



Comparison of Defect in Theory OF Mind Based on Signs of Low and High Depression Disorders in Students

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A B S T R A C T

The aim of present study was to compare the defect in mind theory based on signs of low and high depression disorders among students. Methodology was in a kind of casual-comparative one and the population included all female students from University of Tabriz in 2014-2015. Sampling was done in a randomized way using Beck anxiety inventory (BDH-II). 30 participants had high depression disorder and 30 had low depression. Sampling method was carried out using screening method. For the next step, they were compared by the application of mind reading test through Baron-Cohen eye test (ET-R). Data were analyzed by t-test. Results showed that those with high depression had sensible defect in their theory of mind compared to those with low depression disorder.

Keywords: Depression, Eye Test, Defect in Theory of Mind.

INTRODUCTION

During recent decades, a great bulk of studies in developmental psychology, social psychology and neurological sciences have been concentrated on the ability of human to benefit from "a theory of mind" or ability of "mentalize" as an expression of his power to understand and attribute various mental states (aims, intentions and beliefs) to the others (Singer & Fehr, 2005). Various studies that tried to scrutinize evolutionary roots of mind theory, reported the ability to be existed only among primates (Povinelli & Bering, 2002). The concept of mind theory, for the first time, was used to explain human ability to predict his and others' manners. Such ability gave us a chance to reflect others' attitudes, tendencies and aims in our mind when we interacted and communicated in social grounds and then produce appropriate responses (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997). In other words, people have beliefs and tendencies that can be either right or wrong and are not necessarily as same as ours. This knowledge about mental functions of self and others can help us to demonstrate and predict others' manners. For instance, when a man tells his wife that "I want to wear my shirt but it is wrinkled", he means that "please iron it" (Drury, Robinson, & Birchwood, 1998).

Investigations conducted during last two decades about the concept in developmental psychology, social psychology and neurological sciences mostly pointed relationship between

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this cognitive framework and psychological and psychiatric disorders (Yazdi, 2007). According to the fifth edition of Statistical and cognitive guide to psychological disorders (American Psychiatric Association, 2014) a patient who was diagnosed to have depression must have some specific signs such as: changes in sleeping and activities, lack of energy, guilt sentiment, problem in thinking and decision making, thinking about death and suicide. He must have at least one of those signs or (1) depressed behavior or (1) lack of interest or desire. Depression was one of the common disorders in psychology. Reports showed that one third of global population had been experienced mild depression in one period of their lives (Abt, 2005; Nebiker et al., 2018). WHO, for 2000, estimated that depression would be the second cause of mortalities all around the world (after cardiovascular diseases). It was reported that its prevalence would be 12-25% among females and 5-12% among males. Depression leaves remarkable effects on social and working performances of individuals. It is regarded as one of the most important disabilities. People who suffered from depression projected non-adaptive behaviors which could affect their relations and could consequence in negative social interactions (Joiner & Timmons, 2002). Studies also revealed that depressed people had meaningful weakness in mental status diagnostic test through eye image. Such deficiencies were the main origins of damages in social communications and interactions (Singer & Fehr, 2005). Numerous studies were carried out about mind theory defects and depression. Among them, Jakob et al. (2014) and Zobel et al. (2010), study showed that depressed people had defect in their theory of mind about social cognition when they were compared to control group. Another study by Cusi, Nazarov, MacQueen, and McKinnon (2013), explained that depressed patients with mild signs had defects in their theory of mind and also had weakness in their socio-psychological performances. A research by Nejati, Zabihzadeh, Maleki, and Tehranchi (2012), that was conducted to compare mind reading ability and detection of deep depression among depressed and healthy people, revealed that mind reading ability and knowledge could act as predictors of socio-cognitive functions among depressed people. In another investigation by Wolkenstein, Schöenberg, Schirm, and Hautzinger (2011), they asked if depressed people had defects in their theory of mind when they compared with healthy people. They studied both aspects of mind theory separately (decoding and reasoning abilities). Their results figured out that, compared to control group, depressed people showed no defects in terms of decoding ability through eyes. But they had problems in reasoning textual information. In fact, low level of social performance was correlated to depression and could be fairly attributed to defect in theory of mind. Results of researches about psychotic depressed people and non-psychotic ones pointed out these patients had low performance in their socio-perceptual and socio-cognitive tasks. In fact, psychotic patients had level of meaningfully low performance in their mind theory tasks when compared to non-psychotic people (Wang, Wang, Chen, Zhu, & Wang, 2008). Another study by Y Inoue, Yamada, and Kanba (2006), depicted that depressed patients who defected in their theory of mind and suffered from weaker prognosis compared to healthy people. They were more in danger of relapses and had low social performance and judgment. In another investigation, patients with behavioral disorders had statistically meaningful damages in their theory of mind tasks (Yumiko Inoue, Tonooka, Yamada, & Kanba, 2004). Nevertheless, research evidences confirmed the quality of theory of mind according to low and high depression signs. Consider the above and the use of mind-reading theory and mind theory to understand one's mental states and others, the ability of mind theory to improve the social and

