

The relationship between affective temperament and suicide attempt, clinical history and current subclinical symptoms in bipolar disorder.

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Abstract

Background: Affective temperament may strongly influence psychopathological characteristics in mood disorders such as clinical course of major or minor affective episodes, predominant polarity, clinical symptoms, long term clinical course, suicidality, and response/adherence to medication.

Objective: The objective of this work is evaluate the association between affective temperament and clinical characteristics in bipolar disorder (BD) patients.

Method: 88 euthymic bipolar patients were evaluated through *Hamilton Depression Scale* (HAM-D), *Young Mania Rating Scale* (YMRS), *Clinical Global Impressions Scale for use in bipolar illness* (CGI-BP), and TEMPS-Rio de Janeiro. Identification, sociodemographic data, and clinical information as age on disease onset, number of manic episodes, number of depressive episodes, polarity of first affective episode, and history of suicidal attempts, if any, from each patient were collected.

Results: Our results founded that high scores in cyclothymic, irritable, depressive and anxious temperaments were associated with at least one suicide attempt. Higher scores of anxious temperament were associated with depressive polarity in the first episode of the disease as well as higher amount of manic episodes. Higher scores of hyperthymic temperament were associated with manic polarity in the first episode of the disease. Higher scores of depressive temperament were associated with higher scores in total HAM-D and specifically with higher scores in items 1 and 2 of HAM-D, i.e., depressive mood and guilt. No correlation was found between temperament and intensity of subsyndromal manic symptoms.

Conclusion: We concluded that affective temperaments in BD are associated with history of suicide attempts, seem to influence polarity of first episode and that depressive temperament seems to relate to more intense subsyndromal depressive symptoms, especially depressive mood and guilt.

Keywords: affective temperament, bipolar disorder, suicide.

Introduction

Temperament may be defined as the fundamental affective attitude, the emotional soundtrack that precedes experience and leads to it ¹. Temperaments have been studied since ancient Greece. Hippocrates's humoral theory, further developed by Galen, related the four humors to four types of temperament: sanguine (blood), choleric (yellow bile), melancholic (black bile) and phlegmatic (phlegm). Based on those concepts Emil Kraepelin described four basic affective dispositions – depressive, manic, cyclothymic and irritable – and proposed that imbalance among those was the fundamental cause of the several mental disorders.

For Kraepelin, the four basic affective temperaments were subclinical variations of the manic-depressive insanity, partially equivalent to the current mood disorders – bipolar disorder (BD) and major depressive disorder. Moreover, such basic temperaments

were characteristics not only of patients suffering from manic-depressive insanity, but were also present in their blood relatives ¹. Both Kraepelin and Ernst Kretschmer believed that affective temperaments could predispose to endogenous psychosis, i.e., schizophrenia and manic-depressive insanity. Kretschmer nevertheless postulated that the presence of a dominant temperament was a variation of normal affectivity and that could or not lead to mental illness ².

Kraepelin's ideas on basic affective dispositions lately inspired Cloninger's and Akiskal's works. Despite conceptual and methodological differences in their production, both authors have tried to establish a specificity relationship between each individual's temperament and the several types of mood disorders. Cloninger identified four dimensions of temperaments (harm avoidance,

novelty seeking, reward dependence and persistence) and later suggested they corresponded to those of the classic kraepelinian approach ³.

Akiskal hypothesized a psychopathological continuum between temperament and affective disorders ^{4,5} redefining the kraepelinian concept of basic states and introducing the notion of “bipolar spectrum” ⁴. This spectrum would encompass recurrent depressive disorder, dysthymia as well as depressive, hyperthymic and cyclothymic temperaments, including mixed states, hypomania, BD II and BD I. Akiskal (1996) ⁶ states that temperament imbalance is the fundamental pathology in mood disorders and reflects a higher predisposition for the development of affective disorders.

More recent studies suggest that instruments that evaluate affective temperaments may be proper tools to identify vulnerability to mood disorders. Moreover, research have focused more specifically on the association between temperament and psychopathological

characteristics of affective disorders such as clinical course of major or minor affective episodes, predominant polarity, clinical symptomatology, long term clinical course, suicidality and response/adherence to medication ⁷⁻¹².

Individuals with hyperthymic temperament would, based on those ideas, evolve into a condition with more manic symptoms, disease onset with manic episode and fewer attempts at suicide. And those with depressive temperament would develop a state with more depressive symptoms and episodes, disease onset with depressive episode and more attempts at suicide. The objective of the present study is evaluating the relationship between affective temperament and clinical characteristics in BD patients.

Methods

Sample

This study was performed at the research clinic of the Institute of

Psychiatry of the Federal University of Rio de Janeiro (Instituto de Psiquiatria da Universidade Federal do Rio de Janeiro – UFRJ), Brazil, between July 2014 and June 2015. Inclusion criteria were diagnosis of

Identification and sociodemographic data from each patient – gender, age, educational level – were registered besides clinical variables such as age of onset, number of manic episodes, number of depressive episodes, polarity of first episode and history of suicidal attempts, if any. A psychiatrist evaluated each patient according to DSM-5 criteria and those who did not meet the criteria for manic episode or major depressive episode were considered euthymic. Patient evaluations were performed by four previously trained psychiatrists for the application of instruments. Each patient was evaluated by a psychiatrist.

