The Relationship between Major Depressive Disorder and Personality Traits

Sara Bensaeed, MSc[1]
Atefeh Ghanbari Jolfaei, MD[2]
Farhad Jomehri, PhD[3]
Alireza Moradi, PhD[4]

1 Azad University, Tehran Iran
2 Department of psychiatry Iran university of medical sciences, Minimally Invasive surgery Research Center, Tehran, Iran,
3 Department of psychology, Allameh Tabatabaii University, Tehran, Iran
4 Department of psychology Tarbiyat Moalem University, Tehran, Iran

Corresponding author:
Atefeh Ghanbari Jolfaei, MD
Department of psychiatry, Iran University of medical sciences, Rasoul Akram Hospital, Niayesh St. Tehran, Iran.
Tel: 0098-21-66551515
Email: draghj@yahoo.com

Objective: The aim of this study was to compare the clinical temperaments and characters of Iranian patients with Major Depressive Disorder (MDD) with healthy controls

Method: The study participants included 47 outpatients with Major Depressive Disorder (MDD) and 120 normal controls with no psychiatric disorders. Sampling method was convenience. The MDD patients were diagnosed as MDD by a psychiatrist using the Persian structured clinical interview for axis I disorders (SCID-I), and they completed at least 8 weeks of antidepressant treatment. All the patients filled out the Persian version of the Temperament and Character Inventory (TCI). Data were analyzed using SPSS version 17, Chi square, T test and Multiple Regression. The level of significance was set at 5%.

Results: The present study demonstrates a link between depression and lower persistence ($p \leq 0.001$), self-directedness ($p \leq 0.001$) and cooperativeness ($p \leq 0.001$) scores. A negative correlation between age and Harm Avoidance ($p \leq 0.001$) was observed in both groups .

Conclusion: Lower scores of persistence (P), self-directedness (SD) and cooperativeness (CO) were observed in patients with depression more than controls even in the remission phase which could indicate a relationship between these traits and depression.

Keywords: *Major Depressive Disorder, Personality Traits, Temperament and Character Inventory*

According to the psychobiological model of personality developed by Cloninger (1-3) temperament and character are two essential concepts in describing personality .

Temperament is defined as the heritable and relatively constant and long-lasting trait leading to emotion-based and conditioned behavioral responses, which is seen early in life(4).

Character is described as a secondary emotion which reflects beliefs, judgments, logical thinking and abstraction (4).

There are four temperament dimensions: novelty seeking (NS), harm avoidance (HA), reward dependence (RD) and persistence (P); and there are three character dimensions: self-directedness (SD), cooperativeness (C) and self-transcendence (ST).

Novelty Seeking (NS) is defined as a strong desire to approach novelty. NS is characterized by impulsivity, irritability, overspending and having high- risk behaviors. Harm avoidance (HA) refers to an inhibition of behavior in response to hazards and frustrations and is characterized by fatigability, pessimism, fearfulness and shyness. Reward Dependence (RD) is identified as a bias in the maintenance of behaviors in reaction to cues of social reward. RD is concurrent with openness and

sentimentality. The last temperament dimension, Persistence (P), reflects a tendency to be perseverant despite frustration and fatigue and intermittent reinforcement. Persistent people are perfectionist, hard-working and resolute (5-8).

Self-directedness (SD) refers to self –competence and having self-sufficiency in dealing with situations. Cooperativeness (CO) is viewed as the ability to be tolerant, compassionate and empathetic. Self-transcendence (ST) refers to spirituality, acquiesce, transpersonal identification and being insightful. (5-8).

After Cloninger et al. (1994) theorized that some of the character and temperament dimensions make people vulnerable to depression, a large number of studies have been carried out to address personality traits in patients with major depression. In 1995, Young et al, (9) mentioned that high scores of HA may make people susceptible to both major depressive disorder (MDD) and bipolar disorder. Lott (10) and Svrakic (11) reported that high scores of SD and C are more common in patients with mood disorders and some studies even showed that temperament may influence response rate to antidepressant treatments in patients with major depression (12-14). Furthermore co-morbid psychiatric disorders affect prognosis, course,

adjustment, compliance and treatment response in MDD patients (15, 16, 17).

According to Mohammadi et al. (18), lifetime prevalence of Major Depressive Disorder in Iran (MDD) was 3.1%. As long as social factors and cultural background influence both of the disorders, findings in one country could not be generalized to other countries without cautious considerations (19, 20).

