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A Comparison of Brain/Behavioral Systems, and Quality of Life among Patients with Schizophrenia and Bipolar Disorder

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Abstract

***Background*:** The aim of the research was to compare brain/behavioral systems, and quality of life among people with schizophrenia, people with bipolar disorder, and normal people.
***Materials and Methods*:** In this causal-comparative research, 90 people consisting of people with schizophrenia, people with bipolar disorder, and normal people were selected using access sampling method, and they completed the Gray-Wilson Personality Questionnaire and Quality of Life Scale.
***Results*:** The findings suggested that there is a significant difference in behavioral inhibition and activation inhibition between normal people and people with bipolar disorder, as well as in sub-scales from quality of life of normal people and people with schizophrenia and bipolar disorder.
***Conclusion*:** Impairment in brain/behavioral systems and low quality of life provides explanations for schizophrenia and bipolar disorder.

Introduction

One common mental disorder is schizophrenia. One other common psychological disorder is bipolar disorder [1]. As for the biologic identifiers of schizophrenia and bipolar disorder, research findings suggest the presence of some character features play an important role in schizophrenia and bipolar disorder [2, 3]. Gray [4] in a research on reward and punishment brain mechanisms, enumerates certain personality patterns that are based on the activities of brain/behavioral systems. Research has shown that quality of life in people with schizophrenia and bipolar disorder is lower than that of normal people [5-8]. Since schizophrenia starts from youth, and because it has a progressive nature with severe and blatant symptoms, it occupies many more beds in asylums. It is not only the people suffering that are deeply afflicted with problems, but his/her family will be agitated and the society will consequently be negatively affected [1]. People suffering from bipolar disorder become extensively paralyzed socially and professionally, gain high risk of suicide, and force a lot of money going to their treatment by clinics or otherwise [8]. According to statistics from WHO, bipolar disorder is the sixth most important reason for psychological impairment of people among all medical and psychiatric disorders [8]. In the same vein, the aim of the present research is to compare brain/behavioral systems, its components, as well as quality of life, and its components among three groups of people with schizophrenia, people with bipolar disorder, and normal people. In fact, the present research aims at answering the question: Are brain/behavioral systems and quality of life related in any way with schizophrenia and bipolar disorder?

Materials and Methods

The present research is a fundamental research in terms of purpose, and a post-event or causal-comparative in terms of data collection method. The statistical population for this research consists of all patients referring to clinical centers in an Iranian province, Semnan in the year 2011, having diagnosed as suffering from schizophrenia and bipolar disorder according to clinical examination by psychiatrists and criteria in DSM-IV-TR. They were all at least once be hospitalized in one psychiatrist ward. The population of normal people consisted of all trainees in Technical and Occupational Organization in the center of the same province, Semnan in 2011. The samples were a group (16 female, and 14 male) with schizophrenia, a group (17 female, and 13 male) with bipolar disorder, and finally a group of normal people (15 female, and 15 male), all selected using access sampling method. The first two groups were identified as suffering from schizophrenia and bipolar disorder diagnosed by competent psychiatrists and using structured clinical interviews based on DSM-IV-TR, and the diagnoses were later re-confirmed by a clinical psychologist, a social worker, and a psychiatrist working all in a committee. The criteria for people to be included in the statistical population were ages 17-57 yrs, being a resident of the same province (Semnan), speaking Persian, lack of any mental retardation, and lack of any other simultaneous disorder. In order to control the effects of medicine taken, subjects were selected who had all started taking drugs at the same time. The criteria for exclusion from the subjects' population were prior drug abuse, simultaneous

drug abuse, attending any other non-medicine treatment sessions, or being diagnosed as suffering from other mental disorders. Since most patients did not enjoy good literacy, and many were quite illiterate, or they had lost much cognitive competence as a result of the very disorders, they answered the questions after they were read aloud one by one by researchers, of course after having made sure good rapport has been made and subjects were motivated enough to take part and cooperate. As for the control group, there were no such problems, and therefore the questions were answered on their own. Moreover, normal people were checked for any prior reference to a psychologist, psychiatrist, or any psychiatric disorder diagnosis.

In cases where patients had difficulty understanding the questions, they were simply and clearly explained to them. In order to observe research ethics, and patients' rights, it was clearly asserted to the people that it was all voluntary to take part in the research; and it was written and orally explained that all personal information would be used for scientific purposes only. To make them more certain about this, they were not asked to write their names on answer sheets.

The research tools were Gray-Wilson Personality Questionnaire and a brief version of World Health Organization Quality of life scale. This scale evaluates the activities of brain/behavioral systems, and its components; and consists of 120 items, and has 40 items for behavioral inhibition, behavioral activation, and fight-flight systems. There are three choices of yes, no, and I don't know to answer the questions. Yes, and no choices are scored 0 and 2, but I don't know choices are always scored 1. Gray-Wilson and Baret evaluated the Cronabach's alpha between 0.60 and 0.70. Poormohammadrezaie-Tajrishi et al. [9] have reported the Cronabach's alpha for this scale between 0.65 and 0.75 in a research.

