

## Compare difficulties in emotional regulation, early maladaptive schemas and executive functions between the patients with bipolar disorder and borderline personality disorder

Nazila Karimzad<sup>1</sup>, Fatemeh Golshani<sup>2</sup>, Anita Baghdassarians<sup>3</sup>

<sup>1</sup>. MSc of Clinical Psychology, Islamic Azad University, Central Tehran Branch, Tehran, Iran

<sup>2</sup>. Assistant Professor of Psychology, Faculty Member of Islamic Azad University, Central Tehran Branch, Director of the Department of Clinical Psychology, Tehran, Iran

<sup>3</sup>. Assistant Professor of Psychology, Faculty Member of Islamic Azad University, Central Tehran Branch, Tehran, Iran

[nazila617@yahoo.com](mailto:nazila617@yahoo.com)

**Abstract:** The present study purpose has been done to compare the difficulties in emotion regulation, primary maladaptive schemas and the executive functions between the patients with bipolar disorder and borderline personality disorder. Statistical population included all patients hospitalized in borderline personality disorder and bipolar disorder (male and female) in Iran Psychiatric Hospital (affiliated to Iran University of Medical Sciences) (from December 2015 to June 2016). The method of causal-comparative the study, including 50 (25 patients with borderline personality disorder and bipolar disorder) were selected by convenience sampling. The data collection with regard to the reliability and validity of the questionnaire, for this purpose, Young questionnaire of 75 questions, DERS difficulties in emotion regulation scale and Wisconsin Card Test software was used. For data analysis software SPSS-19, descriptive statistics, i-square test, and multivariate analysis of variance and test Manova were used. The results showed that difficulties in emotion regulation and primary maladaptive schemas and executive functions in border have more severely compared to bipolar disorder. These findings further emphasize on the distinction of these diseases to their similarities. Overall, there is a significant correlation between the high levels of emotional regulation schemes and finally, deficiencies in executive functions can be associated with a particular combination of primary schemas and difficulties in emotion regulation psychopathology.

[Nazila Karimzad, Fatemeh Golshani, Anita Baghdassarians. **Compare difficulties in emotional regulation, primary incompatible schemas and executive functions between the patients with bipolar disorder and borderline personality disorder.** *Nat Sci* 2017;15(2):7-13]. ISSN 1545-0740 (print); ISSN 2375-7167 (online). <http://www.sciencepub.net/nature>. 2. doi:[10.7537/marsnsj150217.02](https://doi.org/10.7537/marsnsj150217.02).

**Keywords:** emotion regulation, early maladaptive schemas, executive function, bipolar disorder, borderline personality disorder.

### 1. Introduction

More than two decades ago Akiskal expressed borderline personality disorder as a disorder in bipolar affective disorder in the whole. However, there is currently no consensus about the idea. Some similarities between borderline personality disorder, and bipolar disorder caused the emergence of these two hypotheses (Akiskal, 1985; quoted by Hassani, 2010). These two disorders, mood instability and impulsivity are similar (Mackinnon and Pies 2006; Beenazi, 2008). Classification of disorders in DSM-5, The similarities between bipolar disorder (BD) and borderline personality disorder (BPD) don't far from the eyes of researchers and don't lead to mentioning the hypothesis that borderline personality disorder can be considered a form of bipolar disorder (America Psychiatric Association in 2000, according to Abdullahi, 2013).

Akiskal's hypothesis that implies the similarity of borderline personality disorder and bipolar, some scholars and researchers reject the theory Akiskal and raised evidence of separation and distinction between

the two disorders (Gunderson et al., 2012). For years, there was agreement that bipolar disorder is low diagnosing. However, recent reports show a significant change in this trend with the double diagnosis of bipolar between outpatients in the last decade and an increase between teenagers. Zimmerman and colleagues study in 2008 showed there is the possibility of false diagnoses of bipolar disorder that's why symptoms of borderline personality disorder may be confused with bipolar disorder. Some shared phenomenal features may more likely the latter hypothesis.

