

## Affective Temperaments in Patients with Irritable Colons: A Suspicious Relationship

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### Abstract

**Objective:** There is a growing literature about the relationship between irritable colon and psychiatric symptoms. However, to the best of our knowledge, research is limited regarding the relationship between irritable bowel syndrome (IBS) and affective temperaments that are precursors of mood disorders. The aim of this study was, therefore, to investigate whether there is a relationship between affective temperaments and IBS.

**Methods:** This study included 57 patients with irritable colon and 57 healthy controls. Irritable colon was evaluated according to the ROME III criteria. All participants in both groups were given a structured interview for DSM-IV Axis I disorders, and those with any active psychiatric disorder were excluded.

**Results:** Irritable colon patients had significantly higher scores of depressive, anxious and irritable temperaments than healthy controls with a student's t-test. Depressive temperament was related to age and lower education level ( $p < 0.05$ ). Anxious temperament was only related with occupational status of the participant. Belonging to an IBS group or control group did not have a significant effect on scores regarding affective temperaments, according to covariance analysis.

**Conclusion:** There is relationship between affective temperaments and IBS. Lower education level, being unemployed and elder age is risky for higher scores of affective temperaments. A larger sample size may be helpful to define the detailed relationship between affective temperaments and IBS.

**Keywords:** Affective temperaments; Anxious; Depressive; Irritable bowel syndrome

### Introduction

Irritable bowel syndrome (IBS) is a chronic, continuous or intermittent illness characterised by frequent and unexplained symptoms that include abdominal pain, bloating and bowel disturbance [1]. It is one of the most common gastrointestinal (GI) dysfunction [2,3] with a prevalence of 8-22% in the general population [3-5]. Although a number of biological reasons have been proposed for the onset of IBS [6-8], it has also been thought that psychological factors play an important role in IBS onset and progress [9]. It is shown that patients with IBS have higher levels of depression, anxiety and neuroticism compared to those without IBS [10,11]. Various studies have shown that as many as 30-40% of patients with IBS have comorbid depression or anxiety disorders [12,13]. It has also been reported that patients who come to medical attention tend to have a greater number of psychiatric symptoms [14] and are more anxious and depressed [15]. Results of the recent studies show that specific affective temperament types (depressive, cyclothymic, hyperthymic, irritable and anxious) are the sub-syndromal (trait-related) manifestations and commonly the antecedents of minor and major mood disorders. Non-psychiatric branches even seek a common root for temperament as in psychiatric and somatic disorders, providing a new meaning for the construct of psychosomatic disorders [16]. Up to 20% of the population has been reported to have some kind of marked affective temperament, and molecular genetic studies show a strong involvement of the central serotonergic (depressive, cyclothymic, irritable and anxious temperaments) and dopaminergic (hyperthymic temperament) systems, suggesting that the genetic potential of major mood episodes lies in these temperaments [17]. While there is a growing number of studies on the relationship between irritable colon and psychiatric disorders, as well as on the relationship between affective temperaments and organic diseases, to our knowledge, the relationship between

IBS and affective temperaments has not yet been investigated. But a relationship between affective temperaments and irritable colon may open a way to understand etiological mechanisms of both conditions. Also knowing the risk groups for affective disorders as having higher scores in some affective temperament may help to manage the risks. The aim of this study was to investigate whether a relationship between affective temperaments and IBS exists and if there is find the related factors with this co-occurrence.

### Methods

This study is conducted at Sakarya University Medical Faculty (Turkey) with the collaboration of Department of Gastroenterology and Department of Psychiatry. This is a sectional and descriptive study. The university's ethics committee approved the study, and all participants gave their written consent.

### Sampling

Consecutive 150 patients who were aged between 18 and 65; followed by gastroenterology outpatient clinic with the diagnosis of IBS for at least six months were evaluated according to the Rome III criteria again and after being ensured about the accuracy of the diagnosis they are asked to participate a study with a psychiatric examination.

