

## Emotional Intelligence in a Group of Patients with First-Episode Psychosis in Iran

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**Abstract-** This study was aimed to evaluate the Emotional Intelligence (EI) of a group of patients with first episode psychosis in Iran as compared with a healthy control group. A case-control design was used. EI was assessed using Persian version of Bar-On Emotional Quotient inventory (EQ-i) administered on 25 patients with history of a single psychotic episode in the last two years, as well as 64 healthy participants. The mean ( $\pm$ SD) of EI scores of patients' and healthy controls' group was 319.8 ( $\pm$ 40.9) and 328.8 ( $\pm$ 33.3), respectively. Two-independent sample t-test revealed no significant difference in the EI scores of two groups ( $P=0.29$ ). In contrast with chronic schizophrenia, the patients with first-episode psychosis were not different from the healthy subjects in terms of emotional intelligence score. It might be implied that the low emotional intelligence of the patients with chronic psychotic disorders is an accumulative result of the underlying disease over time.

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### Introduction

Psychotic disorders including schizophrenia are a huge burden to society (1). Recent studies have suggested the cognitive dysfunction as the core deficit in schizophrenia (1). In addition, there is evidence showing that patients with subclinical psychotic symptoms may also suffer from cognitive deficits (2). It has been shown that correlation between patients' function and their cognitive deficits is stronger than the correlation between their function and symptoms' severity (3).

The most affected domains of cognition in patients with schizophrenia are processing speed, attention/vigilance, working memory, verbal learning and memory, visual learning and memory, reasoning and problem solving, and social cognition (4). Social cognition is the combination of processes in the brain for perception, recognition, interpretation of information about others' emotions and behaviors, and facilitation of

reactions towards them (5,6). Deficits in social cognition are common among schizophrenics (7-11). Research has been shown that social cognition deficits are present in early courses of psychosis and is equally disturbed in a sample of patients with a first episode of psychosis (FEP) and chronic schizophrenia. Emotion perception is fundamental to social cognition, which affects the social functioning of patients (12). The capability of emotion processing, understanding, and management, which is the core of the social-cognitive processes, is referred to as "emotional intelligence". In the 1990, Mayer and Salovey introduced emotional intelligence (EI) as a subset of social intelligence (13). Their primary model was constructed from emotion assessment, emotion regulation, and application of the emotions (13). Later on, they modified their model in a way that it consisted of two functionally interacting subsystems, namely cognitive and emotional subsystems (14). Literature search does not reveal sufficient information about the

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patients in their first episode of psychosis. Recent studies on the EI of patients with schizophrenia show that these patients are impaired in different EI aspects (15-17). It is also evident that patients with psychotic features have difficulty in social-cognitive functions (18).

Studying the cognitive and emotional deficits and their severity in the early courses of psychosis may help elucidate the origins of the deficits. If a deficit is present in early phase of the psychotic disorder, then it may be inferred that this is less probably an effect of the chronic psychosis and related changes due to degenerative processes (19). The main aim of the present study was to evaluate the EI of a group of patients with first episode psychosis in Iran, compared with a group of healthy subjects.

## Materials and Methods

### Participants and procedures

All participants were recruited via the convenient sampling method. In order to decrease the possible effect of the general intelligence on any measured factors, all patients and control volunteers were screened in terms of education, and those with a history of failure to pass the ninth grade school were excluded. Measurements of the IQ were not possible here because of the time limitations of the patients and their lack of compliance for participating in long or multiple sessions. Subjects with a positive history of drug use (opioids, amphetamines, cannabis, etc.), head trauma, and any other major psychiatric disorders were also excluded from the study. Before any tests carried out, all participants were informed about the aims of the study by one of the researchers (ZB), and then they signed a written informed consent confirmed by the Ethics Committee of the Tehran University of Medical Sciences (TUMS).

### Patients

Seventy patients who met the criteria and had the history of a single episode of psychosis (based on the presence of hallucinations, delusions, disorganized speech and/or grossly disorganized behaviors) in the last two years were recruited for the study. Medical conditions or substances should not directly contribute to the emergence of psychotic symptoms. All the patients were invited to participate in the study via a phone call. The mental status was assessed and the patients who were in remission selected for further evaluations. All the patients were informed about the

aim of the study before their participation. Only twenty-five out of seventy invited patients accepted to enroll in the study.

### Control participants

Healthy control participants with any of the above mentioned exclusion criteria and/or a family history of psychiatric disorders in their first-degree relatives were excluded before any other evaluations. The remaining filled the Beck-Depression and -Anxiety Inventories (BDI and BAI) and the General Health Questionnaire (GHQ-28) to make sure the exclusion of non-diagnosed depression and anxiety or general health problems, which might affect their scores on the EI tests. After excluding the volunteers with the BDI and/or BAI scores more than 15, and also GHQ score more than 22, data from seventy-five volunteers were included for further analysis.

### Psychometric assessments

The Emotional Quotient inventory (EQ-i) was used to assess the Bar-On model of emotional-social intelligence (20,21). The EQ-i is a self-report measure. The original version of EQ-i consists of 133 questions. The Persian version of EQ-i consisted of 90 questions and it took 30 minutes for the subjects to complete it (22). Higher scores are indicative of better condition. The Clinical Global Impression-Severity (CGI-S) was used to select the patients in remission and the patients with the  $CGI \leq 3$  were selected for further evaluations. In addition, the General Health Questionnaire (GHQ-28) was used to examine general health condition in control group participants (23-25). An overall score of 22 or less is considered as normal in the general health. Also, the BDI and BAI were used to exclude the control participants with high depression or anxiety (25-30).