Emotional instability is the main feature of both disorders, although the nature of this instability may vary. As well as anger management problem in patients with borderline personality disorder may be confused with an irritable manic period. Impulsivity is also a symptom of borderline personality disorder but can be observed even outside the periods of hypomania in bipolar patients (Ansari et al., 2011). In recent theoretical models, trill regulation with physical health, interpersonal relationships and job

performance and education are related. To the extent that different patterns of the trill regulation deficits in psychiatric pathologies models such as borderline Personality Disorder (Lynch, trost, Salsman and Linehan, 2007), major Depressive Disorder (Rotenberg, Gross, Gatlib, 2007, Nolen- Hoeksema et al., 2008, quoted by Black et al., 2010), expresses as a bipolar disorder.

In studies (Davidson, Brendell 2005, Bremer, 2006 quoted by Eftekhari, 2009), It was shown that How bad trill regulation in patients with borderline personality disorder reflected in the functioning of the central nervous system. In explaining the symptoms listed several ideas that one of the most important of them is the neuropsychological perspective. In a study, (Dinn et al., 2004) concluded that borderline patients show a good performance in cognitive variables such as response inhibition and working memory.

Insufficiency hypothesis has been used to explain and justify the hypothesis of executive functions in many psychiatric disorders such as schizophrenia (Vaykrt et al., 2000). Touret syndrome (Landon and oggle, 2002) Autism (Tanguy, 2000, Penington and Ozonoff, 1996), Practical \_ obsessive-compulsive disorder (Rach and Grabiell, 2000). Bipolar disorder is not excluded from this category And in recent decades have been more attention (Hassani et al., 2010). Many studies have been reported high comorbidity between borderline personality disorder and major mood disorders (bipolar disorder and major depression) from 35% up 50% (Mcglosham 1983, Pope et al, 1983, Frances et al, 1984, Disturbed 1985, Zanaryny et al, 1998 quoted by Henry et al. 2001). Some of them believe that the main element in processing emotional information, emotional experiences are fundamental individual characteristics and beliefs (Fatty et al. 2004).

Another area that was chosen for the study is inconsistent Schemas. Styles distress and malfunctions perception has been found in patients with borderline personality disorder (Rusch et al., 2007, Zeigler - Hill and Abraham, 2006) and in bipolar patients (Jones et al., 2005; Scot, Stantson, Garland and Ferrier, 2000 quoted Mani et al., 2014). In this direction along with a review of how the two disorders based on certain early maladaptive schemas are different, this area will be examined. The schema model which was presented by Yang et al., were selected for 18 maladaptive schemas (Yang, Kolosko and Vishar, 2003). In this context, primary maladaptive schema defines as a cognitive structure or pattern of widespread and pervasive including memory, emotions, and cognition, sensations about themselves and their relationship with others during childhood or adolescence and across the life span is

remarkable (Yang et al. 2003). Maladaptive schemas have been proposed as cognitive vulnerability to both disorders. (Yang et al., 2003, wings and Mitchell, dismay, cycle Crohn's and Smith, 2003).

Both disorders specified also disrupted recurrence and tried to commit suicide and social functions. The similarities between the two disorders make questions that whether they are in a similar range or not? Although the evidence for use of this hypothesis remain mixed. According to the issue that previous studies had specific methodological limitations, most of them had not regular checkups focused on mood and cognition. The main question is "Are patients with borderline personality disorder and bipolar disorder different in terms of cognitive and emotional functions? Can we say that they are in a similar range?"

### Research hypotheses

2-1 Patients with borderline personality disorder compared with BD have more inconsistent schemas;

2-2 Patients with borderline personality disorder compared with BD in trill regulation difficulties are different;

2-3 Patients with borderline personality disorder compared with BD in executive functions are different.

### Research Methodology

The research method in term of purpose is fundamental and in terms of data collection is Ex post facto (scientific comparison). The study sample included all patients diagnosed with borderline personality disorder and bipolar disorder (Men and women) In Iran Psychiatric Hospital (affiliated to Iran University of Medical Sciences) (from December 2015 to June 2016). Method: In this study sampling was convenience sampling that the people hospitalized in a psychiatric hospital selected. In this study, 50 people selected that include 25 people with borderline personality disorder (man and woman) and 25 patients with bipolar disorder (man and woman) that were selected by convenience sampling. To identify the intended patient in addition to the Structured Clinical interview, checking diagnostic records, and patient records were complete. It should be noted that in several cases to achieve certainty in the interpretation of diagnostic tests million and Minnesota Multiphase personality Inventory information was used. Finally, with a definitive diagnosis of psychiatry and psychology section and to completion of the process of identifying, the next steps for the completion of other tests were performed.