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140 of them accepted the examination and all of them are evaluated with SCID-CV for DSM-IV (the last version of structured diagnosis guide in Turkish). All patients also completed a socio-demographic data form. 39 of 140 patients had active psychiatric diagnosis so they were excluded from the study. 101 patients were asked to participate to the further examination with self report questionnaires; 83 of them accepted to stay in the study and fulfil the questionnaires (TEMPS-A). 5 of the patients had difficulty to understand the questions in the text and one patient was diagnosed with multiple sclerosis so they were excluded from the study too. 77 patients fulfilled questionnaires but at the final evaluation it is seen that some of the patients did not check all of the answers completely or checked two answers simultaneously for one question. So misfulfilled questionnaires are excluded from the study (n:20). Finally 57 patients with IBS but not with any psychiatric diagnosis were included the study. For control group; 60 participants from hospital staff and their friends who declare that they do not have psychiatric diagnosis are asked to participate to the study. They were also evaluated with SCID-I-CV and 3 of them had active psychiatric diagnosis so they were excluded from the study too. Finally the study involved 57 patients with irritable colon and 57 healthy controls.

### Socio-demographic data form

This was prepared by the authors and included data about age, gender, marital status, education level, type of irritable colon and duration of illness.

### Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and Structured Clinical Interview for DSM-IV Axis I Disorders, Clinical Version (SCID-CV)

The SCID-I is a semi-structured interview chart of DSM-IV diagnoses for which Çorapçıoğlu et al. provided a Turkish translation and validity-reliability testing. The SCID-I begins with a socio-demographic data guide and covers seven diagnostic groups: mood, psychotic, alcohol and substance-related, anxiety, somatoform, eating and adjustment disorders. It has a high reliability for psychiatric disorders and is used as a standard interview to confirm diagnoses in clinical studies [18,19].

### Turkish Form of Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto-questionnaire (TEMPS-A)

The TEMPS-A was used in this study to assess the score averages of the subtypes of the affective temperaments of the participants. It was originally designed by Akiskal et al. [20], and it was adopted into Turkish by Vahip [21]. It is a self-assessment scale, involving 'true' or 'false' indications that aim to take into account the entire life of the individual. It consists of five sub-dimensions that establish depressive, cyclothymic, hyperthymic, irritable and anxious temperament.

### Rome III criteria for irritable bowel syndrome

The Rome criteria is a system developed by the Rome Foundation to classify functional gastrointestinal disorders (FGIDs), disorders of the digestive system in which symptoms cannot be explained by the presence of structural or tissue abnormality, based on clinical symptoms [22]. Diagnosis of a functional bowel disorder (FBD) requires characteristic symptoms during the previous three months and onset >or=6 months previously. Alarming symptoms suggest the possibility of structural disease, but do not necessarily negate a diagnosis of an FBD. Irritable bowel syndrome (IBS), functional bloating, functional constipation and functional diarrhoea are best identified by symptom-

based approaches. Subtyping of IBS is controversial, and we suggest it be based on stool form, which can be identified using the Bristol Stool Form Scale. Diagnostic testing should be guided by the patient's age, primary symptom characteristics and other clinical and laboratory features [23]. Turkish validity and reliability of the Rome III criteria were established by Özgürsoy et al. [24].

### Results

The study involved 57 patients with irritable colon and 57 healthy controls. There was no difference between the groups in terms of gender and marital status, though the irritable colon group had significantly higher age and lower education level (p<0.05). Sociodemographic data of IBS and control groups are given in Table 1.

In IBS group; 7 patients had diarrheic type, 36 patients had constipation type and 14 had mixed type of IBS. The duration for IBS was 8.70 ± 8.42 years (6 months to 30 years).

### Comparison of the groups

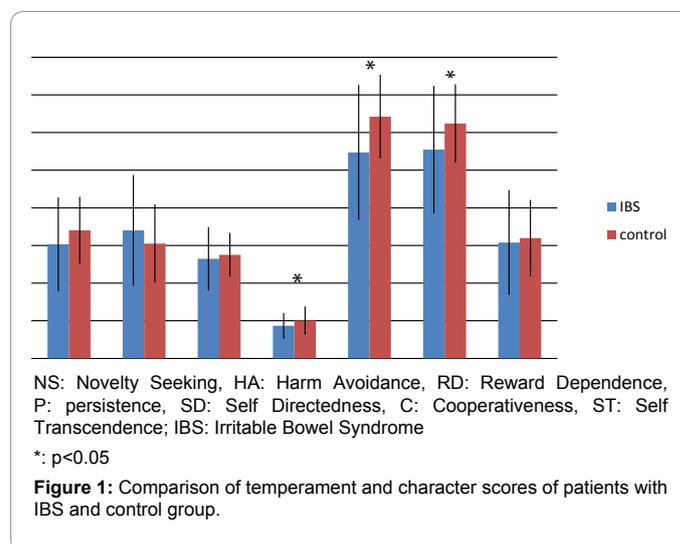
Irritable colon patients had significantly higher scores of depressive, anxious and irritable temperaments than healthy controls with the student's t test (Figure 1).

