

Research report

# Affective temperaments as measured by TEMPS-A in patients with bipolar I disorder and their first-degree relatives: a controlled study

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## Abstract

**Background:** The aims of this study were to identify the dominant affective temperamental characteristics of patients with bipolar disorder (BP) and their clinically well first-degree relatives and to compare the prevalence rates of these temperaments with those in healthy control subjects. **Methods:** One hundred bipolar I probands and their 219 unaffected first-degree relatives were enrolled in the study. The control group consisted of healthy subjects without any personal or family history of bipolar disorder, matched with the age and gender of the probands and first-degree relatives. To identify the dominant affective temperaments, the Turkish version of TEMPS-A scale was used. **Results:** At least one dominant temperament was found in 26% of the proband group, in 21.9% of the relative group, and 6.0% and 10.0% of the control groups, respectively. The most noteworthy finding was that both the probands and their relatives had significantly higher frequency of hyperthymic temperament than the controls. **Limitations:** Temperament had not been assessed premorbidly in the probands with bipolar disorder. **Conclusions:** The study supports the familial, possibly genetic, basis for the hyperthymic temperament in the genesis of bipolar I disorder. That the cyclothymic temperament was not similarly represented, may be due to the higher specificity of the cyclothymic temperament to the bipolar II subtype (which we did not study). More research is needed on the relevance of cyclothymic and other temperaments to the genetics of bipolar disorders selected by rigorous subtyping along the clinical spectrum of bipolarity.

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## 1. Introduction

Kraepelin (1921) was first to introduce a dimensional view of manic-depressive insanity, including the

“fundamental states” (depressive, “manic”, irritable, cyclothymic) as the premorbid characteristics of patients with mood disorders. In contemporary psychiatry, this position has been championed by the senior author (Akiskal, 1995), who conceptualized affective temperaments as the proximal behavioral phenotypes in the premorbid course of these disorders. With his

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framework of the “bipolar spectrum” (Akiskal, 1983; Akiskal and Pinto, 2000), affective temperament, especially hyperthymic and cyclothymic temperaments, were formulated as milder expressions or variants of bipolar disorder. Finally, he hypothesized that affective temperaments and mood disorders were both genetically transmitted, thereby sharing a common pathophysiological mechanism (Akiskal, 1984, 1995). This approach broadened the phenotypic area to be considered in genetic studies of bipolar disorder. In this perspective, temperament without progression to full-blown illness is expected to be over-presented in the “well” relatives of bipolar probands.

To test the foregoing model, operational criteria were developed (Akiskal et al., 1979; Akiskal and Mallya, 1987). The reliable assessments of temperament have become vital as research on the genetic basis of temperament and bipolar disorder required. To this end, the Temperament Evaluation of Memphis, Pisa, Paris and San-Diego-Autoquestionnaire (TEMPS-A) was introduced as the instrument to assess the four basic affective temperaments and an anxious temperament was subsequently added (Akiskal et al., 1998a,b).

The aim of this cross-sectional study is to explore the prevalence rates of dominant affective temperaments among patients with bipolar disorder, first-degree relatives (parents, siblings and offspring) and healthy controls. The study questions were as follows: (1) are affective temperaments more common among patients with BP and their first-degree relatives than control subjects? (2) More specifically, are hyperthymic and cyclothymic temperaments more common both among patients with BP and their first-degree relatives than control subjects? (3) Are there any differences between bipolar patients and their first-degree relatives both in prevalence rates and distribution of affective temperament subtypes?

## 2. Methods

### 2.1. Subject selection

Fifty euthymic probands with bipolar I disorder (BP) with family history of BP (at least one first-degree relative with BP) and 50 euthymic BP patients without any family history of BP who had given written informed consent were recruited from consecutive

admissions to the Ege University Affective Disorders Unit. The inclusion criterion for the patients with BP was to have been followed at the Affective Disorders Unit for at least 1 year. This criterion was set to be certain about the existence of positive or negative family history of BP. Trained psychiatrists (S.K. and Z.Y.) interviewed patients with Turkish version of Semi-structured Clinical Interview for DSM-IV (SCID-I, Corapcioglu et al., 1999).

Three hundred eighty-five first-degree relatives (parents, siblings and offspring) of the proband-group were considered for the study. Five of the first-degree relatives rejected participation, 47 of them were living out of town, 50 of them were excluded because of either being illiterate or had serious physical or mental disability (i.e. dementia) or younger than 16 years of age. Two hundred eighty-one first-degree relatives who had given written informed consent were interviewed with SCID-I. Forty-three of the first-degree relatives had a diagnosis of BP, seven had recurrent unipolar depressive disorder, eight had unipolar depressive disorder (single episode), one had schizoaffective disorder and three had schizophrenia. Data of 62 of these relatives who had “bipolar spectrum” (Akiskal and Pinto, 2000) diagnoses on a familial basis (single unipolar depressive episode, recurrent unipolar depression, bipolar disorder, schizoaffective disorder, schizophrenia) were evaluated separately. The data of 219 first-degree relatives were used for the main statistical analysis. The relative group consisted of 50 (25.6%) mothers, 59 (20.1%) fathers, 82 (37.4%) siblings and 37 (16.9%) offspring.

In order to prevent duplication and bias on data, if a subject with BP participated in the study, the family member of that patient with BP was not included in the proband-group as a separate subject.

Control subjects whose age, gender and education status matched the 100 bipolar probands and their 219 first-degree relatives were from a previous study (Vahip et al., 2005) as, respectively, proband-control group and relative-control group, and served as the reference groups.

### 2.2. Assessment of dominant affective temperaments

To identify the dominant affective temperament, the Turkish version of TEMPS-A that was developed by H. Akiskal and colleagues in 1997 (Vahip et al., 2005) was

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