Tool for data collection is maladaptive schemas questionnaire Yang (ysQ-3) (this questionnaire containing 90 items made by Yang that measure 18 domains of early maladaptive schemas. Each material

score with help of rating scale 6) that Yang, Norman, and Thomas reported the reliability of the questionnaire internal consistency and retesting on a sample of 564 college students from the US 0.95 and 0.81 respectively. In Iran Yousefi et al reported validity and reliability 18 maladaptive schema For all operating higher than 81 And for all questionnaires reported 0.91. In this study the reliability by Cronbach's for all agents (Other than operating unrelenting standards / extreme denunciation) obtained more than 0.51 and for the entire questionnaire obtained 0.96. The second survey is the difficulties of adjustment scale. This questionnaire is made by Graz, Veromer 2004 (according to the Aminian 2009). This 36-item questionnaire multidimensional is self-reports that evaluate the pattern of emotional regulation. Graz validity of the questionnaire 0.93 and its reliability is reported to Cronbach's alpha 0.80 in this Aminian (2009) and split-half reliability was calculated by Cronbach's alpha 0.86 and 0.80 respectively. In the present study in order to calculate the validity of emotion regulation questionnaire, Cronbach's alpha for the whole questionnaire questions and each of the subscales calculated, Cronbach's alpha for the total emotional regulation (0.941), respectively, that show relatively good internal questionnaire and its subscales emotional adjustment is difficult.

### Wisconsin Card Sorting Test (WCST)

In this study, with the short form base WCST and also used together Tips a number of studies have used a computerized version of the test (Such as research Tien et al (1996), Fallgatter and Strik (1998), Somsen et al., (2000), cakes and Nalsaky (2001), Kim et al (2001), Laurent et al. (2001), Wang et al (2001 and 2002) and Greve(2005), Pena and Larrea (2007), Nios and Barcelona, 2009), Test software structure Wisconsin (Iranian version) was designed with considering the validity of the differential context. The results showed, as expected, the average of all outcomes in the two groups is different. High anxiety group in the number of errors preservation, the number of errors other than errors preservation (Other errors), the total number of incorrect answers, total number of attempts, the number of failures to complete the first pattern and the number of failures in maintaining a highly significant sequence and in other cases less than low-anxiety group. The significant differences in outcomes between the two groups confirm the issue that made software has the ability to make a distinction between the two groups. To assess the reliability of a made application, the two main outputs of the two methods of internal consistency reliability (Cronbach alpha coefficient and half-a (split-half coefficient) were calculated. Table 1 indicates the desirable reliability of findings.

Table 1: The obtained reliability for the computer version

The main software reliability coefficients output	Cronbach's alpha coefficients	Split-half coefficient
The number of completed classes	73.0	83.0
The number of errors preservation	74.0	87.0

To keep it short and descriptive findings reported in the paper the demographic was skipped.

Data analysis in this study was done using statistical software SPSS19 this study used descriptive and inferential statistics to analyze the data. For assessing the descriptive statistics from metrics like average, standard deviation and frequency distribution table2 were used to show the data. Inferential statistics used to analyze the hypotheses and questions. To analyze the data, the methods of Cronbach's alpha coefficient, i-sequence test, and independent t test were used.

### Test Hypotheses

**Hypothesis 1: there is between the difficulty of trill regulation in patients with borderline personality (BPD) and patients with bipolar disorder (BIID).**

In order to assess the significance of differences between mean scores of difficulty in trill regulation in patients with borderline personality (BPD) and patients with bipolar disorder (BIID) According to the independent variable to the patient grouping on the difficulty adjusting emotionally dependent variable scores of the two groups t-test was used to compare mean results are presented in Table 2.

