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Introduction

TEMPS-A: progress towards validation of a self-rated clinical version of the Temperament Evaluation of the Memphis, Pisa, Paris, and San Diego Autoquestionnaire

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Abstract

Background: Our aim was to validate the Temperament Evaluation of the Memphis, Pisa, Paris, and San Diego Autoquestionnaire (TEMPS-A) in a clinical population.
Methods: The study was conducted in two Memphis mood clinics involving 398 affectively ill patients with young to middle index age (42 years±13 S.D.), who were 95% white, 62% female, and 51% bipolar spectrum. A subset of 157 of the entire sample were retested in 6–12 months, and the entire sample was then subjected to factor analysis (PCA extraction method with varimax rotation).
Results: We obtained high test–retest reliability ranging from 0.58 for the irritable, to 0.68, 0.69 and 0.70, respectively, for the cyclothymic, dysthymic and hyperthymic. The hypothesized four-factor structure of the TEMPS-A was upheld, with the cyclothymic explaining 14% of the variance, followed by the irritable, hyperthymic, and dysthymic together accounting for another 14%. Internal consistency was excellent, with Chronbach alphas ranging from 0.76 for the dysthymic to 0.88 for the cyclothymic. Exploratory factor analysis revealed 2 super factors, Factor I loading on cyclothymic, irritable, and dysthymic temperaments, and Factor II loading heavily on the hyperthymic. The 50-item TEMPS-A-Clinical Version was constructed by using a cutoff of alpha ≥0.4 for traits loading exclusively on their original temperaments. We also proposed a longer 69-item version for future study, in which we permitted a greater number of traits based on clinical considerations (alpha cutoff 0.30).
Limitation: The sample was preponderantly white, and may not generalize to other U.S. ethnic groups. This earlier version of TEMPS-A did not include the anxious temperament.
Conclusions. We psychometrically validated the TEMPS-A in affectively ill outpatients, leading to an instrument suitable for use in psychiatric, especially affectively ill, populations. It is noteworthy that in this clinically ill population we succeeded in

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measuring traits which could make subjects vulnerable to affective episodes, as well as those of adaptive nature. For instance, the dysthymic emerged as bound to routine, self-blaming, shy-nonassertive, sensitive to criticism, yet self-denying, dependable, and preferring to work for someone else rather than be the boss. The hyperthymic had the highest number of "positive" traits: upbeat, fun-loving, outgoing, jocular, optimistic, confident, full of ideas, eloquent, on the go, short-sleeper, tireless, who likes to be the boss, but single-minded, risk-taker, and unlikely to admit to his/her meddlesome nature. The cyclothymic emerged as labile with rapid shifts in mood; unstable in energy, self-esteem and socialization; unevenly gifted and dilettante; yet keen in perception, intense in emotions, and romantic. The irritable emerged as skeptical and critical (which might be considered intellectual virtues), but otherwise having the "darkest" nature of all temperaments: grouchy, complaining, dissatisfied; anger- and violence-prone, and sexually jealous. The foregoing temperament attributes, observed in a moderately severe group of patients with affective disorders, nonetheless testify to the evolutionary context of these disorders—"submissive" behavior, territoriality, romantic charm, and last, but not least, sexually jealous with its associated specter of violence. We hypothesize that the putative social and limbic mechanisms underlying mood disorders appear to have archaic origins on an evolutionary scale. We finally submit that the traits underlying affective disorders are very much part of human nature.

Keywords: Mood disorder; TEMPS; Temperament; Psychometrics; Evolution

1. Introduction

1.1. Early Memphis work

The Temperament Evaluation of Memphis, Pisa, Paris, and San Diego (TEMPS) has been in the making for at least a quarter of a century. Its early development is intimately linked with the Mood Clinic Data Questionnaire (MCDQ), a semi-structured clinical instrument that the first author (H.S.A.) had constructed in order to collect systematic diagnostic data on consecutive patients in our Memphis mood clinic (Akiskal et al., 1978). The criteria for diagnosis in the MCDQ were largely derived from the Washington University framework (Feighner et al., 1972), in which the only validated personality disorder was anti-social personality. The unreliability of other personality constructs can be seen in the fact that our clinic patients–previously evaluated by other clinicians in the greater Memphis metropolitan area–had often been tagged with different personality attributes, i.e., a manic–depressive patient would be diagnosed "hysterical" (as they were labeled in those days) at the excited phase of the illness and "passive-dependent" during the depressive phase. The state dependency of such diagnoses did not seem to bother the clinicians who had made them.

But it did bother us. Instead of using the then DSM-II schema (American Psychiatric Association, 1968) for personality disorders and traits, we resorted to German concepts: such as Kurt Schneider's (1958) classic description of "psychopathic" (i.e., abnormal) personalities. We operationalized, modified or otherwise enriched Schneider's descriptions with those of Kraepelin's (1899/1921) "personal dispositions", taking into consideration our own clinical experience in the setting of the Mood Clinic (Akiskal et al., 1977, 1979). Our first set of operationalizations pertained to the "depressive", "cyclothymic", and "hyperthymic" types; an "irritable" type was added later (Akiskal and Mallya, 1987; Akiskal, 1992). Other Schneiderian personality constructs (e.g., the "status-seeking", "attention-seeking", and "fanatic" types) which we had also operationalized for the MCDQ, will not be considered in this paper.