### Socio-demographical variables

**Age:** Age of the patient was positively correlated with affective temperament (r:0.461, p<0.05).

	IBS	Control
Gender	19 male	23 male
	38 female	34 female
Age	41.22 ± 9.23	36.03 ± 7.67
Marital status	10 single	10 single,
	44 married	45 married
	3 divorced	2 divorced
Education	24 primary	3 primary
	25 high school	19 highschool
	8 university	35 university
Occupation	25 employed	52 employed
	32 unemployed	5 employed

Table 1: IBS: Irritable Bowel Syndrome



**Gender, marital status and education:** Levels are evaluated in IBS patients and they did not have a relationship with affective temperaments in the IBS group.

**Occupation:** There was a significant difference between control group and IBS group according to the occupational status of the patients. So affective temperaments are only analysed for IBS group for occupational status. The affective temperament scores of employed patients and unemployed ones are compared. Anxious temperament scores were higher in unemployed patients with irritable colon than employed ones ( $p < 0.05$ ).

### Clinical correlates

**Duration of IBS:** No correlation was found between duration of illness and affective temperaments. **Type of IBS** (constipation, diarrhoea, mixed): One way ANOVA analysis is conducted to find if there is a difference between affective temperament scores according to irritable colon. The results are analysed for each temperament separately and there was no significant difference in affective temperament scores between groups according to irritable colon type.

### Covariance analysis

IBS group and control group were similar in gender and marital status, but there were significant differences between groups in age and education level ( $p > 0.05$ ). In addition, occupation was found to be related to anxious temperament. Thus, a covariance analysis (ANCOVA) was conducted to eliminate the probable confounding effects of age, education level and occupation level. Depressive temperament was related to age and education level ( $p < 0.05$ ). Anxious temperament was only related to occupation of the participant. Belonging to the IBS group or control group did not have a significant role in affective temperaments, according to covariance analysis.

### Discussion

This study investigated the temperament and character traits of patients with IBS who had higher scores of depressive, irritable and anxious temperaments. In covariance analyses, these higher scores were only related to the older age, lower education level and employment status of patients. The major finding of the study is the relationship between affective temperaments and IBS according to the student's t test. Serotonin (5-HT) is one of the most abundant neurotransmitter molecules in the gastrointestinal tract. It is stored in the secretory granules of enterochromaffin (EC) cells in the enteric nervous system, and its release is believed to be responsible for eliciting appetite regulation, gut motility and visceral sensitivity. Abnormal levels and activity of 5-HT have been reported in functional gastrointestinal disorders, such as functional dyspepsia and IBS [25]. The 5-HT<sub>2A</sub> receptor subunit A (5-HTR<sub>2A</sub>) is believed to play a significant role in the genesis of various neuropsychiatric diseases. 5-HTR<sub>2A</sub> has been reported to be responsible for regulating the perception of abdominal pain and smooth muscle contraction in the gastrointestinal tract [26,27]. Affective temperaments are shown to be an inherited, strong association between the s allele of the 5HTTLPR, and affective temperaments were reported. In that study, these temperaments were suggested to be regarded as proximate behavioural endophenotypes [28]. This is a descriptive and sectional study so this study did not investigate a genetic polymorphism, but the results of the study suggest a common etiological model. Serotonin is the first order to be investigated as a common mediator for affective temperaments and IBS, according to the literature. During the statistical analysis process, results of this study initially suggested a strong relationship between