However, researches about personality traits of Iranian patients with depression- using TCI are fairly rare. Researches on subjects with MDD in countries other than western countries could be helpful in identifying the similarities and differences of features and comorbidities of MDD between different nationalities. As a result, the present study was conducted to compare the clinical temperaments and characters of patients with MDD with a group of controls in the Iranian society.

Material and Methods
Subjects
The study participants included 47 outpatients with MDD and 120 normal control subjects with no current or past psychiatric disorders. The patients' group was selected through convenience sampling. The MDD patients were consecutively admitted to the outpatient clinic of Iran psychiatric hospital (a university affiliated hospital in Tehran, Iran) and were diagnosed as MDD by a psychiatrist based on the Persian structured clinical interview for axis I disorders (SCID-I). To reduce the possible bias effect of severity of depression on the personality scores, we ensured that the participants completed at least 8 weeks of antidepressant treatment and were at least in the partial remission phase. Being in remission was approved by a psychiatrist using the Persian structured clinical interview for axis I disorders (SCID-I), which assessed the persistence and severity of symptoms of depression in the last month. On the score sheet such a subjects condition was coded 3 for lifetime MDD, but 1 for "meets criteria past month" and in chronology section "in partial remission" was coded.

Age of 18-55, sufficient education (at least fifth grade), no comorbidities of other psychiatric disorders, at least 8 weeks of antidepressant treatment and being in the remission phase were the inclusion criteria for the patients' group .

The control group was chosen from family members of outpatients (not the patients who were enrolled to this study) of Iran psychiatric hospital .

Age of 18-55, sufficient education (at least fifth grade), no current or past history of psychiatric disorders and psychiatric treatment were the inclusion criteria for the control group. Current or past history of psychiatric disorders in controls was evaluated using SCID. A written informed consent was obtained from all the participants, and they were reassured that they could

drop out of the research at any time and this decision would not affect their treatment.

Instruments
The Persian Structured Clinical Interview for Axis I Disorders (SCID-I): It was used as a diagnostic tool for MDD in the patients' group and for R/O of psychiatric disorders in the control group. SCID-I is a diagnostic tool which can be administered by a clinician and is based on Diagnostic Statistical Manual of Mental Disorders, Fourth Version, revised (DSM-IV-TR); its validity and reliability have been established on a large sample of Iranian patients (20).

Temperament and Character Inventory (TCI)-125, a 125-item self-report, true-false questionnaire, was developed by Cloninger (6) to measure the dimensions of temperament and character and it has acceptable validity and reliability on a large sample of Iranian patients (21). It is a paper-and-pencil test and takes 20 to 30 minutes to administer.

Data Analysis
Data were analyzed using SPSS version 17. Chi square was used to compare the demographic factors between the two groups and t test was used to compare the mean of personality scales between the two groups. Multiple regressions were used to learn more about the relationship between variables .The level of significance was set at 5%.

Result

There were 17(36.17%) and 60(50%) men (p<o.o1) in the patient and control groups, respectively. Demographic characteristics are shown in Table 1.

Only educational status and gender were statistically different between the two groups .

The mean scores for each of the four temperament dimensions and three character dimensions are demonstrated in Table 2 .

Depressed participants presented statistically significant lower scores for persistence, self-directedness and cooperativeness as compared to controls. Compared to controls, NA scores were lower and HA and RD scores were higher in the patients' group; however, the difference was not statistically significant. Demographic characteristics did not have a significant correlation with temperaments and characters other than age and harm avoidance. There was a negative correlation between age and HA in the both groups.

Table1. Characteristics patients with Juvenile Myoclonic Epilepsy (JME) and control cases

Variable	Group of control	Group of MDD patients	P value	df
Gender				
Male	60(50)	17(36.17)	<o.o1	1
Female	60(50)	30(63.83)		
Occupational status				
Unemployed	20 (16.7)	9(19.1)		
Self- employed	18 (15)	7(14.9)	0.508	6
Clerk	62 (51.7)	10(21.3)		
House-keeper	20 (16.7)	21(44.7)		
Educational status				
<Diploma	19 (15.8)	19(40.4)		
Diploma	64 (53.3)	18(38.3)	<0.001	6
BS/BA	33 (27.5)	10(21.3)		
MS/MA	4 (3.3)	0		
MARITAL STATUS				
Married	70 (58.3)	35(74.5)	0.269	4
Single	50 (41.7)	12(25.5)		
Age (mean) ±SD	32.04±9.38	34.47±10.93	0.310	6