It is relevant to point out that unlike Kraepelin (1899/1921), Schneider (1958) did not believe that his "psychopathic types" represent the underlying foundations of mood disorders. In line with Kraepelin, we preferred to consider them dispositions to mood states; indeed, we conceptualized them as "subaffective" or trait affective expressions of mood disorders (Akiskal, 1981; Sass et al., 1993). These traits were hypothesized to precede and follow episodes of these disorders in an affective trait-affective disorder continuum. In other words, we used the superb descriptions of Schneider, but adhered to the Kraepelinian conceptual framework. For us, it made better sense for the affectively ill to be described by traits which reflect an affective disposition (Akiskal, 1992), rather than the maladaptive interpersonal framework used in DSM-II, DSM-III, and DSM-IV (American Psychi-

atric Association, 1968, 1980, 1994). Hence our preference for the term "temperament" (emotional reactivity) rather than "personality disorder". We also submit that temperament, as we define it, embraces both affective liabilities and assets, which makes it more attractive for theory, research, and practice (Akiskal and Akiskal, 1988, 1992; Akiskal, 1996).

1.2. The axis I–II confusion in DSM-III and DSM-IV

While our early work on affective temperaments did influence other clinical researchers (Depue et al., 1981; Klein, 1990; Gunderson et al., 1994), it had marginal influence on the actual formulation of axis II personality types in such formal diagnostic systems as the DSM-III and DSM-IV (American Psychiatric Association, 1980;1994) and ICD-10 (World Health Association, 1992). A "depressive personality disorder", however, did appear in the DSM-IV appendix as a proposed type for further study. By contrast our work (Akiskal et al., 19770, 1980) had major impact in formulating the subaffective disorders, leading to the inclusion of cyclothymia and dysthymia, conceived as low grade affective disorders on axis I (DSM-III; American Psychiatric Association, 1980).

The foregoing inconsistent decisions by the architects of the DSM-III and DSM-IV were not due to lack of operationalization of the affective temperaments. Indeed, these manuals (1980) liberally borrowed–almost word for word–our criteria for cyclothymia and dysthymia for axis I use. Nor was it due to the absence of psychometric measures for these affective temperaments; indeed Depue et al. (1981) had developed one for cyclothymia, and eventually Gunderson et al. (1994) developed it for depressive personality. There even existed a scale for hypomanic personality inventory (Eckblad et al., 1986). The inconsistency with which DSM-III and DSM-IV dealt with the affective temperaments was due to the difficulty of resolving what is "subaffective" and what is "personality disorder"—a particularly troubling area of contention between axis I and II (Akiskal et al., 1979; Widiger, 1989; Akiskal and Akiskal, 1992).

With cyclothymic and dysthymic disorders conceptualized as subthreshold mood disorders in these manuals, the old stereotypes of describing mood disorders with the "dramatic" and "anxious" clusters of axis II have continued to dominate clinical and research thinking, despite evidence of their state-dependency (O'Connell et al., 1991). It should also be mentioned in this context that borderline personality disorder nowadays seems to engulf much of the personality disfunction in the affective, particularly bipolar, domain (Akiskal, 2004). It is a curious perversion of history that DSM-IV (2004) uses the Schneiderian perspective-personality disorders as orthogonal to mental disorders classified on axis I—without the benefit of the majestic descriptive terminology for his psychopathic types. For instance, the borderline type could have been termed "labile", which is a more accurate portrayal of the emotionality of these patients.

1.3. Logistic barriers

Another dilemma that the first author (H.S.A.) faced in his mood clinic was the unwieldy nature of systems of characterizing temperament or personality in formal psychometric testing, requiring 4 to 5 gradations for each trait (see, for instance, the General Behavior Inventory of Depue et al., 1981). Such an approach was obviously impractical in the clinical setting of a service-based mood clinic. That's why, despite great conceptual affinity between our approach and that of Depue to cyclothymia, regrettably, no formal collaboration was forged between us. We also felt that self-report in bipolar patients would be notoriously unreliable. As a result, our MCDQ-based diagnostic approach to the affective temperaments relied heavily on the clinical skills of trainees and attendings working in our setting. This, in turn, explains why, until recently, the use of the temperament constructs under discussion was largely limited to the relatively few psychiatrists who were trained in, or otherwise exposed to, the Memphis (and subsequently to the San Diego) Mood Clinic.

1.4. The Pisa–Memphis–San Diego collaboration

We published the full version of the Memphis clinician interview form for temperaments in 1987 (Akiskal and Mallya, 1987). This paper did in the beginning attract attention primarily because the temperaments could now be used to define "soft bipolar disorder" (e.g., Cassano et al., 1989; Akiskal and Pinto, 1999). Subsequently it was formally

adopted for research purposes in an Italian collaboration (e.g., Perugi et al., 1990). Nearly a decade later, Pisa psychiatrists also expressed interest in psychometrically validating the Akiskal–Mallya criteria in a large (n=1010), young (14–25 year-old) community sample evaluated by the *interview* method (Placidi et al., 1998; Akiskal et al., 1998). This became the TEMPS-I, the first psychometrically valid instrument measuring the affective temperaments in the classic German sense. Concurrent validity against the Temperament and Character Inventory of Cloninger et al. (1994) is just being published for the first time in this issue of the *Journal* (Maremmani et al., 2005).