behavioral performance of individuals with high depressive signs and low has been influential and has encouraged researchers to compare the defect of the theory of mind in individuals with signs of high and low depressive disorder. Thus, the aim of present study is to compare defect in theory of mind among individuals with low and high depression signs.

METHODOLOGY

Participants and Procedure: Three hundred participants female in the age range of 20 to 30 participated in this study. The mean age of all participants was 25 years. All participants were students from various colleges and dormitories in Tabriz University.

Beck depression Inventory (BDH-II): The test was used for the first time in (1961) by Beck, Steer, and Brown (1996), it was revised by Beck, Steer & Brown. The tool was used extensively to assess depression severity and it has 21 items. Each item measured one depression sign. Each item had four sentences that measure depression severity. Regarding degree of severity, each item is scored from 0-3. The Beck Depression Inventory score indicates a mild depression score of 14-19, a moderate depression score of 20-28, and a major depression score of 29-63 (Segal, Coolidge, Cahill, & O'Riley, 2008). Most of the researches show that the tests benefit from high internal consistency and its alpha coefficient is from 0.73 to 0.95. Moreover, the correlation coefficient of the test with other depression test was calculated to be 0.55 to 0.96 that suggests its high validity. Psychometric of the test in Iran was as follows: alpha coefficient: 0.91, correlation coefficient between the two halves: 0.89, retest coefficient with one week interval: 0.94. Its correlation with Beck's depression test version I was 0.93 (Fatti, Birashk, Atef Vahid, & Dawson, 2005).

Eye test (adult version) – revised: Eye test or mind reading test through eyes which was designed to evaluate emotional mind theory was initially invented by Baron-Cohen et al. (1997), to study recognition ability of exiting states. This writer presented its revised version in (2001). The test included 36 black and white images from men and women. The images exactly described their eyes from middle part of the nose to eyebrows. The examinee, by observing each image would say that which word best described the image individual's emotional state. Each right answer had one positive score. Total score obtained by calculating all scores from images. Scores ranged of 0-36, scores ranging of 22-30 indicating medium theory of mind and less than 22 indicating lower theory of mind and more than 30 indicating higher theory of mind. Testing time was not limited Baron-Cohen (1997). In an Iranian study by Khanjani and Hadavandkhani (2010), eye test reliability used test retest method with 3 weeks' interval. Correlation coefficient calculated to be 0.637 for this test. Cronbach's alpha coefficient was also obtained to be 0.712 for eye test.

The present study is a causal-comparative study that compares the theory of mind defect in individuals with signs of high and low depressive disorder. The target population of this study was all female students of Tabriz University who were studying at Tabriz University Colleges and Dormitories in 2014-2015. The sampling method was simple random. 300 questionnaires were prepared and distributed to Tabriz University Colleges and Dormitories and after two days the questionnaires were collected. After screening using the Beck Depression Inventory (BDH-2), 30 people had signs of high depression disorder (score above 29) and 30

people signs of low depression disorder (score low of 14). The sample size was reduced to 60 individuals. Subsequently, screened subjects were used with the Adult Eye Test (ET-R) form, devised to assess the theory of mind by Baron-Cohen et al. (1997) and reviewed by the same author in (2001). Data analysis was performed in two sections using SPSS software. The descriptive section including frequencies, averages, standard deviation and percentages, and data analysis section were used for independent groups T-test.