Table 2: Results of t-test to compare the difficulty of trill regulation in patients (BPD) and patients (BIID)

Variables	group	Number	Mean	standard deviation	T	df	significance
the difficulty of trill regulation	BPD	25	107.04	15.71	1.276	48	0.208
	BIID	25	98.48	29.63			

As Table 2 shows results according to the fact that calculated t ( $P > 0.05$ ,  $t(48)1.276$ ) in two groups of patients with borderline personality (BPD) and patients with bipolar disorder (BIID) in the level of

0.05 is not significant, so There is no significant difference between scores preservation in patients with borderline personality (BPD) and patients with bipolar disorder (BIID). So there is no significant

difference between difficulty of trill regulation in patients with borderline personality (BPD) and patients with bipolar disorder (BIID).

**The second hypothesis: there is between the schemas Inconsistent schemas in patients with borderline personality (BPD) and patients with bipolar disorder (BIID).**

In order to assess the significance of differences between mean scores of Inconsistent schemas in

patients with borderline personality (BPD) and patients with bipolar disorder (BIID) according to Contact Box of analysis of variance test of homogeneity of the variable (MANOVA) was used and instead to compare each of Inconsistent Schemas Patients in both groups independent t test to compare means each of the Schemas two groups was used, the results are presented in Table 3.

Table 3: Results of t-test to compare Schemas in patients with Inconsistent schemas (BPD) and patients (BIID)

Variables	group	Number	mean	standard deviation	t	df	significance
Emotional deprivation	BPD	25	4.16	1.16	3.130	48	0.003
	BIID	25	3.04	1.36			
Triggered	BPD	25	4.72	0.91	2.552	48	0.014
	BIID	25	3.89	1.35			
Distrust	BPD	25	3.70	1.55	2.387	48	0.021
	BIID	25	2.80	1.08			
Social isolation	BPD	25	3.05	1.04	-1.176	48	0.245
	BIID	25	3.42	1.17			
Shame and Defect	BPD	25	3.49	1.09	0.765	47	0.448
	BIID	25	3.32	1.19			
Failure	BPD	25	3.25	0.86	-0.215	48	0.831
	BIID	25	3.34	1.76			
Dependence	BPD	25	3.16	0.74	1.132	48	0.263
	BIID	25	2.81	1.39			
Vulnerability	BPD	24	2.11	0.75	-1.874	46	0.067
	BIID	24	2.70	1.35			
Involvement	BPD	24	2.88	1.34	0.007	46	0.995
	BIID	24	2.88	0.78			
Obedience	BPD	25	3.46	.87	0.043	47	0.966
	BIID	24	3.45	1.36			
Sacrifice	BPD	25	4.14	1.21	-0.532	48	0.597
	BIID	25	4.32	1.15			
Emotional inhibition	BPD	25	3.83	0.85	2.680	48	0.010
	BIID	25	3.21	0.79			
Strict criteria	BPD	25	4.15	0.79	0.379	47	0.706
	BIID	24	4.05	1.08			
Merit	BPD	24	3.86	1.18	-0.551	46	0.584
	BIID	24	4.05	1.23			
Continnence	BPD	25	4.46	1.00	2.232	48	0.030
	BIID	25	3.79	1.10			

As the result of Table3 shows according to the fact that calculated t for the number of Emotional deprivation schemas ( $P < 0.05$ ,  $t(48) = -3.13$ ), the number of Triggered ( $P < 0.05$ ,  $t(48) = 2.552$ ) and distrust ( $P < 0.05$ ,  $T(48) = 2.378$ ), and Emotional deprivation ( $P < 0.05$ ,  $T(48) = 2.680$ ) and continence ( $P < 0.05$ ,  $T(48) = 2.232$ ) in two groups of patients with borderline personality (BPD) and patients with bipolar disorder (BIID) at the level 0.05 is significant, thus, there is a significant difference between Emotional deprivation schemas score of Emotional deprivation,

Triggered, distrust, and continence in the in patients with borderline personality (BPD) and patients with bipolar disorder (BIID). Comparison of the two groups shows that the mean in patients with borderline personality (BPD) is higher than patients with bipolar disorder (BIID). So patients with borderline personality (BPD) in comparison to patients with bipolar disorder have more emotional deprivation, Triggered, distrust, and continence.

