

# Character and Temperament Dimensions in Subjects with Depressive Disorder: Impact of the Affective State on Their Expression

Stojan Bajraktarov<sup>1\*</sup>, Antoni Novotni<sup>1</sup>, Slavica Arsova<sup>1</sup>, Dance Gudeva-Nikovska<sup>2</sup>, Viktorija Vujovik<sup>1</sup>

<sup>1</sup>University Clinic of Psychiatry, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia; <sup>2</sup>Ministry of Health, Global Fund, Skopje, Republic of Macedonia

## Abstract

**Citation:** Bajraktarov S, Novotni A, Arsova S, Gudeva-Nikovska D, Vujovik V. Character and Temperament Dimensions in Subjects with Depressive Disorder: Impact of the Affective State on Their Expression. *Open Access Maced J Med Sci.* 2017 Mar 15; 5(1):64-67. <https://doi.org/10.3889/oamjms.2017.012>

**Keywords:** personality traits; temperament; character; depression; mood disorders.

**\*Correspondence:** Stojan Bajraktarov, University Clinic of Psychiatry, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia. E-mail: [stojan.bajraktarov@gmail.com](mailto:stojan.bajraktarov@gmail.com)

**Received:** 29-Dec-2016; **Revised:** 31-Jan-2017; **Accepted:** 01-Feb-2017; **Online first:** 07-Feb-2017

**Copyright:** © 2017 Stojan Bajraktarov, Antoni Novotni, Slavica Arsova, Dance Gudeva-Nikovska, Viktorija Vujovik. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0).

**Funding:** This research did not receive any financial support.

**Competing Interests:** The authors have declared that no competing interests exist.

**BACKGROUND:** The depression is a cross-cultural condition that occurs in all cultures and within all nations with certain specificities, even though there are some differences in its manifestation. The hereditary load is of major importance, but also the individual personality factors, in the form of risk factors, are associated with the occurrence of depression. Personality characteristics have a significant impact on the occurrence of the recurrent depressive disorder and the outcome of the treatment as well.

**AIM:** To identify the specific personality traits in people with the recurrent depressive disorder and the impact of the affective state on them.

**METHODS:** Three questionnaires were used: a general questionnaire, Beck's scale of depressive symptoms, and TCI-R (inventory for temperament and character).

**RESULTS:** The most indicative differences in the dimensions are found in the Harm avoidance and the Self-direction dimensions, and most variable dimensions dependent on effective state are Novelty seeking and Reward dependence.

**CONCLUSION:** The people with the recurrent depressive disorder have a different profile of personality traits (temperament and character) compared with the control group, and their characteristics depend on their current affective state.

## Introduction

Cloninger has created a theory of personality as a biopsychosocial model of temperament and character, which is derived out of biological, neurophysiologic, genetic and psychological studies [1, 2]. It describes the relationship between the biogenetic structure of personality and the mental disorders. Cloninger showed that the phenotypic personality structure might differ from the biogenetic structure, i.e. the impact of the behaviour as a result of the genotypic and environmental impacts. The main features of personality are temperament and characters dimensions.

While the temperament is largely genetically determined and configures automatic behavioural responses, the character develops during the ontogenetic with a major affection of the social factors and it delineates the cognitive processes of sensory perception and emotions that are oriented by temperament.

The temperament reflects the biological and the inherited features, and the character reflects the social and cultural contribution of the person. The role of the main functions of the person is to integrate the cognitive and the emotional features regarding adequate social functioning [3]. It is accepted that a personality plays an important role not only in the maintaining of well-being but also in the development of psychopathological conditions [4, 5].

The temperament is largely genetically determined and configures automatic behavioural responses. It consists of four hereditary dimensions that are visible from the early childhood and includes procedural and unconscious learning. They are identified as Novelty seeking (NS); Harm avoidance (HA); Reward dependence (RD); and Persistence (P).