BDI consists of 21 questions that evaluate the affective, behavioral, and physical symptoms of depression with maximum score of 63. The higher score in this scale indicates worse condition. The score of 15 was considered as cut-off point (29). BAI evaluates the somatic and subjective symptoms of anxiety (26). The more score on every question means a worse condition. In the Persian version of BAI the maximum possible score is 63, and a score of equal to or more than 15 is considered as abnormal (28,31).

### Statistical analysis

Data was analyzed by Statistics Package for Social Sciences version 16.0 (SPSS 16.0). The obtained data were analyzed using appropriate statistical tests

including student's t-test, Chi-square statistical test, and Mann-Whitney's test.

## Results

Twenty-five patients (14 males; mean age:  $24.5 \pm 5.2$ ; mean years of education:  $12.7 \pm 2.3$ ) and 64 healthy volunteers were evaluated for the EI levels (38 males; mean age:  $26.0 \pm 5.4$ ; mean years of education:  $12.8 \pm 2.4$ ). The two groups did not differ in terms of gender (Chi-Square=0.084,  $df=1$ ,  $P=0.77$ ), age ( $t=1.12$ ,  $df=87$ ,  $P=0.27$ ) and years of education ( $Z=-1.22$ ,  $P=0.22$ ). The findings show the mean ( $\pm$ SD) score of control subjects on BDI, BAI, and GHQ-28 were 10.1 ( $\pm 2.7$ ), 10.0 ( $\pm 2.6$ ), and 15.5 ( $\pm 3.7$ ), respectively.

The mean ( $\pm$ SD) of EI scores of patients' and healthy controls' group was 319.8 ( $\pm 40.9$ ) and 328.8 ( $\pm 33.3$ ), respectively. Two-independent sample t-test revealed no significant difference in the EI scores of two groups ( $t=1.06$ ,  $df=87$ ,  $P=0.29$ ).

## Discussion

The present study showed that the patients were not different from the healthy subjects in terms of emotional intelligence score. Few studies have recently focused on the EI of patients with schizophrenia or psychotic disorders (15,16,32). They found lower emotional intelligence scores in psychotic patients compared to normal subjects, which is in contrast with the results of the present study. One possible cause for this controversy might be the sample of patients studied. In two studies, patients with chronic schizophrenia, schizoaffective, or schizophreniform disorder were enrolled (15,16). A chronic psychosis may cause several neurodegenerative changes in different brain regions such as gray matter reduction in frontal and temporal lobes, as well as lateral ventricular enlargement (19). These changes have been found negatively correlated to symptom duration. As our patients have all been diagnosed with only a single episode of psychosis in the last two-years, this may suggest that the EI reduction happens as a result of progressive brain changes in time.

Another difference in patients' inclusion criteria is the drug use history. Evidence suggests that higher usage of tobacco, alcohol, and other drugs of abuse, is associated with lower scores on EI measures (33). We excluded all patients with a life-long history of drug abuse, but the other studies only excluded the patients who used drugs in the past two (15) or six (16) months. Although it is difficult to relate the lower levels of EI in

the patients of these two studies to drug usage, it may be considered as a confounding factor to the main variables.

Another possible cause of this controversy may be the heterogeneity in our FEP patients, which could have higher levels of EI. While other studies included patients with schizophrenia, schizoaffective, and schizophreniform disorder, our patients group was a mixture of patients with schizophrenia, schizoaffective, and mood disorders. None of our patients were in an active phase of disease. Considering the evidence of normal EI levels in patients with mood disorders who are in a remission phase, it is possible that the observed normal EI in our FEP group is the average of two sub groups of patients with schizophrenia and patients with mood disorder scores. Increasing the sample size and further follow-up of the FEP group may help elucidate this issue.

Differences in EI measurement tools might be a potential reason for discrepant results. Bar-On EQ-i used in the current study is based on a mixed model of EI, and evaluates a spectrum of emotional and social abilities. Other studies on psychotic patients have used Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which is based on an integrative model of EI. This inventory asks the subject about awareness of emotions and his/her ability to conclude based on the emotional information (34). As the social functioning is negatively correlated with the length of psychotic disease, our early phase patients are more possibly to show better social functioning compared to patients of the previous studies, which by itself may theoretically lead to get higher scores on Bar-On EQ-i.

Only twenty-five out of 70 patients invited to participate accepted the invitation. The other 45 patients refused to participate in the study even after being informed that their time would be compensated with the monetary reward. The most common excuse was "no benefit of the results of study for their life" and "lack of interest to come and talk about their disease or emotions". Although some made other excuses such as "transportation difficulties" and "shortage of time", the high frequency of first two excuses raise the hypothesis that the sampling method may lead to miss cases with lower EI. In fact, EI may not only present as a score of the tests, but also it is a part of daily functioning. As long as the research ethics may restrict the studies to volunteer subjects; confounding variables such as social and emotional intelligence may bias the data. In fact, the variable rate of patients' participation in different studies with different criteria is not only a negative point in the

current study, but also might bias results from other studies on brain functions.

In conclusion, the present study tried to evaluate the emotional intelligence of patients with a single episode of psychosis in an Iranian sample. Patients scored as well as healthy controls on Bar-On EQ-i. Comparing this result to other studies, it might be implied that the low emotional intelligence of the patients with chronic psychotic disorders is an accumulative effect of the underlying disease over time. Further longitudinal studies, and studies to investigate the correlation of the EI results with the exact type of the disease, and reduction in sampling bias is needed to elucidate the main question of this study more clearly.

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