Hamilton Depression Scale (HAM-D) ¹³, *Young Mania Rating Scale* (YMRS) ¹⁴, *Clinical Global Impressions Scale for use in bipolar illness* (CGI-BP) ¹⁵ and TEMPS-Rio de Janeiro were applied to patients.

bipolar disorder type I or type II, being euthymic, 18 years of age or older, and written informed consent. This study was approved by the local Ethics Committee.

Clinical assessment

TEMPS-Rio de Janeiro consists of shorter questionnaire for the evaluation of affective temperaments based on Temperament Evaluation of Memphis, Pisa, Paris, and San Diego – TEMPS ¹⁶, but adapted to Brazilian Portuguese ¹⁷. It is a self-rated questionnaire composed of 45 true or false questions and allows classification of patients in six types: depressive, cyclothymic, hyperthymic, irritable, anxious or worrying.

Statistical Analysis

Descriptive statistics were used to illustrate sample characteristics. Pearson's correlations or point-biserial correlations (in the case of gender) were used to explore the relationship between affective temperament and demographic variables.

To investigate the relationship between affective temperament and previous suicide attempt, the sample was split into two (no attempts vs. previous attempts) and independent samples t-tests were used. The same test was used to explore if affective temperament was different

The relationship between subclinical symptoms of mania and depression and affective temperament was explored with Spearman rho correlations between scores in each item of the HAM-D and YMRS and in the TEMPS subscales, respecting the ordinal characteristic of the mood scales. For the association between affective temperament and total HAM-D and YMRS scores, Pearson's correlations were calculated. Spearman rho correlations investigated the association between illness severity and temperament. In order to correct for multiple testing and avoid inflation of Type I error, while also considering the exploratory nature of

for patients who had a first episode of mania or depression. Pearson's correlations were used to test the association among age of onset, number of previous episodes of mania and depression with affective temperament.

the analyses, α was set at .01 for all correlational analyses.

Results

Sample characteristics and associations between demographic variables and affective temperament

A total of 88 BD patients in euthymic mood were included in the current study. A description of demographic and clinical characteristics of the sample can be seen in Table 1. There were no significant correlations between demographic variables and affective temperament ($p > .01$).

Table 1 – Demographic and clinical characteristics of the sample

	BD patients (n = 88)
	Mean (SD) / Range
Age	45.2 (13.8), 19–76
Gender (# Female / Male)	55/33
Years of education	11.3 (4.0), 0–18
HAM-D total	1.9 (2.1), 0–9
YMRS total	1.5 (2.3), 0–12
CGI-BP global	1.2 (0.4), 1–2
Age of onset of illness	26.2 (9.9), 12–57
First episode (Mania / Depression)	47 / 41
Previous suicide attempts (Yes / No)	24 / 63 _(mv = 1)
# of manic episodes	11.4 (19.4), 1–115
# of depressive episodes	11.4 (19.4), 0–300

HAM-D – Hamilton Rating Scale for Depression; YMRS – Young Mania Rating Scale; CGI-BP – Clinical Global Impression-Bipolar, mv: missing value.

Associations between clinical history and affective temperament

T-tests indicated higher scores in cyclothymic ($t [85] = 2.21, p = .029$), depressive ($t [85] = 3.22, p = .001$), irritable ($t [85] = 3.78, p < .001$) and anxious temperament ($t [85] = 2.94, p = .004$) in patients with previous suicide attempts; there were no differences in hyperthymic

temperament ($t [85] = 0.86, p = .393$). Higher scores in anxious temperament were seen in patients who had a first episode of depression ($t [85] = 3.22, p = .001$); by contrast, higher hyperthymic scores were observed in patients who had a first episode of mania ($t [85] = 3.22, p = .001$). For the other variables, patients with a first episode of depression had higher

scores, but results were not significant (cyclothymic temperament: $t [85] = 1.92, p = .058$; depressive temperament: ($t [85] = 1.63, p = .106$); irritable temperament: ($t [85] = 1.82, p = .072$).

Table 2 shows results for correlations of temperament with age of onset, number of depressive and manic episodes. The only significant correlation was between number of previous manic episodes and anxious temperament ($r = .38, p < .001$).

Table 2 – Correlations between age of onset and number of manic/depressive episodes and temperament

	Temperaments				
	Cyclothymic	Depressive	Irritable	Hyperthymic	Anxious
	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>
Age of onset	-0.21	-0.23	-0.21	-0.09	-0.26
# of manic episodes	.22	.21	.14	.06	.38
# of depressive episodes	.23	.23	.09	-.14	.08

r–Pearson’s *r* correlation; Significant results in bold ($\alpha < .01$).