The NS is a system of behaviour associated with activation by dopamine as their neurotransmitter. NS is expressed as a tendency toward excitement, curiosity, enthusiasm and impulsiveness. HA is a system of behaviour associated with inhibition with GABA and serotonin neurotransmitters. HA is a tendency associated with cautiousness, tension, irritability and pessimism. RD system is a system associated with serotonin and norepinephrine as its neurotransmitters. RD is a tendency to a sensitivity of warmth, sensibility, dependence and conviviality. P is a system of active behaviour in spite of the fatigue and the frustration, with glutamate and serotonin as its neurotransmitter [2].

The Character develops during ontogenesis with a great influence from the social factors. The character regulates the cognitive processes of the sensory perception and emotions that are targeted by the temperament. It consists of the following dimensions: Self-directedness (SD); Cooperativeness (CO); and Self-transcendence (ST).

These dimensions are determined more by the environment than they are inherited. The SD refers to identification with the autonomous self and ability for the solution of situations by the individual goals and values. The CO indicates the extent to which the individuals perceive other people as part of the self. The ST corresponds to the identification with a unity of all things in the world [2]. Each of these dimensions consists of dimensions of a lower order, i.e. sub-dimensions.

### ***Relation of the temperament dimensions and the character with the depressive disorder***

The personality model according to the Cloninger is quite adequate for clinical use, as in the assessing the risk processes of incidence of a depressive disorder and also in the process of planning an appropriate anti - depression treatment [6]. Several studies demonstrate that a high HA is associated with an onset of a depressive disorder, and the inherited vulnerability to depression is associated with a high HA and a low SD [7-9].

There is evidence that in the depression patients with an HA dimension, it remains elevated when compared to healthy controls during a remission [10, 11]. Farmer identifies RD together with the HS as factors that reduce the risk of major depression [12].

The main goal of this work is to determine the

personality traits in people with the recurrent depressive disorder, as well as the impact of the affective state on these same features.

## **Methods**

### ***Research Instruments***

Three questionnaires were used in this research: (1) A general questionnaire; (2) Beck's depressive symptoms questionnaire - second edition (BDI-II; Beck et al., 1996) [13, 14]; and (3) TCI - Inventory for temperament and character [15].

### ***Time frame and research location***

This research was conducted at the University Psychiatric Clinic - Skopje within a period of six months as a "case-control" study.

### ***Experimental group (EG)***

Twenty people diagnosed with the recurrent depressive disorder, with a score over 19.

### ***Control group (CG)***

Twenty psychologically healthy individuals were included as control group.

## **Results**

Regarding the general questionnaire, the results for similar demographic determinants are obtained in both groups.

The results of the logistic regression show that the gender of the screened population is a significant predictor for the occurrence of the recurrent depressive disorder, with an incidence of more than 1.9 times in women than in men (OR = 0.902,  $p = 0.045$ ) (Table 1).

The marital status is associated with the appearance of recurrent depressive disorder, by 1.5 times more likelihood among divorced respondents (OR = 1.563,  $p = 0.035$ ). The likelihood of recurrent depressive disorder is 4.23 times higher among respondents who live alone (OR = 4.230,  $p = 0.042$ ) and 5.2 times higher among respondents who have marked the marital status as "other" (OR = 5.221,  $p = 0.032$ ) (Table 1).

**Table 1: Results of logistic regression of demographic data as predictors for the occurrence of depressive disorder**

	S.E.	Wald	p	OR	95% C.I.	
					Lower	Upper
<b>Gender</b>				1		
Male						
Female	0.361	0.115	0.047*	0.884	0.0436	0.896
<b>Education</b>				1		
University degree		2.616	0.455			
High school degree	0.392	2.420	0.120	1.840	0.854	3.966
Elementary school degree	0.523	0.859	0.354	1.624	0.582	4.530
Without education	2842.722	6.309	0.999	4.363	0.000	5.213
<b>Marital status</b>				1		
Married		4.894	0.298			
Divorced	0.482	0.858	0.035	1.563	0.608	4.017
Partner	0.574	1.816	0.178	2.168	0.703	6.685
Single	0.711	4.119	0.042	4.230	1.051	17.028
Other	1.602	1.065	0.032	5.221	0.226	120.535
<b>Employment status</b>				1		
Employed		12.810	0.330			
Unemployed	0.411	0.947	0.005	1.492	0.667	3.340
Retired	0.646	10.117	0.001	7.815	2.201	27.742
Social support	0.791	4.427	0.035	5.277	1.121	24.850
<b>Habitat (Live with)</b>				1		
Spouse		14.956	0.292			
Partner	0.525	10.870	0.001	0.177	0.063	0.495
Family	0.552	12.811	0.000	0.139	0.047	0.409
Friends	1761.405	0.000	0.999	2.063	0.000	-
Alone	1.319	1.108	0.005	2.249	0.019	3.308
Constant	0.354	0.203	0.653	1.173		