Table 2: Comparison of mean of personality scales between depress patients and controls

		M	MAX	MIN	Std. deviation	T	df	P value	Adjusted P value for Gender	Adjusted P value for Education
Novelty Seeking(NS)	Normal	8.91	17	2	3.44	1.77	165	0.77	0.64	0.83
	MDD	7.87	13	7	3.24					
Harm Avoidance(HA)	Normal	9.23	22	1	3.99	1.41	165	0.162	0.45	0.69
	MDD	10.13	19	3	2.94					
Reward dependence(RD)	Normal	7.97	20	2	2.33	1.69	165	0.092	0.52	0.31
	MDD	8.62	12	3	1.96					
Persistence(P)	Normal	2.94	5	0	1.41	4.66	165	0.001	0.27	0.66
	MDD	1.89	4	0	0.98					
Self Directedness (SD)	Normal	13.93	25	3	4.6	3.19	165	0.001	0.49	0.72
	MDD	11.47	19	4	4.16					
Self transcendence (ST)	Normal	9.49	20	0	3.52	0.46	165	0.64	0.33	0.18
	MDD	9.74	14	5	2.11					
Cooperativeness (CO)	Normal	17.29	24	9	3.4	4.75	165	0.001	0.48	0.75
	MDD	15.34	18	8	2.38					

Discussion

In the present study, depressed patients displayed lower P, SD and CO scores compared to the controls. Previous studies also showed that SD and CO scores are lower in patients with depression (22-25) .

In a review article by Kampman and Poutanen, it was found that contrary to novelty seeking and reward dependence, which did not have a positive association with depressive state, harm avoidance score was elevated during depressive state and was decreased after treatment with antidepressants (26); and there was a significant association between harm avoidance scores and the severity of depression (27) .

In a study, Mulder and Joyce (28) demonstrated the role of antidepressant treatment in lowering HA scores. They reported a significant decrease in HA scores after six weeks of antidepressant treatment in depressive participants. They concluded that HA is state-dependent in depression and that depressive state potentiates personality dimensions such as fatigability, pessimism, fearfulness and shyness. Therefore according to preliminary studies HA is state-dependent

in depression. In the present study, we did not compare the personality traits of the participants before and after the treatment, but according to the fact that the sample of this study had received an antidepressant treatment for at least 8 weeks and were in the remission phase when they were recruited to participate in the study, it could be hypothesized that controlling the severity of depression was the reason of not finding any significant difference between depressed patients and controls in HA .

We did not find any significant differences between depressed patients in the remission phase and the control group in NS and RD too; this is in agreement with the finding of the study carried out by Kampman and Poutanen (26). In addition, some studies showed that low RD and low or even high NS scores were related to the severity of depression and low RD and low NS scores were concomitant with episodes of depression and the score changed after remission (27, 29-33).Accordingly, it could be supposed that these dimensions are also state-dependent not trait-dependent because in this majority of studies Mean RD and NS scores decreased significantly in MDD after treatment,

but in current depressive episodes remained lower than RD and NS scores in control subjects.

Coherent with Western studies, the rate of low persistence was higher in Iranian patients with depression than the control group even after decreasing the severity of depression (31, 32). It may be possible that due to learned helplessness depressed patients are less determined in following their interests and goals. It is also possible that due to lack of optimal decision-making strategy, perseverance and diligence, people with lower scores in this dimension of personality are more prone to experience hopelessness or helplessness in facing obstacles and frustrations. Moreover, like other studies, we found that SD is associated with depression (31, 34- 36), and this finding supports the idea that inadequacy in adaptation, coping behaviors, problem-solving and using resources are predisposing factors for depression. However the possibility of a 'scarring effect' of depressive episodes on self-reported personality dimension scores cannot be excluded

These findings are considerable and could lead to designing more researches to clarify the relationship of P and SD with depression and to develop suitable preventive and treatment programs for the general population and patients with depression.

However, the diversity of results (which could be due to different study methodologies such as different size of samples, divergent types of sampling, variety of socio-demographic attributes of subjects, difference in severity of depression) confirms that the relationship between personality and depression is extremely complicated and that decreasing the effect of all the confounding variables is very challenging. However, by choosing specified including criteria and a control group, we tried to control the confounding factors to some extent.