IBS and affective temperaments, according to the student's t test, but in further stages of statistical analysis as covariance analysis. IBS assigned its importance to other variables such as age, education level and occupation of the patient. Affective temperaments are accepted to be inherited, but negative life experiences and chronic illnesses [16,29] are shown to have a relationship to affective temperament. In addition, socio-demographic variables like education level, occupational status and age are shown to be related to affective temperaments, as in this study and other studies as well as gender and marital status in other studies [17]. There might be a two-sided relationship between socio-demographic data and affective temperaments, so two-sided views may help obtain a better understanding. In the first view, people with particular affective temperaments tend to have particular conditions. According to the other view, people with particular conditions tend to have particular affective temperaments by age. In this study, anxious temperament was related to being unemployed. A previous study showed that people with anxious temperament may have difficulties in coping with job stress [30], so they may tend to stay unemployed. Alternatively, unemployed people may perceive joblessness as a stressful life event and become anxious because of it [30]. The results of this study suggest that other socio-demographic variables such as older age and lower educational level are risk factors for higher scores of affective temperaments. Lower education level was related to depressive temperament according to this study's results. The same two-sided view would be valid for the relationship between education and depressive temperament. People with higher education levels are shown to develop appropriately adaptive coping styles [31]. We can hope that patients with IBS may develop better coping styles to deal with their stress of having a chronic disease if they are encouraged to have higher levels of education. Age is another predictor for depressive temperament. These data suggest we pay extra attention to elderly patients with IBS who are at risk for depressive temperament and, consequently, at risk for depression [16]. This study has several limitations. It has a small sample size and the control group is not well-matched. The covariance analysis was conducted trying to eliminate the limitations derived from control group. Surely results of this study needs replication by new studies and also common aetiology of IBS and affective temperaments should be investigated.

### Conclusion

This study could not present a direct, strong relationship between irritable colon and affective temperaments but provided important data about the affective temperaments of patients with IBS and their socio-demographic correlates. Patients with IBS should be encouraged to have employment and higher levels of education. Older patients with IBS are at risk for depressive temperaments, so patients with these risk properties should be double-checked for psychiatric traits.

### Conflict of Interest

The authors declare no conflict of interest regarding this study.

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### References

1. Corney RH, Stanton R (1990) Physical symptom severity, psychological and social dysfunction in a series of outpatients with irritable bowel syndrome. *J Psychosom Res* 34: 483-91.
2. Talley NJ, Zinsmeister AR, Van Dyke C, Melton LJ (1991) 3rd. Epidemiology of colonic symptoms and the irritable bowel syndrome. *Gastroenterology* 101: 927-34.