Regarding the personality features, the following results are confirmed (Table 2):

NS - is with a medium value of  $93.40 \pm 5.54$  SD before treatment,  $96.23 \pm 6.02$  SD after treatment, CG medium score is  $104.70 \pm 6.95$  SD - a statistically significant difference.

HA - Highly statistically significant differences for HA with values before the treatment ( $113.39 \pm 15.10$  SD), after the treatment  $106.30 \pm 7.47$  SD and CG ( $93.71 \pm 9.01$  SD).

**Table 2: Personality characteristics**

Characteristic	Group	Mean $\pm$ SD	p
Novelty Seeking (NS)	EG1*	$93.40 \pm 5.54$ SD	0.004
	EG2	$96.23 \pm 6.02$ SD	
	CG	$104.70 \pm 6.66$ SD	
Harm Avoidance (HA)	EG1	$113.39 \pm 15.10$ SD	0.001
	EG2	$106.30 \pm 7.47$ SD	
	CG	$93.71 \pm 9.01$ SD	
Reward Dependence (RD)	EG1	$99.14 \pm 6.10$ SD	0.008
	EG2	$101.97 \pm 6.52$ SD	
	CG	$105.97 \pm 6.06$ SD	
Persistence (P)	EG1	$114.42 \pm 9.49$ SD	0.126
	EG2	$116.83 \pm 10.64$ SD	
	CG	$117.18 \pm 10.77$ SD	
Self - Directedness (SD)	EG1	$122.45 \pm 7.13$ SD	0.001
	EG2	$137.75 \pm 8.49$ SD	
	CG	$141.87 \pm 8.62$ SD	
Cooperativeness (CO)	EG1	$124.50 \pm 8.09$ SD	0.095
	EG2	$127.30 \pm 7.55$ SD	
	CG	$128.38 \pm 7.71$ SD	
Self -Transcendence (ST)	EG1	$73.84 \pm 5.35$ SD	0.223
	EG2	$71.54 \pm 6.56$ SD	
	CG	$71.32 \pm 7.60$ SD	

\*, EG1 = Experimental Group (time 1); EG2 = Experimental Group (time 2); CG = Control Group. Time 1 - At the beginning of antidepressant treatment; Time 2 - After 3 month's antidepressant treatment.

RD - Statistically significant differences were found in RD,  $99.14 \pm 6.10$  SD before treatment,  $101.97 \pm 6.52$  SD after treatment and the highest average of  $105.97 \pm 6.06$  SD respondents from CG.

P - Statistically significant difference between the groups has not been found for the values of P: before treatment ( $114.42 \pm 10.46$  SD)  $116.83 \pm 10.64$  SD after treatment, at the respondents from the CG

( $117.18 \pm 10.15$  SD) and  $p = 0.126$ .

SD - Highly statistically significant SD of all five components:  $122.45 \pm 7.13$  SD before treatment  $137.75 \pm 8.49$  SD after treatment, and at the CG ( $141.87 \pm 8.62$  SD).

CO - The difference between the average values is not statistically significant for the feature C:  $124.50 \pm 8.09$  SD before the treatment,  $127.30 \pm 7.55$  SD after the treatment and  $128.38 \pm 7.71$  SD in CG ( $p = 0.095$ ).

ST - not determined statistically significant differences in the total number of CT: before treatment  $73.84 \pm 5.35$  SD after treatment  $71.54 \pm 6.56$  SD and at the CG ( $71.32 \pm 7.60$  SD) ( $p = 0.223$ ).