In the meanwhile, in part guided by earlier Pisa work, the first two authors (H.S.A. and K.K.A.) reformulated the depressive and hyperthymic types in an expanded version that could be more easily administered by a clinician. For each trait it was necessary to formulate a set of specific questions that define it in language easily understood by the subject being interviewed, thereby making standardization easier. As an illustration, the original operationalized depressive temperament criteria are shown in Table 1, reformulated in a format suitable for full scale standardization in Table 2. We were skeptical whether the cyclothymic could be formatted in an analogous fashion: in particular, our doubts involved the feasibility of a self-rated version for the cyclothymic type. These doubts eventually dissipated, when as part of the NIMH Collaborative Study of Depression, it was found that self-rated trait "mood lability" was a highly specific predictor (86%) of those major depressives who during prospective follow up became bipolar II (Akiskal et al., 1995). The cyclothymic type, then, was expanded from these criteria, building upon our own interview-based operationalization (Akiskal et al., 1977, 1979).

Table 1
Operationalization of the depressive temperament[a]

1. Gloomy, pessimistic, humorless, or incapable of fun
2. Quiet, passive or indecisive
3. Skeptical, hypercritical, or complaining
4. Brooding and given to worry
5. Conscientious or self-disciplining
6. Self-critical, self-reproaching, or self-derogatory
7. Preoccupied with inadequacy, failure and negative events to the point of morbid enjoyment of one's failures

[a] Akiskal and Mallya (1987).

1.5. Paris collaboration

While the Italian reformulation of the "Memphis temperament" concepts was in progress, French psychiatrists too expressed interest in the use of affective temperaments. In this dual collaboration termed EPIDEP and EPIMAN, centered in Paris but conducted in four regions of France, the version that served for French translation (Hantouche and Akiskal, 1997) and psychometric validation (Akiskal et al., 2005a, this issue) was intermediate between that of the Italian and San Diego versions. Both interview and auto-questionnaire versions were implemented in French.

The TEMPS-A (autoquestionnaire version) was further developed in San Diego, in the Clinical Research Center, and now bears the title of "Temperament Evaluation of Memphis, Pisa, Paris and San Diego-Autoquestionnaire (TEMPS-A)" (see Akiskal et al., 2005b, this issue).

Parenthetically, our French collaborators were also interested in the concept of anxious temperaments, which were originally part of the MCDQ in a rudimentary form. These preliminary criteria rather than being tested in psychiatric settings were first tested in a French general medical practice population. The latter did uphold a heterogeneous tripartite conceptualization of the anxious temperaments, in which the generalized anxious temperament nonetheless occupied a central position (Hantouche and Akiskal, 2005, this issue). However, the French study on anxious temperaments could not have examined the latest version of the generalized anxious temperament (GAT), because that version was published in 1998, subsequent to the initiation of the French National Study of EPIDEP in 1994. Indeed, the definitive version of the GAT, was ultimately published as part of a theoretical paper on the evolutionary functions of worrying conceived as an altruistic trait (Akiskal et al., 1998). Finally, as collection of data on the Memphis mood clinic sample was initiated before the development of the generalized anxious temperament, the present contribution deriving from that clinic does not include examination of the anxious temperament along with the other four.

Table 2
Traits of the depressive temperament and proposed structured queries for each

A. Mood
1) Gloomy disposition: I am habitually in a sad, gloomy, or melancholy mood.
2) Somber: people tell me that I am a serious person—I am unable to see the amusing side of things.
3) Incapable of fun: I feel life is a chore with little joy for me.

B. Cognitive
4) Brooding: I am often burdened with unpleasant thoughts—especially as they pertain to the past.
5) Pessimistic: I am the type of person who is always expecting bad outcomes—and who gets easily discouraged.
6) Low self-esteem and preoccupation with failure: I lack confidence—I am often bothered with feelings of inadequacy and failure.
7) Self-critical, guilt-ridden with tendency to self-reproach: I am frequently down on myself—feel guilty and blame myself for what others might consider minor faults.

C. Psychomotor
8) Unenergetic, sluggish, and lacking drive: my tempo is slow, such that I often find myself lacking initiative and/or the requisite energy to do things.
9) Bound to routine: I am the kind of person who is most comfortable in continuing the same few activities with regularity and perseverance.
10) Quiet and taciturn: I am a person of few words—I would rather hear others talk.
11) Nonassertive: I am generally reluctant to express my feelings or opinion—I defer to others, often permitting them to decide on my behalf.

D. Interpersonal
12) I feel uneasy meeting new people: I am most comfortable with a few close friends or family.
13) Sensitive to criticism and rejection: my feelings are easily hurt—especially by what I perceive to be criticism or rejection.
14) Dependable: I am the type of person on whom others can rely to carry out an assigned responsibility.
15) Self-denying and devoted to others: I am the type of person who is devoted to others—even at the expense of sacrificing myself.

E. Other traits
16) Follower: I am the kind of person who prefers to work for someone else in a secure job rather than being my own boss.
17) Conventional: as a matter of principle, I believe that one should follow rules and regulations.
18) Perfectionistic: it is natural for me to be meticulous and complete tasks the best way I can.
19) Skeptical or hypercritical: I am told that I am the type of person who doubts everything and tends to be overcritical of others.
20) Bitter and complaining: I am told that I am of a sour, complaining disposition.

Table 2 (*continued*)

E. Other traits
21) Low sexual desire: my sexual interest is generally low—I am infrequently bothered by sexual desire or thoughts.
22) Excessive need for sleep (more than 9 hours a night): Habitually I need more than 9 hours of sleep a night.