**The third hypothesis: there is between the executive function of planning in patients with**

### borderline personality (BPD) and patients with bipolar disorder (BIID).

In order to assess the significance of differences between executive function of planning in patients

with borderline personality (BPD) and patients with bipolar disorder (BIID) the mean score of the classes in two groups were compared with use of i-square test.

Table 4: the results of i-square for comparison of the mean of the classes in patients with (BPD) and patients with (BIID)

classes	BPD	BIID	i-sequence	Df	Significancy
0	4	2	3.450	4	0.486
1	7	3			
2	6	9			
3	7	9			
4	1	2			

As the result of Table 4 shows according to the fact that the calculated i-sequence ( $P < 0.05$ ,  $X^2(4) = 3.450$ ) in two groups of patients with borderline personality (BPD) and patients with bipolar disorder (BIID) at 0.05 is not significant, so there is no significant difference between frequency of selected classes in two groups of patients with borderline personality (BPD) and patients with bipolar disorder (BIID). It means between the executive functions of planning there is no significant difference in two groups of patients with borderline personality (BPD) and patients with bipolar disorder (BIID).

### Discussion and conclusion:

This study has been done with the purpose of comparison the difficulties of trill regulation, primary incompatible schemas and executive functions between bipolar disorder patient and borderline personality disorder, in this regard, three hypotheses were tested. According to the results of the first hypothesis, the patients with borderline personality disorder compared with patients with bipolar disorder debates are differences in emotion regulation, was confirmed. Impulse control or impulsivity problems is one of the main indicators of emotional regulation and this is an index for diagnosis of borderline DSM5 and trait impulsivity in bipolar patients seen between episodes of mood. (Swann and Dougherty, 2003), however, the period is more impulsive behavior inquisitive bipolar patients (Brown, 2002) and borderline personality disorder in the form of a feature is stable (Conkin and Bradley, 2006) and the proportion of patients with bipolar seen with more intensity (Brodly, 2006) and when the period is impulsivity in bipolar patients, we might expect that level in bipolar patients is less than people with borderline personality. It can also be more impulsive behavior, such as self-mutilation or other- mutilation was among people with borderline personality backfire the inability to control impulses is explanatory findings of this research which showed that people with borderline personality disorder rather

than bipolar patients had difficulty in goal-directed behavior the result is consistent with other research that could be associated with executive functions.

Another result of this study shows that people with borderline personality disorder face more problem than patients with bipolar in emotion regulation strategies. According to the bio-socio theory of linihan about borderline personality disorder from birth they born with an emotional sensitivity. This sensitivity leads to the tendency to experience negative emotions different contexts and situations of life which make difficult to learn strategies for emotion regulation. This defect in emotion regulation strategies probably leads to the individual tendency to abnormal behavior for managing and reducing negative emotions. The results showed that the second hypothesis, patients with borderline personality compared to bipolar patients have more inconsistent schemas. Based on the results, mean of primary maladaptive schemas other than social isolation, failure, and vulnerability, sacrifice and deserve, in borderline personality disorder is higher than bipolar disorder. In a conclusion, it can be said that the results of this study confirmed that borderline personality disorder endure more distracted negative beliefs (in relation to themselves and connect with others) compared to bipolar patient. Therefore, although maladaptive schemas that have been measured by YSQ-3, express the cognitive vulnerabilities pose in both disorders (BPD: Rasich et al. 2007, Zeigler - Hill and Abraham, 2006, Yang et al., 2010, Ball et al 2003); BD): Jones et al. 2005, Scott et al. 2000; Yang et al. 2003, Hawk et al., 2003). But according to the obtained results, cognitive vulnerabilities in borderline personality disorder are much stronger and clear. In explaining the issue that why schemas are raised borderline disorder can be noted that this scheme likely has a relationship with difficulties and distress (ie, dysfunctional beliefs and identity confusion) that have been found in borderline personality disorder (Butler et al., 2002, Jorgensen, 2009). Even it can say that schemas can place as one of the predictors in the



list for this disorder. Childhood environments that period as well as omissions (lack of early separations, disturbed family relationships, conflicts of intense communication between parents and child physical and sexual abuse) that cause the formation of early maladaptive schemas can explain the difference between these two disorders in maladaptive schemas (Linihan, 1993, Yang et al., 2010, Halvorsen and colleagues to the team, 2010, and Haghghatmanesh et al. 2010).