## Discussion

According to the obtained results, it is evident that most of the personality dimensions are variable during the antidepressant treatment, i.e. that the affective state has a strong influence on their expression. Behaviour that is marked by high scores of the dimension 'Harm avoidance' is typical for people who suffer from depression, with exceptionally high scores during the depressive episode but also during its remission. On another hand, lower scores on the 'Self-direction' dimension are also typical for people with depression, and although the scores after the depressive episode are rising, yet it remains with a significant difference compared to the CG.

Also, the scores of the other personality dimensions 'Novelty Seeking' and 'Reward Dependence' are with significant changes regarding the affective state of the respondents, i.e. during the depressive episode, as well as after it, with converging values to the ones of the CG [10, 17]. These results confirmed also throughout many other international types of research, put the high values of these features in a group of significant protective factors for the appearance of a depressive disorder [16]. In other words, the people with high levels of 'Novelty Seeking' and 'Reward Dependence', are with a lower risk of developing a depressive symptomatology [18].

According to Cloninger, as well as many other researchers, the changes to certain dimensions have specificity for the depressive disorder, i.e. the change trends are typical for the people who suffer from depression [6]. It primarily refers to the features of HA and of the SD. The features of the person may have common grounds with the depression features, i.e. they may be predisposing factors for them to have an impact on the recurrent episodes of the illness, as well as to the changes in the clinical picture of the disease

[19, 20]. These features should not be considered independently, but their interaction should always be acknowledged and their mutual influence with the other personality features. The characteristics of a person can be grounds for the emergence of depressive disorder, i.e. they may be predisposing factors for them to have an impact on the recurrent episodes of illness, as well as changes in the clinical picture of the disease. And our study confirms the findings of many scientific studies have found that personality characteristics influence the expressions of symptoms, and vice versa, they are dependent on the characteristics of episodes of depressive disorder [21, 22]. Regarding socio-economic aspects of respondents in experimental group before and after treatment as compared to the control group, the conclusion is that they have the great mutual influence to the emergence of depression and, conversely, the impact of the depressive disorder on socioeconomic parameters of respondents. Taking into consideration these outcomes, recommendations can be made for practical application of the received results regarding individualised therapy solutions, which would be with a higher expected success percentage.

In conclusion, people with depressive disorder have specific differences in personality dimensions; the specific personality dimensions of the temperament and the character are variables depending on the affective state of the individuals; the high levels of HA and the low of SD are the most specific characteristics for individuals with depressive disorder, which are moderately variable throughout the depressive episodes; RD and NS are dependent affective dimensions, with significant variability during the depressive episodes, i.e. with similar features like the ones of the control group after the treatment; P, CO and ST are the least variables dependent on the affective state during the depressive episodes; according to the established variability of the personality features in the people with a recurrent depressive disorder, the following researchers shall be focused on the practical application of these findings to improve the individualized therapeutic approach.

