



## Research report

## Affective temperaments in heroin addiction

Icro Maremmani<sup>a,b,c,\*</sup>, Matteo Pacini<sup>c</sup>, Dina Popovic<sup>a</sup>, Anna Romano<sup>a</sup>, Angelo G.I. Maremmani<sup>b,d</sup>, Giulio Perugi<sup>a,c</sup>, Joseph Deltito<sup>c,e</sup>, Karen Akiskal<sup>f,g</sup>, Hagop Akiskal<sup>f,g,h</sup>

<sup>a</sup> "Vincent P. Dole" Dual Diagnosis Unit, Santa Chiara University Hospital, Department of Psychiatry, NPB, University of Pisa, Italy

<sup>b</sup> AU-CNS, "From Science to Public Policy" Association, Pietrasanta, Lucca, Italy

<sup>c</sup> "G. De Liso", Institute of Behavioural Sciences Pisa, Italy

<sup>d</sup> Medical School, University of Pisa, Italy

<sup>e</sup> Department of Psychiatry and Behavioural Science, New York Medical College, Valhalla, New York, USA

<sup>f</sup> Union Nationale des Dépressifs et Maniaco-Dépressifs, Rouen, France

<sup>g</sup> International Mood Centre, La Jolla, California, USA

<sup>h</sup> University of California at San Diego and Veterans Administration Hospital, San Diego, California, USA

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## ABSTRACT

**Background:** Much of the literature has described personality disorder constructs for heroin addicts. Building on previous work we examine the relevance of affective temperament measures in these patients.

**Methods:** 59 consecutive stabilized methadone treated heroin addicts, 34 with and 25 without psychiatric comorbidity, were compared, regarding affective temperaments, according to the Akiskal and Mallya formulation, with 58 healthy volunteers sharing similar social and regional demographics.

**Results:** No differences were observed between heroin addicts and controls on either depressive or hyperthymic scales. Significant discrepancies were noted in cyclothymic and irritability scales, on which heroin addicts scored higher, regardless of the presence or absence of a dual diagnosis. In a multivariate discriminant analysis, mainly cyclothymic, and (to a lesser extent) irritable traits show a distinction between heroin addicts and controls, but not between heroin addicts with and without dual diagnoses.

**Limitation:** Cross-sectional study.

**Conclusion:** Our data suggest a new hypothesis. Cyclothymic, and to a lesser extent irritable traits (the "dark side"), could represent the temperamental profile of heroin addicts, largely irrespective of comorbidity, and tend to cohere with previous conceptualizations hypothesizing "sensation-seeking" (and "novelty-seeking") as the main personality characteristics of addiction.

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## 1. Introduction

Temperament is defined as a biological disposition, corresponding to a constitutional substrate. Temperament is expressed through a series of signs and features usually manifested by a certain stability of mood, attitudes towards

the environment, sensitivity to external stimuli and characteristic modes of reaction. Most clinicians agree that early-age experiences account for a wide variability of adult individual personality traits, so the development of personality traits is usually considered to be primarily through crucial environmental challenges and experiences. Nevertheless, since the '80s several authors have maintained that some early and stable personality traits exist, which can be described as features of pre-morbid phases of major Psychiatric Illnesses (Akiskal et al., 1977; Depue et al., 1981; Cloninger, 1987; Bouchard et al., 1990). In this Neo-Kraepelinian view, such traits are conceptualized as genetically-based subclinical

\* Corresponding author. Vincent P. Dole, Dual Diagnosis Unit, Santa Chiara University Hospital, Department of Psychiatry, University of Pisa, Via Roma, 67 56100 Pisa, Italy. Tel.: +39 0584 790073; fax: +39 0584 72081.

E-mail address: [maremman@med.unipi.it](mailto:maremman@med.unipi.it) (I. Maremmani).

variants of correspondent diseases, or residual symptoms following major episodes of those illnesses. Akiskal (Akiskal, 1994) argues that temperamental dysthymia, cyclothymia and hyperthymia are the basic phenotypes that reflect the core genetic disposition to bipolar disorder.

The temperamental model is supported by evidence that, despite a third of monozygotic twins not sharing a history of major bipolar disorder, they do display at least marked temperamental features with a detectable degree of emotional oscillations (Bertelsen et al., 1977). Moreover, a high rate of dysthymic, hyperthymic or cyclothymic temperament was found in children of bipolar patients assessed during puberty (Akiskal et al., 1985). Cyclothymia has indeed been shown to correspond to an endophenotype (Vazquez et al., 2008) and a genetic locus (chromosome 18p) has been suggested for it (Evans et al., 2008). Cyclothymia, which may also be regarded as an early, typically “aborted,” stage of bipolar disorder, shows gender differences, with a higher rate of hyperthymic symptoms in men, while depressive traits typically dominate females with cyclothymia (Akiskal et al., 2005). Such temperamental substrates, when challenged by life events (e.g. falling in love) or direct biological stimulation (e.g. sleep deprivation), may develop into full bipolar disorders (Akiskal, 1995).