1.6. Expanded international collaborations

The San Diego International Mood Center has tested the TEMPS-A in a research population (Akiskal et al., in 2005b, this issue), has collaborated on a German Mûnster version (Erfurth et al., 2005, this issue) that tested it in a clinically well student population. The Japanese (Akiyama et al., 2005, this issue) and the Turkish (Vahip et al., 2005, this issue) versions, have their own unique cultural context. Many of the respective principal investigators of these different language versions spent short training periods in San Diego. Arabic, Danish, Greek, Hungarian, Polish, Portuguese, Spanish and Swedish versions are now in the process of being tested. All in all, counting the Italian and French versions, TEMPS now exists in 12 languages in addition to American English.

The present contribution derives from the mood clinic setting, and it is meant to be a contribution for clinical practice. It is noteworthy that all versions of TEMPS-A, whether slated for use in normal or affectively ill subjects, incorporate traits which we have formulated to reflect evolutionary functions, i.e., falling in and out of love, being the boss over a territory, being a follower, etc. This is based on work conducted earlier in Memphis and Paris on the adaptive and "positive" facets of temperaments (Akiskal et al., 1979; Akiskal and Akiskal, 1988, 1992).

2. Methods

The patient population (n=405) came from 2 mood clinics in Memphis, one in psychiatric private practice (88.9%), the other in a family practice setting (11.1%). Both used a semi-structured diagnostic interview for mood disorders that had been in use for at least two decades (Akiskal et al., 1978; Akiskal and Mallya, 1987). Interrater reliability between the two clinicians of the present study (R.F.H. and J.S.M.) on a subsample of 30 had given an overall kappa value of 0.80;

a similar figure on a subsample of 20 patients was subsequently obtained between H.S.A. and J.S.M.

The diagnostic composition of the patients was 50.9% bipolar spectrum, including bipolar I, bipolar II, cyclothymic, and bipolar III (the latter approximating the DSM-IV [1994] bipolar NOS); the remainder were largely major depressive, dysthymic, and anxiety disorders.

The TEMPS-A was administered when patients came in for consultation—whether asymptomatic, acutely, subacutely, or chronically ill. This was a moderately severe sample of patients with affective disorders as judged by DSM-IV Gneral Adaptive Functioning Scale (GAFS) scores of <60 at entry in the mood clinics in 71.8%; at index, only 19.6% scored 61–70, 6.5% 71–80, and 2.1% at >80. We made no systematic attempt to administer the TEMPS-A when the patients had recovered or were minimally ill. We avoided doing so, because our intention was to find out about the patients' temperaments whenever they presented clinically—which of course is when it would be most useful for the clinician to know something about the patients' temperament. In other words, our intention was to standardize this version of the TEMPS-A for use in clinical settings, especially for affectively ill patients. As we have earlier raised the question of state-dependency for personality disorder constructs, could this also be true for temperament? This is unlikely, because we routinely instructed subjects to circle an item on the TEMPS-A in the affirmative only if it characterized them for much of their lives since at least early adulthood. More importantly, previous work has shown that many patients with mania test positive for a dysthymic temperament and conversely, hyperthymic temperament is not uncommonly endorsed by clinically depressed patients (Perugi et al., 1990; Akiskal et al., 1998).

As for demographics, index age±S.D. was 42.2± 13.2, preponderately white (95%), and, as expected, slightly over-represented in females (62.2%). Age at onset of first clinical presentation was predominately (61.7%) adult (≥21), with 26.4% and 11.9%, respectively, being adolescent and childhood in onset.

Of the 409 patients, only 398 had usable protocols. Of the latter, a subset of 159 were retested six to 12 months later. As displayed in Table 3, we obtained good test/retest reliability, which in the case of three temperaments reached the stringent criterion of alpha values around 0.70 (Kolb et al., 2000).

Table 3
Test/retest reliability

Temperament	Alpha coefficient
Dysthymic temperament	0.69
Cyclothymic temperament	0.68
Hyperthymic temperament	0.70
Irritable temperament	0.58

For factor analysis, to test the original hypothesis of a 4-temperament classification, we used principal component factor analysis with the PCA extraction method, varimax rotation. Finally, we conducted an exploratory factor analysis of the PCA type with varimax rotation on the 4 temperament scale scores.

3. Results

The Chronbach alpha coefficients for the temperaments were quite high: cyclothymic 0.88, irritable 0.84, hyperthymic 0.81, and dysthymic 0.76. The dysthymic scale is the one that had the relatively largest number of "weak" items (i.e., traits loading more heavily on other factors); deleting these improved the alpha for the dysthymic scale by 0.04, raising it from 0.76 to 0.80.

The 4-factor solution was upheld and is displayed in Table 4. The cyclothymic accounted for the highest variance (14%), followed by the irritable, hyperthymic and the dysthymic (combined variance=14%). The exploratory factor analysis is displayed in Table 5, showing 2 "super factors", the dysthymic, cyclothymic, and irritable loading heavily on factor I; and the hyperthymic doing so on factor II.