It should be mentioned that experiencing depressive symptoms could affect self-reporting of the personality traits even in inter- episode recovery. For example, depression may decrease the probability of self-conception of SD and on the other hand may intensify the self-administration of HA (25). Besides, we should mention the importance of differences in personality traits of different samples. For instance, it was reported that comparing to Americans, Finns have higher scores in NS and HA and lower scores in RD and P (37).

In this study, in both groups, only NS had a significant correlation with age which is congruent with other studies that had reported NS decreased as people aged (38, 39) .

We did not evaluate depression severity with a scale and that is the limitation of this study.

Measuring personality dimensions of depressed patients through the episodes of depression and inter episode recovery in a long-term cohort study may clarify the relationship between these two issues.

Conclusion

This study showed the higher rates of low P, SD and CO scores in Iranian patients with depression which could indicate a relationship between these personality traits and characters and depression, although further studies are required to investigate this possibility.

Acknowledgment

References

1. Cloninger CR. A unified biosocial theory of personality and its role in the development of anxiety states. Psychiatr Dev 1986; 4: 167-226.
2. Cloninger CR. A systematic method for clinical description and classification of personality variants. A proposal. Arch Gen Psychiatry 1987; 44: 573-588.
3. 3-Cloninger CR. The genetics and psychobiology of the seven-factor model of personality. In: Silk KR. Editor, Biology of personality disorders. Washington DC: American Psychiatric Pub; 1998.
4. Sadock BJ, Sadock VA. Comprehensive text book of psychiatry. Philadelphia: Lippincott Williams and Wilkins; 2009.
5. Cloninger CR, Przybeck TR, Svrakic DM. The Tridimensional Personality Questionnaire: U.S. normative data. Psychol Rep 1991; 69: 1047-1057.
6. C.Cloninger,T. Przybeck,D.Svrakic," The temperament and character inventory (TCI): A guide to its development and use: St. Washington: Center for Psychobiology of Personality, Washington University; 1994.
7. Cloninger CR, Svrakic DM , Przybeck TR. A psychobiological model of temperament and character. Arch Gen Psychiatry 1993; 50: 975-990.
8. 8-Sadock BJ, Sadock VA. Comprehensive text book of psychiatry. Philadelphia: Lippincott Williams and Wilkins; 2009.
9. 9- Young LT, Bagby RM, Cooke RG, Parker JD, Levitt AJ , Joffe RT. A comparison of Tridimensional Personality Questionnaire dimensions in bipolar disorder and unipolar depression. Psychiatry Res 1995; 58: 139-143.
10. Lott VM, Dunner DL. Depression and axis II disorders: comorbidity and relationship to cooperativeness. Depress Anxiety 1996; 4: 268-272.
11. Svrakic DM, Whitehead C, Przybeck TR, Cloninger CR. Differential diagnosis of personality disorders by the seven-factor model of temperament and character. Arch Gen Psychiatry 1993; 50: 991-999.
12. Joyce PR, Mulder RT, Cloninger CR. Temperament predicts clomipramine and

desipramine response in major depression. J Affect Disord 1994; 30: 35-46.

13. Nelson E, Cloninger CR. Exploring the TPQ as a possible predictor of antidepressant response to nefazodone in a large multi-site study. J Affect Disord 1997; 44: 197-200.

14. Sato T, Hirano S, Narita T, Kusunoki K, Kato J, Goto M, et al. Temperament and character inventory dimensions as a predictor of response to antidepressant treatment in major depression. J Affect Disord 1999; 56: 153-161.

15. Rosenström T, Jylhä, P, Cloninger, CR, Hintsanen M, Elovainio M, Mantere O, Isometsä. Temperament and character traits predict future burden of depression. J Affective Disorders 2014.

16. Rodríguez-Cano T, Beato-Fernandez L, Rojo-Moreno L, & Vaz-Leal F J. The role of temperament and character in the outcome of depressive mood in eating disorders. Comprehensive Psychiatry 2014.

17. de Aguiar Ferreira A, Vasconcelos A G, Neves FS, Correa H. Affective temperaments and antidepressant response in the clinical management of mood disorders. J affective disorders 2013.