Associations between current clinical characteristics and affective temperament

There were no correlations between temperament and current global severity of symptoms, assessed by Clinical Global Impression Scale –

CGI-BP ($p > .01$). Depressive temperament correlated moderately with total HAM-D scores ($r = .30, p = .004$). Significant positive correlations were also observed between depressive temperament and scores for HAM-D #1 ($\rho = .38, p < .001$) and HAM-D #2 ($\rho = .28, p = .008$). Other variables showed weak

to moderate correlations that would be significant with a less stringent α (e.g. anxious temperament with HAM-D #1, HAM-D #15 and HAM-D total scores).

There were no significant correlations between subclinical manic symptoms and temperament ($p > .01$ in all cases).

Discussion

Our results founded that high scores in cyclothymic, irritable, depressive and anxious temperaments were associated with at least one suicide attempt. Higher scores of anxious temperament were associated with depressive polarity in the first episode of the disease as well as higher amount of manic episodes. Higher scores of hyperthymic temperament were associated with manic polarity in the first episode of the disease. Higher scores of depressive temperament were associated with higher scores in total HAM-D and specifically with higher scores in items 1 and 2 of HAM-D, i.e., depressive mood and guilt. No correlation was found

between temperament and intensity of subsyndromal manic symptoms. Serafini et al. (2011)¹⁸ came to similar results when evaluating 185 BD patients (143 Type I and 42 Type II) and 62 patients with major depressive disorder. Their sample was divided in two groups, the first with patients with high scores of hyperthymic temperament but low scores of the other temperaments while the second group had patients with high scores in cyclothymic, depressive, irritable and anxious temperaments but low scores of hyperthymic temperament. The authors found that patients in the second group showed stronger association with history of suicide attempts. Perugi et al. (2012)¹⁹, also, found that patients with cyclothymic temperament had more suicide attempts than those with hyperthymic temperament in their study of 106 individuals with BD Type I. Moreover, Lasevoli et al. (2013)¹¹ applied TEMPS-A Questionnaire²⁰ to 443 BD patients and observed that individuals with cyclothymic, anxious and irritable temperaments had higher levels of impulsivity, a characteristic strongly associated with higher risk of

suicide.

Similarly to our results, Vasquez et al. (2010)²¹ studied 286 bipolar and 97 unipolar patients and found lower intensity of suicidal ideation among individuals with hyperthymic temperament. Accordingly still, Pompili et al. (2008)²² found inverse correlation between hyperthymic temperament and hopelessness – element associated with higher risk of suicide – in their study of mood disorder patients. On the other hand, Vöhringer et al. (2012)²³ observed that hyperthymic temperament was more strongly associated with suicide attempts than cyclothymic temperament.

Polarity in the first affective episode seems to be influenced by affective temperaments. Our study found an association between high scores of anxious temperament and depressive polarity in the first episode of the disease as well as high scores of hyperthymic temperament and manic polarity in the first episode. Another study, by Kesebir et al. (2005)²⁴, observed an association between irritable temperament and manic polarity in

the first episode of 100 patients with BD Type I.

Affective temperament also seems to influence the number of affective episodes. In our study high scores of anxious temperament correlated with a larger number of manic episodes – see table 2. In Perugi et al.'s research (2012)¹⁹, patients with hyperthymic temperament had higher number of manic episodes if compared to individuals with cyclothymic temperament. Diversely, Vöhringer et al. (2012)²³ evaluated a sample of 115 patients and observed that individuals with cyclothymic and depressive temperaments had a higher number of depressive episodes than those that did not met the criteria of any specific temperament.

Previous studies have shown that bipolar patients have higher depressive temperament scores than controls^{11,25,26}. However, to date, no study has evaluated the relationship between depressive temperament and specific symptoms of depression. Our study also showed that the higher score of depressive temperament correlated

with more severe depressive symptoms, especially intense depressive mood and guilt. That suggests that depressive temperament is associated with the presence of subsyndromal depressive symptoms though no causality can be established. Depressive mood and guilt are present in classical descriptions of depressive temperament by several authors, including Kretschmer and Kraepelin²⁷. Thus, depressive temperament could be said to consist of an attenuated and continuous form of depression. A similar relationship could be supposed between hyperthymic temperament and mania, though no correlation between subsyndromal manic symptoms and higher scores of any temperament were found. Further studies about the influence of depressive temperament on depressive episodes and symptoms in the bipolar patient are needed.

The current study presents the following possible limitations. First, the sample is potentially low. Secondly, temperament evaluation was not performed prior to disease onset, thus possible influence of BD

course on temperament could not be excluded. At last, temperament was not evaluated longitudinally, which would allow higher reliability.

Conclusion

Affective temperaments are associated with onset and clinical course in BD. Cyclothymic, irritable, depressive and anxious temperaments have been associated to previous suicidal attempts. Affective temperaments may also be associated with polarity and the number of affective episodes. Finally, higher scores in depressive temperament seem to be related with more severe level of subsyndromal depressive symptoms, especially depressive mood and guilt.

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Disclosure

The authors declare no conflict of interest

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