The results of third hypothesis test, there is a significant different between executive functions of border disorder and bipolar patients, was confirmed. Since that executive dysfunction in comparing studies of patients with healthy people these populations has been found, no research has directly compared patients with borderline personality disorder with bipolar directly, in this study the purpose was to compare these two groups in this area and there was no particular hypothesis according to executive functions. According to the research literature, indices correct categories, retained in place structures capable of operating errors and the errors to determine the WCST (Russell and David, 1998) and (Myland, 1963, quoting the Russa et al. 2000). According to the report, the insufficiency of dorsal - lateral prefrontal cortex (DLPFC) in patients with bipolar leads to reduce the number of corrects categories. Since the number of correct categories (which require problem-solving skills and needs organizing and its score to abstraction, the concept of strategic competences) limit Because of this insufficiency is limited (Lezzack, 2004).

In previous studies (meta-analysis Rako, 2005) Borderline personality disorder patients, it became clear that between the executive functions of two groups in two groups of the boundary and in the normal population, there are significant differences in measures of cognitive flexibility, attention, and processing. In this study (Liu, 2005), the study using brain vector illustration (MRI) showed that the patients suffering the border in the frontal lobe are experiencing a decline in performance. In this study, the high mean of correct responses, response time and percent of conceptual response rate among patients with bipolar compared to the disability of borderline patients can indicate that in frontal areas responsible for attention, more than areas that are stuck flexibility, involved in border disorder and so may be can communicate between attention deficit and studies that indicate the disability of borderline patients in recognizing emotional-mental states and behavioral outcomes that are anticipation of behaviors (Glenn and Glvnsky, 2009). Eventually, difficulties in emotion regulation and primary maladaptive schemas and executive functions in bipolar disorder compare to

the border disorder have more severely. These findings show these two disorders are more different to each other instead of being like each other. Overall, there is a no significant correlation between high levels of schemas and emotion regulation and finally insufficiency in executive functions with a particular combination of primary schemas and difficulties in emotion regulation can be associated with psychopathology and when faced with the difficulty of diagnosis, using the above components can be helpful.

And in the end I need to thank for good co-operation of gentlemen Mr. doctor Shariat, President of Iran Psychiatric Hospital, doctor Ahmed Khaniha, Deputy Education and Research Hospital and Mrs. doctor Nohe Serra, President of the Mehr section, Nurses and staff with good co-operation and valuable original play an important role in this study and achieve the desired results. And also, thank for Mrs. Doctor Golshani, Master Rahnama, and Mr. Doctor Mohammad Qadiri because of his valuable and grateful guildlines.

#### References

1. Hasani, Jaafar, Mir Aghai. Ali Mohammad (2012), the relationship between cognitive emotion regulation strategies with suicidal ideation, *Contemporary Psychology*, 7 (1), 72-61.
2. AbdollahiNasim (2013), the causal - structural relationship cognitive emotion regulation strategies set with symptoms of borderline personality and antisocial personality in non-clinical population, senior thesis in General Psychology - University of Tabriz.
3. Young, Jeffrey, Klosko, Jeannette, Vishar, Marjory (1950). *Schema Therapy (practical guide for clinicians)*, Translator: Hassan Hamid Pvrz·hra saving (1389) Tehran: Venerable.
4. Nilsonn-hoeksema, s, & schweizer, s (2010), emotion regulation strategies across psycho pathology – A meta analyticc rewiw, *clinical psychology review* 30/217-237.
5. Alilou. M, Ghsempour, 0A, Azimi, Z, Akbari, Fahmi. S. The role of emotional regulation strategies in predicting borderline personality traits, *Psychology Clinical in Behavior & Thought*. (2012).6(24).(Persian)
6. Ansari, A., Gharraee, B, & Kazerouni, A. P *Personality Disorders and Coping Strategies in Female Sex-workers. Iranian Journal of Psychiatry and ClinicalPsychology*,.2011; 171.71- 75. (Persian).
7. Black, W. D. Jess, G. F. (2010). borderline, bipolar, or both? Frame your diagnosis on the