World Health Organization Quality of Life-Brief: This scale was developed by wHOm in 2001, and has been translated and standardized in Iran. This scale consists of 26 questions, and examines the quality of life of the test-taker from different aspects through Likert 5-grade scale. Two questions are to evaluate the overall feeling of the person over his/her life quality, and the rest of the questions assess the feeling and behavior of the test-taker in terms of physical health, mental health, social relationships, and community health in a period of last two weeks. Each of these aspects is assessed by 7, 6, 3, and 8 questions respectively.

In most studies, the validity and reliability of the scale have been reported as acceptable. Nejaat et al. [9] have reported the reliability of the physical health subscale as 0.77, 0.77 for mental health, 0.75 for social relationships, and 0.84 for community health using retest method. In order to investigate the significance of the difference between and among different groups in the areas of brain/behavioral systems, and quality of life, by means of multi-variance analysis test (MANOVA) using SPSS-16 software. The significance level of the findings was set $p \leq 0.05$.

Results

The results on the average of different groups relevant to brain/behavioral systems and quality of life are shown in tables 1 and 2. According to the table below, there is a significant difference in behavioral activation system and behavioral inhibition system among three schizophrenic, bipolar, and normal groups. In fight/flight system though, there was no significant difference among the three said groups. In order to examine the averages more accurately, Tukey follow up tests were used. Tukey test showed that the differences in BAS and BIS systems were only related to bipolar and normal groups. According to table 2 below, there are significant differences in physical health, mental health, and community health subscales among the three groups. In social relationships however, no significant difference can be seen. The Tukey follow-up test demonstrated that the differences in the three sub-scales (physical health, mental health, and community health) is related to schizophrenic and normal people only, as well as bipolar and normal people, and there is no such difference between schizophrenic and bipolar people.

Table 1. The results for variance analysis among schizophrenic, bipolar and normal groups in BAS, BIS, and FFS systems:

Variable	Squares added up	Freedom level	Square averages	F	Sig
BAS system	2235.800	2	1117.90	4.970	0.009
BIS system	29262.967	2	1851.011	5.503	0.006
FFS system	7633.200	2	37.200	0.424	0.656

Table 2. The results for variance analysis among schizophrenic, bipolar, and normal groups in quality of life subscales

Variable	Squares added up	Freedom level	Squares averages	F	Sig
Physical health	8229.042	2	4124.521	14.225	0.001
Mental health	7145.671	2	3572.835	12.620	0.001
Social health	77.505	2	385.253	0.863	0.426
Community health	6668.247	2	3334.123	10.331	0.001

Discussion

The findings showed that there is a significant difference in terms of behavioral inhibition system between the two bipolar and normal groups; i.e., bipolar patients proved to have a more active inhibition system compared to normal people. This finding is congruent with research done by Holzwarth and Meyer [10], but against those of Jones and Day [11]. It was also discovered that between the two schizophrenic and normal people, there is no significant difference in terms of behavioral inhibition. This finding is congruent with research carried out by Nabizadeh et al. [12] and against findings from Scholten et al. [2]. In explaining a higher level of BIS system in patients suffering from bipolar disorder compared to normal people, one can say, BIS system is a system of sensitivity