We opted on this first pass for the TEMPS-A destined for clinical use to set an alpha coefficient cutoff around 0.30, and in general did not move a trait from its original temperament to another one unless there was a large distance between their respective alpha values (Table 4). In considering deletions and reassignments, we also used clinical considerations to be described in the Discussion section; thus, in two instances we did accept an alpha <0.30. Whenever we changed a trait from its original temperament to another, we have indicated this in a parenthesis showing where it is to be reclassified (D for dysthymic, C for cyclothymic, H for hyperthymic, and I for irritable); items that we recommend to delete

Table 4
The semistructured affective temperament interview

Temperament trait	Cyc	Irr	Hyp	Dys
1. I am a sad, unhappy person.*	0.44	0.26	−19	0.26
2. People tell me I am unable to see the lighter side of things.	0.13	0.34	−0.00	**0.35**
3. I have suffered a lot in life. (C)	**0.45**	0.12	−0.00	0.16
4. I think things often turn out for the worst.*	0.16	0.35	−0.00	0.23
5. I give up easily.*	0.29	0.16	−0.27	0.25
6. For as long as I can remember, I've felt like a failure.*	0.39	0.19	−0.27	0.21
7. I have always blamed myself for what others might consider no big deal.	0.28	0.19	−0.12	**0.50**
8. I don't seem to have as much energy as other people.*	0.39	0.00	−0.32	0.32
9. I'm the kind of person who doesn't like change very much.	0.00	0.00	−0.21	**0.50**
10. In a group, I would rather hear others talk.	−0.00	0.11	−0.00	**0.51**
11. I often give in to others.	0.25	0.00	0.00	**0.56**
12. I feel very uneasy meeting new people.	0.00	0.28	−0.18	**0.50**
13. My feelings are easily hurt by criticism or rejection.	0.32	0.00	−0.17	**0.45**
14. I am the kind of person you can always depend on.	−0.22	0.00	−0.17	**0.45**
15. I put the needs of others above my own.	0.00	0.00	0.26	**0.55**
16. I am a hard working person.*	−0.00	0.14	0.43	0.18
17. I would rather work for someone else than be the boss.	0.00	0.12	−0.00	**0.51**
18. It is natural for me to be neat and organized.*	0.00	0.00	0.30	0.30
19. I'm the kind of person who doubts everything.*	0.25	0.30	−0.00	0.21
20. My sex drive has always been low.	0.00	0.00	−0.00	**0.29**
21. I normally need more than 9 hours of sleep.*	0.29	0.00	−0.20	0.00
22. I often feel tired for no reason.	**0.54**	0.12	−0.26	0.31
23. I get *sudden* shifts in mood and energy.	**0.52**	0.30	0.00	0.13
24. My moods and energy are either high or low, rarely in between.	**0.56**	0.23	0.00	0.00
25. My ability to think *varies greatly* from sharp to dull for no apparent reason.	**0.59**	0.20	−0.00	0.10
26. I can really like someone a lot, and then completely lose interest in them.	**0.47**	0.22	−0.00	−0.00
27. I often blow up at people and then feel guilty about it. (I)	0.25	**0.58**	−0.00	0.11
28. I often start things and then lose interest before finishing them.	**0.53**	0.20	−0.15	0.00
29. My mood often changes for no reason.	**0.59**	0.34	0.00	0.00
30. I constantly switch between being lively and sluggish.	**0.62**	0.27	0.00	0.00
31. I sometimes go to bed feeling down, but wake up in the morning feeling terrific.*	0.28	0.00	0.20	0.15
32. I sometimes go to bed feeling great and wake up in the morning feeling life is not worth living.	**0.47**	0.21	−0.13	0.14
33. I am told that I often get pessimistic about things and forget previous happy times.*	0.27	0.37	−0.19	0.26
34. I go back and forth between feeling overconfident and feeling unsure of myself.	**0.46**	0.26	0.00	−0.00
35. I go back and forth between being outgoing and being withdrawn from others.	**0.47**	0.21	0.00	0.19
36. I feel all emotions intensely.	**0.48**	0.11	0.11	0.17
37. My need for sleep varies a lot from just a few hours to more than 9 hours.	**0.32**	0.12	0.14	−0.00
38. The way I see things is sometimes vivid, but at other times lifeless.	**0.56**	0.17	−0.00	0.00
39. I am the kind of person who can be sad and happy at the same time.	**0.41**	0.00	0.11	0.13
40. I daydream a great deal about things that other people consider impossible to achieve.	**0.44**	0.18	0.23	−0.11

(continued on next page)

Table 4 (*continued*)