- patient history. *Journal Current Psychiatry*. 2010; 9.1.
8. Borderline Personality Disorder: A Review. *Current Psychiatry Rep.* DOI.2013; 10.1007/s11920-012-0335-2
  9. Ozonoff, R. (1996). Nelson's Modified Card Sorting Test: A review. *The Clinical Neuropsychologist*, 10, 245–254.
  10. Eftekhari, A., Zoellner, L. A., & Vigil, S. A. Patterns of emotion regulation and psychopathology. *Anxiety, Stress, & Coping*, 2009; 22(5), 571-586.
  11. Gunderson, J., Weinberg, I., Daversa, M., Kueppenbender, K., Zanarini, M., Shea, M., & Dyck, I. Descriptive and longitudinal observations on the relationship of borderline personality disorder and bipolar disorder. *American Journal of Psychiatry*, 163(7). 2006; 1173-1178.
  12. Gvirtz HZ1, Braw Y2, Harari H1, Lozin M3, Bloch Y1, Fefer K1, Levkovitz Y4. (2014), Executive dysfunction in bipolar disorder and borderline personality disorder. *EurPsychiatry*. 2015 Nov; 30 (8):959-64. doi: 10. 1016/j.eurpsy. 2014. 12. 009. Epub 2015 Oct 21.
  13. Hasani. J. Psychometric properties of Cognitive Emotion Regulation Questionnaire. *Journal clinical psychology* (2010).3. (7). (Persian)
  14. Henry, C., Mitropoulou, V., New, A. S., Koenigsberg, H. W., Silverman, J., & Siever, L. J. Affective instability and impulsivity in borderline personality and bipolar II disorders: similarities and differences. *Journal of psychiatric research*. 2001; 35(6), 307-312.
  15. Grabieli, C.; & Graham, A. (2000). Measuring executive functions in childhood: Problems and solutions. *Child and Adolescent Mental Health*, 7, 131-172.
  16. Rusch, M. B.; & Rosselli, M. (2007). The Elusive Nature of Executive Functions: A Review of our Current Understanding. *Neuropsychology Review*, 17 (3), 213-233.
  17. Kathryn Fletcher; Gordon Parker; Adam Bayes; Amelia Paterson; Georgia McClure. (2014), Emotion regulation strategies in bipolar II disorder and borderline personality disorder: Differences and relationships with perceived parental style. ELSEVIER.
  18. Stantson, R. H.; Garland, S. A.; Ferrier, W. C.; Scheltens, P.; Witter, M. P.; & Uylings, H. B. (2000). Visualizing brain activation during planning: The tower of London test adapted for functional MR imaging. *American Journal of Neuroradiology*, 21, 1407–1414.
  19. Manee, F. M. Emotion Derogulation in Individuals with Risky Sexual Behaviors and Normal people. *Journal of Mazandaran University of Medical Sciences (JMUMS)*. 2014; 23 (109). (Persian)
  20. Reeves, M. T. C.; & Taylor, L. (2007). Right frontal event related EEG coherence (ERCoh) differentiates good from bad performers of the Wisconsin Card Sorting Test (WCST). *Clinical Neurophysiology*, 37, 63-75.
  21. Ruggero, C. J., Zimmerman, M., Chelminski, I., Young, D. Borderline personality disorder and the misdiagnosis of bipolar disorder. *Journal of psychiatric research*, 2010; 44(6), 405-408.
  22. Jones, D. W.; Pearlson, G. D.; Schlaepfer, T. E.; & Strauss, M. E. (2005). Computerized Wisconsin Card Sorting Test: comparison with manual administration. *Journal Medical of Science*, 12, 479-485.
  23. Wagner, G.; Kock, K.; Reichenbach, J.; Sauer, H.; & Schlosser, R. (2002). The special involvement of the rostrolateral prefrontal cortex in planning abilities: An event related fMRI study with the Tower of London paradigm. *Neuropsychologia*, 44, 2337–2347.