18. Mohammadi MR, Ghanizadeh H, Noorbala AA, Davidian H, Malek Afzali AA, Naghavi HR. Prevalence of mood disorders in Iran. Iran J Psychiatry 2006; 1: 59-64.

19. McCrae, R. R., & Allik, I. The five-factor model of personality across cultures. Springer; 2002. p.7-22

20. Sharifi V, Assadi SM, Mohammadi MR, Amini H, Kaviani H, Semnani Y, et al. A Persian translation of the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition: psychometric properties. Compr Psychiatry 2009; 50: 86-91.

21. Kaviani H, Poornaseh M. (validity and reliability of Cloninger's Temperament and Character Inventory (TCI) in the Iranian population (Persian)). Tehran University of Medical Sciences Journal of Medicine 2005; 63: 89-98.

22. Black KJ, Sheline YI. Personality disorder scores improve with effective pharmacotherapy of depression. J Affect Disord 1997; 43: 11-18.

23. Hansenne M, Reggers J, Pinto E, Kjiri K, Ajamier A, Ansseau M. Temperament and character inventory (TCI) and depression. J Psychiatr Res 1999; 33: 31-36.

24. 24- Matsudaira T, Kitamura T. Personality traits as risk factors of depression and anxiety among Japanese students. J Clin Psychol 2006; 62: 97-109.

25. Smith DJ, Duffy L, Stewart ME, Muir WJ, Blackwood DH. High harm avoidance and low self-directedness in euthymic young adults with recurrent, early-onset depression. J Affect Disord 2005; 87: 83-89.

26. Kampman O, Poutanen O. Can onset and recovery in depression be predicted by temperament? A systematic review and meta-analysis. J Affect Disord 2011; 135: 20-27.

27. Celikel FC, Kose S, Cumurcu BE, Erkorkmaz U, Sayar K, Borckardt JJ, et al. Cloninger's temperament and character dimensions of personality in patients with major depressive disorder. Compr Psychiatry 2009; 50: 556-561.

28. Mulder RT, Joyce PR. Relationships of the Tridimensional Personality Questionnaire to mood and personality measures for depressed patients. Psychol Rep 1994; 75: 1315-1325.

29. Jurado D, Gurpegui M, Moreno O, Fernandez MC, Luna JD , Galvez R. Association of personality and work conditions with depressive symptoms. Eur Psychiatry 2005; 20: 213-222.

30. Jylha P, Isometsa E. Temperament, character and symptoms of anxiety and depression in the general population. Eur Psychiatry 2006; 21: 389-395.

31. Matsudaira T, Kitamura T. Personality traits as risk factors of depression and anxiety among Japanese students. J Clin Psychol 2006; 62: 97-109.

32. Peirson AR, Heuchert JW. The relationship between personality and mood: comparison of the BDI and the TCI. Personality and Individual Differences 2001: 30; 391-399.

33. Grucza RA, Przybeck TR, Spitznagel EL , Cloninger CR. Personality and depressive symptoms: a multi-dimensional analysis. J Affect Disord 2003; 74: 123-130.

34. Hirano S, Sato T, Narita T, Kusunoki K, Ozaki N, Kimura S, et al. Evaluating the state dependency of the Temperament and Character Inventory dimensions in patients with major depression: a methodological contribution. J Affect Disord 2002; 69: 31-38.

35. Hansenne M, Reggers J, Pinto E, Kjiri K, Ajamier A, Ansseau M. Temperament and character inventory (TCI) and depression. J Psychiatr Res 1999; 33: 31-36.

36. Farmer A, Mahmood A, Redman K, Harris T, Sadler S , McGuffin P. A sib-pair study of the Temperament and Character Inventory scales in major depression. Arch Gen Psychiatry 2003; 60: 490-496.

37. Miettunen J, Veijola J, Lauronen E, Kantojarvi L, Joukamaa M. Sex differences in Cloninger's temperament dimensions--a meta-analysis. Compr Psychiatry 2007; 48: 161-169.

38. Cloninger CR, Przybeck TR, Svrakic DM. The Tridimensional Personality Questionnaire: U.S. normative data. Psychol Rep 1991; 69: 1047-1057.

39. Lepine JP, Pelissolo A, Teodorescu R, Teherani M. (Evaluation of the psychometric properties of the French version of the Tridimensional Personality Questionnaire (TPQ)). Encephale 1994; 20: 747-753.