Temperament trait	Cyc	Irr	Hyp	Dys
41. I often have a strong urge to do outrageous things.	**0.51**	0.18	0.00	−0.27
42. I am the kind of person who falls in and out of love easily.	**0.44**	0.12	−0.00	−0.00
43. I'm usually in an upbeat or cheerful mood.	−0.00	0.25	**0.47**	−0.13
44. Life is a feast which I enjoy to the fullest.	−0.00	0.29	**0.41**	−0.00
45. I like telling jokes, people tell me I'm humorous. (H)	0.37	0.00	**0.36**	−0.21
46. I'm the kind of person who believes everything will eventually turn out all right.	0.00	0.34	0.47	−0.00
47. I have great confidence in myself.	−0.14	0.00	**0.57**	−0.20
48. I often get many great ideas.	0.15	0.14	**0.48**	−0.21
49. I am always on the go.	−0.00	0.18	**0.51**	−0.00
50. I can accomplish many tasks without even getting tired.	−0.13	0.00	**0.63**	−0.00
51. I have a gift for speech, convincing and inspiring to others.	0.33	0.00	**0.37**	−0.25
52. I love to tackle new projects, even if risky.	0.00	0.00	**0.56**	−0.00
53. Once I decide to accomplish something, nothing can stop me.	0.00	0.14	**0.53**	−0.00
54. I am totally comfortable even with people I hardly know.	0.11	0.20	**0.49**	−0.16
55. I love to be with a lot of people.	0.20	0.20	**0.45**	−0.00
56. People tell me that I often get my nose into others business.*	0.21	0.00	0.22	0.00
57. I am generous, and spend a lot of money on other people.	0.24	0.00	**0.34**	0.20
58. I have abilities and expertise in many areas.	−0.00	0.00	**0.51**	−0.00
59. I feel I have the right and privilege to do as I please.	0.25	0.00	**0.34**	0.00
60. I am the kind of person who likes to be the boss.	0.00	0.21	**0.32**	−0.30
61. When I disagree with someone, I can get into a heated argument. (I)	0.16	0.42	0.11	−0.00
62. My sex drive is always high.	0.00	0.22	**0.31**	−0.21
63. Normally I can get by with less than 6 hours of sleep.	0.00	0.16	**0.44**	−0.00
64. I am a grouchy (irritable) person.	0.20	**0.55**	−0.00	−0.00
65. I am by nature a dissatisfied person.	0.16	**0.51**	−0.00	0.19
66. I complain a lot.	0.17	**0.33**	−0.15	0.24
67. I am highly critical of others.	0.18	**0.39**	0.00	0.00
68. I often feel on edge.	0.33	**0.45**	−0.00	0.16
69. I often feel wound up.	0.35	**0.46**	0.15	0.00
70. I am driven by an unpleasant restlessness that I don't understand. (C)	**0.45**	0.34	0.00	0.15
71. I often get so mad that I will just trash everything.	0.16	**0.57**	−0.00	−0.00
72. When crossed, I could get into a fight.	0.00	**0.57**	0.16	−0.13
73. People tell me I blow up out of nowhere.	0.15	**0.61**	0.00	0.00
74. When angry, I snap at people.	0.17	**0.62**	0.00	0.00
75. I like to tease people, even those I hardly know. (C)	0.32	0.13	0.14	−0.20
76. My biting humor has gotten me into trouble.	0.19	**0.24**	0.00	−0.18
77. I can get so furious I could hurt someone.	0.15	**0.59**	0.00	−0.00
78. I am so jealous of my spouse (or lover), that I cannot stand it.	0.00	**0.35**	−0.00	0.00
79. I am known to swear a lot.	0.29	**0.31**	−0.00	−0.00
80. I have been told that I become violent with just *a few* drinks.*	0.12	0.24	0.00	−0.00
81. I am a very skeptical person.	0.14	**0.50**	−0.00	0.13
82. I could be a revolutionary.*	0.23	0.12	0.14	−0.24
83. My sex drive is often so intense that it is truly unpleasant.	0.12	**0.31**	0.13	−0.00
84. (Women only): I have attacks of uncontrollable rage right before my periods.*	0.25	0.24	−0.00	−0.00
Eigenvalue	11.9	6.3	3.0	2.8
PCT VAR	14.2	7.4	3.6	3.3

Table 5
Exploratory factor analysis

Temperament	Factor I	Factor II
Dysthymic temperament	0.76	0.38
Cyclothymic temperament	0.88	0.14
Hyperthymic temperament	0.00	0.95
Irritable temperament	0.84	0.19

are indicated by an asterisk. This procedure resulted in a 69-item-item temperament scale for further study, where the respective alpha coefficients of the traits recommended for retention are bolded.

Finally, conservatively we extracted a 50-item clinical instrument consisting essentially of all those traits loading ≥0.40 on their originally proposed temperament (Appendix A). This is a psychometrically robust version we recommend for clinical practice.

4. Discussion

4.1. Validation

Our attempt to develop a version of TEMPS-A suitable for clinical use (Appendix A) has given encouraging results in the mood clinic settings, which are heir to the original clinic where we had first developed the operationalization of these temperaments a quarter of a century ago. We have demonstrated high test–retest reliability by stringent criteria for three of the temperaments–and satisfactory reliability for the fourth one–over a 6 to 12 month period. Most importantly, we obtained high internal consistency (Chronbach alphas above 0.80). Our data uphold the proposed 4-factor structure of this version of the TEMPS-A.

It is relevant to point out that, as in the short version developed in an affective disorder research setting in San Diego (Akiskal et al., 2005b, this issue), the cyclothymic type emerged as the first factor, accounting for the largest variance. That the depressive type is the second factor in the research setting probably reflects the large number of depressed subjects in that setting; whereas in the present mood clinical setting caring for a large relatively unstable bipolar population, the irritable emerged as the second factor.

It is reassuring that the "super factor" structure in the present clinical population in Memphis, USA, with cyclothymic, dysthymic, and irritable temperaments elicited via self-report and loading on factor I and hyperthymic on an independent factor II, coheres very well with the finding conducted in a clinically well student population from different parts of Italy using an interview version of the TEMPS (Maremanni et al., 2005). Such cross-validation across national samples–testing ill vs. healthy subjects, and gathering information with interview vs. self-rating formats–provides further support for the robustness of the temperament constructs under study.