Data analysis carried out by SPSS software. The analysis was in two parts. The Descriptive part included frequencies, averages, standard deviations and percentage. And data analysis part included independent t- test.

RESULTS

Table 1. Average and standard deviation of the theory of mind in both groups

Group	Average	Standard deviation	Number
High depression	20.96	3.21	30
Low depression	24.06	3.02	30

Table 1 shows average and standard deviation of defect in the theory of mind among both groups. As it can be seen people with signs of low depression acquired highest average.

Table 2. Levine test results ($p>0.05$)

Sig	Df	F
0.423	58	0.627

Results of Levine test in table 2 shows that studied groups have homogenous variance in terms of studied variants and this difference is meaningful($P>0.05$).

Table 3. t- Test results to compare defects in theory of mind among people with high and low depression

	T	Df	Sig	Mean difference	Standard error
If variances were similar	-3.84	58	0.000	-3.10	0.80

Depicted data in table 3 shows that average differences in people with high and low depression disorder signs in defects of theory of mind was -3.10 and such difference is statistically meaningful($p<0.05$). Therefore, between defects theory of mind among people with high and low depression signs we had meaningful differences.

CONCLUSION

Carried out studies about the concept of theory of mind suggested its defects among many psychological disorders. The present work was aimed to compare defects in theory of mind among people with high and low depression signs. It was concluded that in mind reading process through eyes, social performance of people with high depression disorder had more deficiencies than people with low depression signs. It means that, as depression becomes severe

these people's socio-psychological and social cognition get weaker. As a result, they will have more defected theory of mind. To explain this finding we could say that depression is a life threatening factor which is accompanied by suicide danger, a sharp drop in performance and increase in life problems(Lyubomirsky, Kasri, & Zehm, 2003). Depression signs are common among people who even not have depression diagnostic criteria(Judd, Schettler, & Akiskal, 2002). Moreover, evidences said such signs were lasted almost the times(Tram & Cole, 2006). And they could be regarded as a background for future depressions(Judd et al., 2002). Decrease in communications or avoiding other people or isolation, passiveness, frequent absences from job, dissatisfaction about job environment, giving up the job were those behavioral signs of depression. Depressed people avoided life because they didn't have incentives any more. Another classical notion said that defected social skills are responsible for depression. A person who defected personal relation, could not hold those factors that attract others' attention and interest. Depression is meaningfully related to defect in identification of others' mental stats. Their problem in recognition of mental stats is a base of theory of mind that is vital for social interactions. Depression signs have strong linkage with theory of mind pathology it shows lack of motivation to know about others mental stats. In fact, social and interpersonal defects in people with depression signs are pivotal characteristics that show their motivation to know about others' mental stats. With this regard we can say that signs of high depression are correlated with defect in theory of mind.

Other part of present investigation revealed that people with high depression signs would choose negative stats when the interpret images mental stats. Cognitive theories about depression believed depressed people had more desire to give negative interpretations of vogue images. This bias played an important role in the emergence and continuation of disease. Depressed people have more negative interpretation of social situations and they have problems with interpretation of interpersonal information such as excitements and facial expressions(Beevers, Wells, Ellis, & Fischer, 2009).

Based on the findings the degree of highly depressed people benefited from the ability of theory of mind and perception of others mental stats is a good predictor of defects in their social interactions. According to research done, individuals with higher scores on signs of depression compared to individuals who scored lower on signs of depression could be considered a defect in the theory of mind as a distortion of social cognition in these individuals. As a result, they could be used as a treatment by teaching theory of mind to these individuals. Thus in order to treat depression, the therapists must focus on this issue to improve patients' theory of mind through teaching them. It is suggested that throughout clinical interventions, a part of treatment must be allocated to teach understanding of others' beliefs, emotions and subjectivities. However, it is probable that by on-time and appropriate treating, their theory of mind would be remarkably improved.

Some of the important limitations of our study were: it was only conducted among university students and no in other parts of society, age range was only 20-30, findings were based on self-reported scales. Further studies should include other layers of society with different age range and apply interviews and observations as other as other research methods.

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