subjects and females debatable [37].

### Correlates of theory of mind "symptom profile"

The current study showed that there was a significant negative correlation between TOM performance and SANS score "negative symptoms" in both patient groups. That means the greater severity of negative symptoms the worse performance on REMT. The

negative correlation more evident in group (B) ( $p = 0.003$ ) rather than group (A) ( $p = 0.01$ ).

Regarding SAPS score “positive symptoms” the current study showed no significant correlation between RMET score with SAPS score in patients with acute psychosis ( $p = 0.072$ ). However, there was a significant negative correlation with patients with schizophrenia SAPS score ( $p = 0.000$ ). These results were against a study done by Ayesa-Arriola and associates, as they did not find association between RMET and clinical symptoms despite using same scales “SAPS & SANS”. In another western study by Csukly and associates, conducted on patients with schizophrenia using (RMET), the results found that Positive symptoms severity did not correlate with TOM functioning, while negative symptoms showed significant negative correlation with RMET [34,37]. This discrepancy might be due to different symptom severity in the two studies. Furthermore Okruszek and associates [38], in their study classified patients with schizophrenia according to PANSS Positive subscale into patients with mild positive symptoms or lacking them in the low positive symptoms (POS-LO) group while moderate to severe positive symptoms in the high positive symptoms (POS-HI) group [38]. Okruszek’s study showed that mind-reading deficit appears to be correlated with the level of positive symptoms. On the other hand, they found that there was no significant correlation between level of negative symptoms and REMT score.

In the current study, there was no significant correlation ( $p = 0.897$ ) between age of onset in patients with schizophrenia group and their RMET score, however patients showed significant negative correlation ( $p = 0.031$ ) between duration of illness in patient with schizophrenia and TOM functioning in agreement with our study is a huge systematic review by Bora and associates conducted to identify the relevant studies about social cognition in schizophrenia, most of studies showed no significant correlation between age of onset of illness and TOM functioning. However, patients with

longer duration of illness tend to be more impaired on TOM tasks [30]. If longer duration of illness is negatively correlated to theory of mind functioning, this might support the assumption mentioned earlier that the psychotic process is toxic to the theory of mind. Another assumption would be that poor theory of mind functioning might be among the risk factors for longer illness duration.

### Strengths and Limitations

Although many studies were conducted about theory of mind, they usually targeted the autism patients. This study brightens up the deficits in patients presenting with acute psychosis and schizophrenia. To the best of our knowledge, it is considered one of the earliest studies that assessed specifically theory of mind in acute psychosis in our Egyptian society. Yet selecting the sample from one centre only rather than multiple centres makes it difficult to generalize the results. Also, there is a debate about whether neurocognition can affect social cognition or not, all three groups were not subjected to IQ testing, so results may be biased as the study did not assess neurocognitive abilities in all recruited subjects. Thus, longitudinal and cross-sectional studies on this topic on a large representative sample from different geographical areas are highly recommended with consideration to assess neurocognition function to avoid any bias in future research finding.

Assessment of theory of mind as part of the clinical assessment of patients presenting with acute psychosis or schizophrenia is also recommended together with applying rehabilitation programs to improve social cognition impairment specifically theory of mind deficit which may play important role in affecting the daily functioning of patients with schizophrenia. Theory of mind deficits is higher in patients with schizophrenia than those with acute psychosis, yet both patients’ groups have higher deficits than controls. On the other hand, there was no correlation between age and gender and deficits in all groups. Mean-

while, theory of mind functioning was negatively correlated with the duration of illness. Also, theory of mind functioning was negatively correlated with negative symptoms in acute psychosis while it was negatively correlated with both positive and negative symptoms in schizophrenia.

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## Conflict of interest

None to declare.

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## Čitanje uma očima: teorija uma u akutnoj psihozi i shizofreniji

**Sažetak** - Pozadina: Postojeća literatura pokazuje da pacijenti s akutnom psihozom ili shizofrenijom, kao i njihovi „nepsihotični“ rođaci iz prvog koljena pacijenata pokazuju oštećenja „Teorije uma“ (TOM). Cilj rada: Procijeniti funkcioniranje TOM-a i identificirati njegove korelate na uzorku bolesnika s akutnom psihozom, shizofrenijom i zdravim kontrolnim skupinama. Metode: Istraživanje slučaja i kontrola provedeno na 20 bolesnika s akutnom psihozom, 40 bolesnika sa shizofrenijom i 60 zdravih kontrolnih dobrovoljaca. Pacijenti primljeni na Okasha Institute of Psychiatry, Sveučilišne bolnice Ain Shams, dijagnosticirani su pomoću strukturiranog kliničkog intervjua za poremećaje osi I DSM-IV (SCID-I). Ozbiljnost simptoma procijenjena je ljestvicom za procjenu pozitivnih simptoma i ljestvicom za procjenu negativnih simptoma, dok su dobrovoljci procijenjeni općim zdravstvenim upitnikom. Sve skupine procijenjene su testom Reading the mind in the eyes (RMET). Rezultati: Postojala je značajna razlika između bolesnika sa shizofrenijom koji su imali lošije rezultate na RMET-u od bolesnika s akutnom psihozom, dok su oboje imali TOM deficit u usporedbi s kontrolnom skupinom. Nema značajne korelacije između dobi ili spola u sve tri skupine i njihova TOM funkcioniranja. Uočena je značajna negativna korelacija između trajanja bolesti bolesnika sa shizofrenijom i njihova TOM funkcioniranja. U skupini bolesnika s akutnom psihozom negativni simptomi su bili u negativnoj korelaciji s funkcioniranjem TOM-a, dok su u skupini bolesnika sa shizofrenijom pozitivni i negativni simptomi negativno korelirali s funkcioniranjem TOM-a.

**Ključne riječi:** teorija uma; shizofrenija; akutna psihoza