4.2. The 69-item TEMPS-A proposed for further study

We briefly expand on the psychometric and clinical reasoning for items that we recommend for deletion or reassignment to another temperament subscale (Table 4). We also provide explanation why in rare instances we elected to retain a given trait despite alpha coefficients lower than 0.30.

4.2.1. Suffering, work and dependability

The most difficult decisions in the reassignment of traits involved the dysthymic temperament, which on several traits loaded more heavily on the cyclothymic (e.g., items 1, 3, 6, and 8). That such endorsement of "depressive items" in a clinical population will characterize the cyclothymic is attributable to severe mood swings which complicate the life of cyclothymic individuals. This is indeed what we observe clinically, bipolar II patients who typically arise from a cyclothymic base (Hantouche et al., 1998), expressing the view that they have had "unhappy lives" (e.g., full of "traumatization" and "tragedy"), that they have "suffered a lot" and they are often tired and "feel like a failure". This is in part a state-dependent characterization of their condition, but we submit reflects something more fundamental about how cyclothymic individuals perceive themselves in the world, i.e., an existential statement of their cumulative experience of themselves in relation to others. It should also be remembered that the cyclothymic type is not just characterized by mood lability (i.e., traits 23 through 42), but also periods of low mood and energy. Of these "depressive" items, the most compelling, with a large distance from the dysthymic is item 3 ("I have suffered a lot in life"), which we recommend to be moved to the cyclothymic.

"I am a hard-working person" (trait 16) did not make it for the dysthymic in our clinical population, though it has been described in the depressive temperament without major episodes (Schneider, 1958; Akiskal, 1983). It appears that the hyperthymic is capturing in this trait its enormous capacity for work (Akiskal and Akiskal, 1988), adequately represented in trait #50 ("I can accomplish many tasks without even getting tired"). Accordingly, we recommend deleting trait #16. Trait 18, too, did not discriminate between the hyperthymic and the dysthymic and we recommend deleting it. Both "hard-working" (#16) and being "neat and organized" (#18) traits seem to reflect "obsessoid" characteristics common to both temperaments (Akiskal and Akiskal, 1992); but not sufficiently discriminatory in a clinical sample. However, they are not without theoretical interest (Kraus, 1996; von Zerssen et al., 1998). It is indeed noteworthy that the dysthymic subject would rather work for a boss, and to carry out such work or other responsibilities in a dependable fashion (traits 17 and 14, respectively).

4.2.2. Humor, swearing, and hostile reacting

It is apparent that "blowing up" at people, even though one may feel guilty afterwards (trait 27, proposed originally for the cyclothymic) is more in conformity with the overall characteristics of the irritable temperament. Indeed, such people swear a lot (#79).

Traits 45, 75, and 76 pertain to humor, jocularity, and teasing people and in the extreme, using biting humor. We think that these are largely unexplored human traits, which are represented in the affective temperaments and have great potential for understanding interpersonal relationships along evolutionary lines, but have not yielded definitive results in the present analyses. We are retaining several of them for further study. We propose that "lack of humor" (#2) is characteristic of the dysthymic, while telling jokes (#45) is more characteristic of the hyperthymic; playfully teasing others (#75) is a characteristic of the cyclothymic (where it actually loaded higher in comparison to any other scale), whereas "biting humor" (#76) best describes the irritable type (though it loaded only at an alpha level of 0.24). At any rate, for many years the first author (H.S.A.) has been asking clinically depressed patients to tell jokes, and if such humor is elicited, considering the reassignment of such a patient to soft bipolarity if other data support it (Akiskal et al., 2005a,b). Now, of course, that does not tell us if the temperament is hyperthymic, cyclothymic or irritable. This is an empirical question to be resolved with new studies.

4.2.3. Meddlesome and intrusive behavior

In our experience, trait 56, which involves "putting one's nose into other people's business", is a common behavior among hyperthymics (if one interviews others about them—whether family, friends, and acquaintances). This is certainly the case in mania, where overfamiliarity with strangers or pathological gregariousness occurs (Akiskal et al., 2001). Nonetheless, in the present analyses, the loading was equally and modestly endorsed by both the hyperthymic and the cyclothymic. This is not a behavior many people will admit to having. It does not appear to be suitable for a self-rated version of temperament, and we are recommending to delete it. Likewise, trait 61 (originally proposed for the hyperthymic) and involving getting into" heated arguments" is not a self-concept that hyperthymics are willing to own. Does that mean that irritable people who strongly endorse it have greater insight about the workings of their heated interactions with others, or simply that it conforms to the overall increased negative emotional tone that characterizes them. At any rate, we have elected to move this trait to the irritable temperament. On the other hand, item 69 about "unpleasant restlessness", while originally developed for the irritable, loaded much higher on the cyclothymic, where we felt it should move to.

4.2.4. Sexual drive

Questions on sex drive (items 20, 62, and 83) are of utmost evolutionary significance. Though loading on the border of our cutoff of alpha of 0.30, we have retained them for further study. Getting violent when drinking loaded the highest on the irritable–though lower than our cutoff–we felt could have been retained for further study because of its potential clinical relevance, but decided against it because it pertains to the relatively few people who indulge in alcohol, making it unsuitable for a scale measuring broad human temperament traits.

4.3. The 50-item TEMPS-A clinical version

This is the relatively unambiguous clinical version we recommend for routine use in a self-rated format

(Appendix A). Conservatively, we basically retained those traits that loaded ≥0.40 for their original temperaments. The only exception is trait #78 (sexual jealousy), because it loaded 0.35 on the irritable and zero on all the others.