to punishment. Conditioned stimuli congruent with removal or finishing of reward are among the importantly activating (arousing) stimuli of this system. Since patients with bipolar disorder have had experiences of failure and frequent punishment (particularly in childhood), it is expected that they have a more active inhibition system. According to research carried out by Gable et al. [13] people with a more sensitive BIS system depict more negative affect, and react more negatively to negative events. Therefore, bipolar patients show a more active BIS system. From among other findings is that there is a significant difference between bipolar and normal people as far as behavioral activation system is concerned. To elaborate, bipolar patients showed to have a significantly weaker BAS system compared to normal people. This finding is congruent with that of Gable et al. [13] and against those of Jones and Day [11]. It was also discovered that there is no significant difference between schizophrenic and normal people in terms of behavioral activation system. This finding is congruent with findings from research carried out by Scholten et al. [2] and Brissos et al. [5]. Trying to explain these findings, it can be said that according to research done by Holzwarth and Meyer [10] there is a positive correlation between BAS system and positive affect. Since bipolar patients experience more negative affect, it can be expected that they have a weaker BAS system. Gray [4] believes low or high level of activity in one of these systems, malfunction on the part of these systems, a combination of low or high level of activity in them, malfunction in more than one system, and/or improper interaction between two systems can lead to cognitive or emotional disorders. Other findings from the research showed that there is no significant difference in the three groups in terms of fight-flight system. In most research including the one carried out by Shahidi et al. [14] (comparing patients with gastric reflux disease and healthy people), and the study carried out by AzadFallah [15] (comparing people suffering from obsession and normal people), there was seen to be no significant difference between normal or abnormal people in this system. This can mean the ways people respond to punishment and lack of reward stimuli, whether with aggression or flight from situation, has no significant effect on psychological harms. It could also be argued that people's responses to unconditioned annoying stimuli can be either fight or flight, and examining them in one single system cannot separately show the inclination to fight or flight. As for the quality of life, the present study showed that people suffering from schizophrenia and bipolar disorder proved to have a lower quality of life depicting lower levels of physical health, mental health, and community health compared to normal people. The observed significant differences go with studies carried out by Brissos et al. [5] and Gazalle et al. [8] The findings from our study also showed that there is no significant difference in the three said groups in terms of social relationships. Trying to explain the significant differences observed in the three groups, it could be said that in patients suffering from schizophrenia and bipolar disorder, because of gradual chronicity of the disease, decline in intellectual capabilities, dysfunction in social roles and building emotional relationships, impairment in performance, professional failure, academic lowering, familial problems, and long and frequent hospitalizations, their quality of life decreases compared to normal people in terms of physical health, mental health, and community health. In trying to find an explanation for no evidence of significant difference in the social relationship aspect in patients compared to normal people, it can be argued that the sample was selected from among people who had already referred to rehabilitation centers as well as occupational support centers, and thus taken out from their isolation, and have been able to have constructive interaction with others in their community. In addition, social relationships skills were taught to them in the same centers. Based on all this discussion, it is possible, through identifying people with abnormal brain/behavioral systems, and low life quality, to take appropriate preventive measures that can hinder occurrence of psychological diseases. Because of limitations in more extensive sampling, it is recommended that next studies be done taking benefit of bigger samples. In addition, variables such as how long the patient has had the disease, age, the type of clinics and centers, the type of previous treatment, and how long the patient has been under treatment could be controlled so that studies with more internal and external validity levels are carried out. One more limitation of the research was lack of matching in the patients' groups and normal people, and since researchers had to answer questions for illiterate subjects through reading questions aloud to them, this might have negatively affected the results. So, it is highly recommended that later research is done using literacy-matched subjects.

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Authors' Contributions

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Conflict of Interest

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References

1. Halgin RP, Whitbourne SK. Abnormal psychology. 6th ed. New York: McGraw Hill; 2009.
2. Scholten RM, Honk JV, Aleman A and Kahn RS. Behavioral inhibition system (BID), behavioral activation system (BAS) and schizophrenia: Relationship with psychopathology and physiology. Psychiatry Res 2006; 10(1): 638-645.
3. Salavert J, Caseras X, Torrubia R, et al. The functioning of the behavioral activation and inhibition system in bipolar I euthymic patients ana its influence in subsequent episodes over an eighteen - month period. Pers Individ Dif 2007; 42(7): 1323-1331.
4. Gray JA. Framework for a taxonomy of psychiatric disorder. In: van Goozen SHM, van de Poll NE, Sergeant JA, editors. Emotion: Essays on emotion theory. New York: Psychology Press; 1994.
5. Brissos S, Dias VV, Carita AA and Martinez-Aran AM. Quality of life in bipolar type I disorder and schizophrenia in remession: Clinical and neurocognitive correlates. Psychiatry Res 2008; 160(1): 55-62.
6. Piccinni A, Catena M, Debbio A, et al. Health-related quality of life and functioning in remitted bipolar I outpatients. Compr Psychiatry 2007; 48(4): 323-328.
7. Sentissi O, Navarro JC, Oliveira HD, et al. Bipolar disorder and quality of life: The impact of attention deficit/hyperavtivity disorder and substance abuse in euthymic patients. Psychiatry Res 2008; 161(1): 36-42.
8. Gazalle FK, Hallal PC, Andreazza AC, et al. Manic symptoms and Quality of life in bipolar disorder. Psychiatry Res 2007; 153(1): 33-38.
9. Pourmohammadrezaie-Tajrishi M, Dlavar A, Borjali A and Jomehri F. [The effect of successful and frailer situation on physiological index changes of brain/behavioral activity] Persian. J Psychology 2006; 9(1): 34-51.
10. Holzwarth K, Meyer T. The dysregulation of the "behavioral activation system": An independent dimension. Pers Individ Dif 2006; 41: 319-328.
11. Jones S, Day C. Self appraisal and behavioral and activation in the prediction of hypomanic personality and depressive symptoms. Pers Individ Dif 2008; 45(7): 1497-1503.
12. Nabizadeh GH, Hashemi T, Poursharifi H and Fororashi M. [Personality characteristics and with behavioral inhibition system and behavioral activation system in patient with schizophrenia, bipolar and healthy people] Persian. J Clin Psychol 2010; 2(3): 53-61.
13. Gable SL, Reis HT, Elliot AJ. Behavioral activation and inhibition in everyday life. Pers Soc Psychol 2008; 78(6): 1135-1149.
14. Shahidi MS, Azad-Fallah P, Khedmat H. [Comparison of brain/behavioral systems activity in patients with gastro esophageal reflux disease and healthy people] Persian. J Behav Sci 2010; 2(4): 83-89.
15. Azad-Fallah P. [The bio-psychological foundations of addiction] Persian. J Psychology 2000; 15(3): 234-246.

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