## References

1. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. *Archives of General Psychiatry*. 1993;50(12):975–990. <https://doi.org/10.1001/archpsyc.1993.01820240059008> PMID:8250684
2. Cloninger CR & Svrakic DM. Personality disorders 1723-1764. In: Kaplan and Sadock's Comprehensive Textbook of Psychiatry, Sadock BJ, Sadock VA (eds). Williams and Wilkins, Philadelphia: Lippincott, 2000.
3. Cloninger CR, Svrakic NM, Svrakic DM. Role of personality self-organization in development of mental order and disorder. *Development and Psychopathology*. 1997;9(4):881–906. <https://doi.org/10.1017/S095457949700148X> PMID:9449010
4. Friedman M. Type A Behavior: Its Diagnosis and Treatment. New York, Plenum Press (Kluwer Academic Press), 1996:pp. 31.
5. Temoshok L. Personality, Coping Style, Emotion, and Cancer. Towards an Integrative Model. *Cancer Surveys*. 1987;6:545–567. PMID:3326661
6. Cloninger CR, Svrakic DM, Przybeck TR. Can personality assessment predict future depression? A twelve-month followup of 631 subjects. *J Affect Disord*. 2006;92: 35–44. <https://doi.org/10.1016/j.jad.2005.12.034> PMID:16442638
7. Abrams KY, Yune SK, Kim SJ, Jeon HJ, Han SO, Hwang J, et al. Trait and state aspects of harm avoidance and its implication for treatment in major depressive disorder, dysthymic disorder, and depressive personality disorder. *Psychiatry Clin Neurosci*. 2004;58(3): 240–248. <https://doi.org/10.1111/j.1440-1819.2004.01226.x> PMID:15149288
8. Jylhä P & Isometsä E. Temperament, character and symptoms of anxiety and depression in the general population. *Eur Psychiatry*. 2006;21: 389–395. <https://doi.org/10.1016/j.eurpsy.2005.09.003> PMID:16360306
9. Hruby R, Nosalova G, Ondrejka I, Preiss M. Personality changes during antidepressant treatment. *Psychiatr Danub*. 2009;21(1): 25–32. PMID:19270618
10. Richter J, Eisemann M, Richter G. Temperament and character during the course of unipolar depression among patients. *Eur Arch Psychiatr Clin Neurosci*. 200;250: 40–47.
11. Abrams KY, Yune SK, Kim SJ, Jeon HJ, Han SO, Hwang J, et al. Trait and state aspects of harm avoidance and its implication for treatment in major depressive disorder, dysthymic disorder, and depressive personality disorder. *Psychiatry Clin Neurosci*. 2004;58(3): 240–248. <https://doi.org/10.1111/j.1440-1819.2004.01226.x> PMID:15149288
12. 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(5):490–496. <https://doi.org/10.1001/archpsyc.60.5.490> PMID:12742870
13. Beck AT. *Depression: Causes and Treatment*. Philadelphia: University of Pennsylvania Press, 1972.
14. Beck AT, Steer RA, Garbin MG. Psychometric properties of the Beck Depression Inventory: twenty-five years later. *Clinical Psychology Review*, 1988;8: 77-100.
15. Cloninger CR. *The temperament and character inventory (TCI): A guide to its development and use*. St. Louis, MO: Center for Psychobiology of Personality, Washington University, 1994.
16. Shea MT, Yen S. Personality traits/disorders and depression: A summary of conceptual and empirical findings. In M Rosenbluth, S Kennedy, MR Bagby (Eds). *Personality and Depression: Conceptual and Clinical Challenges*. Washington, DC: American Psychiatric Publishing, 2005: pp 43-64.
17. Stedenfeld KA, Clinton SM, Kerman IA, Akil H, Watson SJ, Sved AF. Novelty-Seeking Behavior Predicts Vulnerability in a Rodent Model of Depression. *Physiology & Behavior*. 2011;103(2):210-216. <https://doi.org/10.1016/j.physbeh.2011.02.001> PMID:21303678 PMID:PMC3925672
18. Sato T, Narita T, Hirano S, Kusunoki K, Goto M, Sakado K, et al. Factor validity of the Temperament and Character Inventory in patients with major depression. *Compr Psychiatry*. 2001;42:337-41. <https://doi.org/10.1053/comp.2001.24587> PMID:11458309
19. Hansenne M, Reggers J, Pinto E, Kjiri K, Ajamier A, Ansseau MA. Temperament and character inventory (TCI) and depression. *J Psychiatr Res*. 1999;33:31–36. [https://doi.org/10.1016/S0022-3956\(98\)00036-3](https://doi.org/10.1016/S0022-3956(98)00036-3)
20. Matsudaira T, Kitamura T. Personality traits as risk factors of depression and anxiety among Japanese students. *J Clin Psychol*. 2006;62:97–109. <https://doi.org/10.1002/jclp.20215> PMID:16287151
21. Personality traits/disorders and depression: A summary of conceptual and empirical findings. Shea, M. Tracie; Yen, Shirley Rosenbluth, Michael (Ed); Kennedy, Sidney H. (Ed); Bagby, R. Michael (Ed). (2005). *Depression and personality: Conceptual and clinical challenges*, 2005:pp. 43-64.
22. Brandes M, Bienvenu OJ. Personality and anxiety disorders. *Curr Psychiatry Rep*. 2006;8(4):263-9. <https://doi.org/10.1007/s11920-006-0061-8> PMID:16879789