5. Conclusions

We psychometrically validated the TEMPS-A in a mood disorder outpatient clinic, giving rise to an instrument suitable for clinical use in psychiatry, psychology, and possibly other mental health settings. We have constructed two instruments for clinical use, a longer 69-item-item version for further study (traits highlighted in Table 4), as well as a 50-item TEMPS-A Clinical Version (Appendix A). suitable for immediate clinical use.

It is noteworthy that in this affectively ill population we succeeded in measuring traits which would make subjects vulnerable to affective episodes, yet also highlight their adaptive attributes. For instance, the dysthymic emerged as bound to routine, self-blaming, shy-nonassertive, sensitive to criticism, yet self-denying, dependable and who would rather work for someone else than be the boss. The hyperthymic had the highest number of "desirable" traits: upbeat, fun-loving, outgoing, jocular, optimistic, confident, full of ideas, eloquent, on the go, generous, sexually-driven, short-sleeper, tireless, but single-minded, risk-taker, and with poor insight about his/her meddlesome nature. The cyclothymic emerged as rather tempestuous: labile with rapid shifts in mood, variable in sleep, energy, self-esteem and socialization, a dilettante and, perhaps by the same token, keen in perception and intense in emotions, and a romantic. The irritable emerged as a critical and skeptical person (which can be considered as assets), but otherwise having the "darkest" nature: grouchy, complaining, dissatisfied, anger and violence-prone and sexually jealous. These attributes, obtained by self-report in a moderately severe group of patients with affective disorders overall testify to the ability of patients to accurately describe their natural dispositions. Similar data were obtained in an interviewed clinically well group (Placidi et al., 1998). Moreover, our results testify to the evolutionary context of affective disorders—"submissive" behavior, territoriality, romantic charms, and last, but not least, sexual jealousy with its specter of violence. The putative social and limbic mechanisms underlying mood disorders appear to have archaic origins on an evolutionary scale, and should help inform both theory and practice. The temperamental underpinnings of affective disorders are very much part of basic human nature.

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Appendix A. TEMPS-A-Clinical version

	Cyc	Irr	Hyp	Dys
Dysthymic				
7. I have always blamed myself for what others might consider no big deal.				0.50
9. I'm the kind of person who doesn't like change very much.				0.50
10. In a group, I would rather hear others talk.				0.51
11. I often give in to others.				0.56
12. I feel very uneasy meeting new people.				0.50
13. My feelings are easily hurt by criticism or rejection.				0.45
14. I am the kind of person you can always depend on.				0.45
15. I put the needs of others above my own.				0.55
17. I would rather work for someone else than be the boss.				0.51
Cyclothymic				
22. I often feel tired for no reason.	0.54			
23. I get *sudden* shifts in mood and energy.	0.52			
24. My moods and energy are either high or low, rarely in between.	0.56			
25. My ability to think *varies greatly* from sharp to dull for no apparent reason.	0.59			
26. I can really like someone a lot, and then completely lose interest in them.	0.47			
28. I often start things and then lose interest before finishing them.	0.53			
29. My mood often changes for no reason.	0.59			
30. I constantly switch between being lively and sluggish.	0.62			
32. I sometimes go to bed feeling great and wake up in the morning feeling life is not worth living.	0.47			
34. I go back and forth between feeling overconfident and feeling unsure of myself.	0.46			
35. I go back and forth between being outgoing and being withdrawn from others.	0.47			
36. I feel all emotions intensely.	0.48			
38. The way I see things is sometimes vivid, but at other times lifeless.	0.56			
39. I am the kind of person who can be sad and happy at the same time.	0.41			
40. I daydream a great deal about things that other people consider impossible to achieve.	0.44			
41. I often have a strong urge to do outrageous things.	0.51			
42. I am the kind of person who falls in and out of love easily.	0.44			
Hyperthymic				
43. I'm usually in an upbeat or cheerful mood.			0.47	
44. Life is a feast which I enjoy to the fullest.			0.41	
46. I'm the kind of person who believes everything will eventually turn out all right.			0.47	
47. I have great confidence in myself.			0.57	
48. I often get many great ideas.			0.48	
49. I am always on the go.			0.51	
50. I can accomplish many tasks without even getting tired.			0.63	
52. I love to tackle new projects, even if risky.			0.56	
53. Once I decide to accomplish something, nothing can stop me.			0.53	
54. I am totally comfortable even with people I hardly know.			0.49	
55. I love to be with a lot of people.			0.45	
58. I have abilities and expertise in many areas.			0.51	
63. Normally I can get by with less than 6 hours of sleep.			0.44	
Irritable				
64. I am a grouchy (irritable) person.		0.55		
65. I am by nature a dissatisfied person.		0.51		
68. I often feel on edge.		0.45		
69. I often feel wound up.		0.46		
71. I often get so mad that I will just trash everything.		0.57		
72. When crossed, I could get into a fight.		0.57		

Appendix A (*continued*)

	Cyc	Irr	Hyp	Dys
Irritable				
73. People tell me I blow up out of nowhere.		0.61		
74. When angry, I snap at people.		0.62		
77. I can get so furious I could hurt someone.		0.59		
78. I am so jealous of my spouse (or lover), that I cannot stand it.		0.35		
81. I am a very skeptical person.		0.50		

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