3. Jones R, Lydeard S (1992) Irritable bowel syndrome in the general population. *BMJ (Clinical research ed)* 304: 87-90.
4. Saito YA, Locke GR, Talley NJ, Zinsmeister AR, Fett SL, et al. (2000) A comparison of the Rome and Manning criteria for case identification in epidemiological investigations of irritable bowel syndrome. *The American journal of gastroenterology* 95: 2816-24.
5. Talley NJ, Weaver AL, Zinsmeister AR, Melton LJ (1992) Onset and disappearance of gastrointestinal symptoms and functional gastrointestinal disorders. *American journal of epidemiology* 136: 165-77.
6. Malinen E, Rinttila T, Kajander K, Matto J, Kassinen A, et al. (2005) Analysis of the fecal microbiota of irritable bowel syndrome patients and healthy controls with real-time PCR. *The American journal of gastroenterology* 100: 373-82.
7. Neal KR, Hebden J, Spiller R (1997) Prevalence of gastrointestinal symptoms six months after bacterial gastroenteritis and risk factors for development of the irritable bowel syndrome: postal survey of patients. *BMJ (Clinical research ed)* 314: 779-82.
8. Si JM, Yu YC, Fan YJ, Chen SJ (2004) Intestinal microecology and quality of life in irritable bowel syndrome patients. *World j gastroenterol* : WJG 10: 1802-5.
9. Kleinman A, Kleinman J (1985) Somatisation: The interconnectedness in Chinese society among culture, depressive experiences and meaning of pain. In: Kleinman A, editor. *Culture and Depression Studies in the Anthropology of Cross Culture Psychiatry of Affect and Disorder*. London: University of California Press 429-90.
10. Koloski NA, Talley NJ, Boyce PM (2002) Epidemiology and health care seeking in the functional GI disorders: a population-based study. *The American journal of gastroenterology* 97: 2290-9.
11. Locke GR, 3rd, Weaver AL, Melton LJ, Talley NJ (2004) Psychosocial factors are linked to functional gastrointestinal disorders: a population based nested case-control study. *The American journal of gastroenterology* 99: 350-7.
12. Lydiard RB, Falsetti SA (1999) Experience with anxiety and depression treatment studies: implications for designing irritable bowel syndrome clinical trials. *American j med* 107: 65S-73S.
13. Tollefson GD, Tollefson SL, Pederson M, Luxenberg M, Dunsmore G (1991) Comorbid Irritable Bowel Syndrome in Patients with Generalized Anxiety and Major Depression. *Annals of Clinical Psychiatry* 3: 215-20.
14. Heaton KW, O'Donnell LJ, Braddon FE, Mountford RA, Hughes AO, et al. (1992) Symptoms of irritable bowel syndrome in a British urban community: consultants and nonconsulters. *Gastroenterology* 102: 1962-7.
15. Masand PS, Kaplan DS, Gupta S, Bhandary AN, Nasra GS, et al. (1995) Major depression and irritable bowel syndrome: is there a relationship? *J clin psychiatry* 56: 363-7.
16. Eory A, Gonda X, Torzsa P, Kalabay L, Rihmer Z (2011) [Affective temperaments: from neurobiological roots to clinical application]. *Orvosi hetilap* 152: 1879-86.
17. Rihmer Z, Akiskal KK, Rihmer A, Akiskal HS (2010) Current research on affective temperaments. *Current Opinion in Psychiatry* 23:12-8.
18. First MB, Spitzer RL, Gibbon M, Williams JBW (1996) *Structured Clinical Interview for DSM-IV Clinical Version (SCID-I/CV)*. Washington, D.C: American Psychiatric Press, Inc.
19. Corapçioğlu A, Aydemir Ö, Yıldız M, Esen A, Köroğlu E (1999) DSM-IV Eksen-I Bozuklukları İçin Yapılandırılmış Klinik Görüşme. Ankara: Hekimler Yayın Birliği.
20. Akiskal HS, Akiskal KK, Haykal RF, Manning JS, Connor PD (2005) TEMPS-A: progress towards validation of a self-rated clinical version of the Temperament Evaluation of the Memphis, Pisa, Paris, and San Diego Autoquestionnaire. *J affect disord* 85: 3-16.
21. Vahip S, Kesebir S, Alkan M, Yazici O, Akiskal KK, et al. (2005) Affective temperaments in clinically-well subjects in Turkey: initial psychometric data on the TEMPS-A. *J affect disord* 85: 113-25.
22. Pickard M (2006) *Rome III Disorders and Criteria*. Rome Foundation.
23. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, et al. (2006) Functional bowel disorders. *Gastroenterology* 130: 1480-91.
24. Özgürsoy Uran BN, Vardar R, Karadakovan A, Bor S (2014) The Turkish version of the Rome III criteria for IBS is valid and reliable. *The Turkish journal of gastroenterology : the official journal of Turkish Society of Gastroenterology* 25: 386-92.
25. Cheung CK, Wu JC (2014) Genetic polymorphism in pathogenesis of irritable bowel syndrome. *World journal of gastroenterology* : WJG 20: 17693-8.
26. Tokunaga A, Saika M, Senba E (1998) 5-HT<sub>2A</sub> receptor subtype is involved in the thermal hyperalgesic mechanism of serotonin in the periphery. *Pain* 76: 349-55.
27. Kim DY, Camilleri M (2000) Serotonin: a mediator of the brain-gut connection. *Am j gastroenterology* 95: 2698-709.
28. Gonda X, Rihmer Z, Zsombok T, Bagdy G, Akiskal KK, et al. (2006) The 5HTTLPR polymorphism of the serotonin transporter gene is associated with affective temperaments as measured by TEMPS-A. *J affect disord* 91:125-31.
29. Yazici E, Yazici AB, Aydın N, Varoğlu AO, Kirpınar I (2012) Affective temperaments in epilepsy. *BCP* 22: 254-61.
30. Tei-Tominaga M, Akiyama T, Miyake Y, Sakai Y (2009) The relationship between temperament, job stress and overcommitment: a cross-sectional study using the TEMPS-A and a scale of ERI. *Industrial health* 47: 509-17.
31. Huang CY, Lai HL, Lu YC, Chen WK, Chi SC, et al. (2015) Risk Factors and Coping Style Affect Health Outcomes in Adults With Type 2 Diabetes. *Biological research for nursing*.