Consistent with the concept of an affective spectrum (that is a group of syndromes varying in severity and symptom quality which represents degrees, stages or variants of the same basic biological substrate) the study of temperaments is crucial to be able to identify early predictors of future affective instability in healthy individuals. Temperamental traits of personality also prove important as putative prognostic and therapeutic variables in patients with full-blown affective disorders (Akiskal, 1994; Akiskal et al., 2005).

Given that the personality disorder literature in addictive disorders has yielded somewhat inconsistent results, the aim of the present work is to focus on affective temperaments between a group of heroin addicts compared with healthy controls, in a way that also accounts for the presence of axis I dual diagnosis. Thus, results would provide evidence about a temperamental basis for addiction which is independent of major psychiatric illness and overcomes its overlap with axis II affective settings.

## 2. Methods

### 2.1. Design of the study

A comparative cohort study was designed in order to compare affective temperaments of heroin addicts with and without psychiatric comorbidity with a control sample. All patients included in the study signed informed consent. Both the consent form and the experimental procedures were approved by the competent ethics committees in accordance with internationally accepted criteria for ethical research.

All patients were evaluated during the stabilization phase of Methadone Treatment to avoid possible interferences due to the acute phase of their illness in the temperament questionnaire (TEMPS-A; Akiskal and Akiskal, 2005a). Since 1993, the Pisa-MMTP has been using a clinical protocol that has the characteristics of a high-threshold treatment facility for opioid addiction focusing on pharmacological maintenance.

After patients at the PISA-MMTP have been safely entered into treatment with methadone, their doses are gradually increased until the point is reached where there is no more than one urine drug screen which is positive for illicit opiates, cocaine, or benzodiazepines in the previous sixty-day's period. Once this requirement is fulfilled, the patient is defined as having being “stabilized”.

### 2.2. Subjects

#### 2.2.1. Comparison group

Healthy controls displayed demographic and cultural characteristics very similar to heroin addicts. They were recruited in the same residential area of the experimental group. Healthy controls with present and past substance misuse and Axis I and Axis II disorders, assessed with SCID-I, were excluded. We collected information also by family members and close friends. Selected healthy controls didn't show any family history for mental illness.

#### 2.2.2. Experimental group

All addiction group patients fulfilled DSM-V-R criteria for opioid dependence, had a history of heroin addiction dating at least 2 years, and were between the ages of 18 and 40. Patients were excluded if they had any serious medical conditions (e.g. active tuberculosis, acute hepatitis, renal or cardiovascular illness, unstable diabetes or AIDS).

The experimental sample consisted of 59 consecutive stabilized methadone treated heroin addicts, 36 males (61.0%) and 23 females (39.0%) aged  $30 \pm 5$  years. The baseline characteristics of the experimental sample were: single ( $n = 36$ ; 61.0%), and currently employed ( $n = 35$ ; 59.3%), with a low (8 years or less) educational level ( $n = 42$ ; 71.2%).

34 of them (57.6%) had at least one additional psychiatric diagnosis. Most of the dual diagnosis patients were affected by type 1 ( $N = 12$ , 35.2%) or type 2 bipolar disorder ( $n = 4$ , 11.7%). Two of them had one adjunctive psychiatric comorbidity (usually of the anxiety or eating disorder cluster). The second most frequent diagnosis was depressive disorder ( $n = 8$ , 14.0%). Two of them were complicated by severe

**Table 1**

Drug addiction history of 59 heroin addicts without (NDD heroin addicts) and with (DD heroin addicts) DSM-IV axis 1 psychiatric comorbidity.

Statistics	NDD heroin addicts ( $N = 25$ )	DD heroin addicts ( $N = 34$ )
Psychiatric symptoms	23 (92.0)	31 (91.2)
Presence of physical concerns	19 (76.0)	27 (79.4)
HIV positivity	1 (4.0)	2 (6.3)
Work concerns	18 (72.0)	17 (50.0)
Household concerns	9 (36.0)	13 (38.2)
Romantic concerns	7 (28.0)	6 (17.6)
Social/leisure concerns	8 (32.0)	16 (47.1)
Legal concerns	12 (41.4)	17 (50.0)
Polyabuse (more than 3)	17 (68.0)	16 (47.1)
Heroin daily intake	22 (88.0)*	21 (65.6)*
Age of first use of heroin, years	$20 \pm 4$	$21 \pm 5$
Heroin dependence: age of onset	$21 \pm 4$ *	$24 \pm 6$ *
Dependence duration, months	$95 \pm 63$	$67 \pm 61$
Age of first treatment, years	$27 \pm 6$	$27 \pm 5$

Mean  $\pm$  SD. Figures in parentheses are percentage.

\*  $p < 0.05$ .

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