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Original Article

Temperament: Where Do You Set The Cutoff?

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Abstract:

The study of temperament has embodied two important concepts: the "normal" and the "pathological" with the huge consequences on the description of human behavior. Both research and clinical practice are increasingly referring to temperament in various endeavors. Consequently, the Institute for Development Research Advocacy and Applied Care (IDRAAC) adapted the Temperament Evaluation of the Memphis, Pisa, Paris, and San Diego Auto-questionnaire (TEMPS-A) into the Lebanese-Arabic language as part of the Lebanese Evaluation of the Burden of Ailments and Needs Of the Nation study (L.E.B.A.N.O.N). Our first results on the psychometric properties of the TEMPS-A scale have shown that it is very useful in assessing temperament on a nationally representative sample of Lebanese adults. A fundamental question is emerging at this stage of our research: what is the best approach to determine the specific temperament for an individual? Meanwhile our next analysis will focus on the clinical utility, and refining the classification of mood disturbances.

The use of the concept of temperament in clinical practice can be traced back to the times of Hippocrates, when dietary instructions were tailored to improve human health, and modify mood and temperament .[1] More recently in the early 20th century, clinicians thought more specifically of temperament as a possible risk factor for psychopathology. [2,3] While advanced research is currently trying to identify the gene(s) responsible for temperament [4], an agreement is building up: affective temperaments seem to have potentially a crucial role in mental health: unstable cyclothymic temperament is looked at as a predictor of Bipolar II disorders [5,6], dysthymic temperament is associated with Depressive Bipolar I [7], and hyperthymic temperament is linked to hypomania and mania [8]. Cyclothymic temperament has been linked not only to creativity but also to eating and sleeping disturbances [9,10]. A recent study by Kochman et al (2005) showed that the presence of cyclothymic-hypersensitive temperament increased the risk of suicidal ideation (OR=7.4) and suicidal attempt (OR=10.5) among children and adolescents [11]. Krumm-Merabet and Myer (2005) have shown that although school children with hyperthymic temperament spent more time in pursuing leisure activities (sports, socializing, friend-related activities), yet they more often drank alcohol, smoked cigarettes, and got involved in fights than controls [12.] .

Among the many scales that were developed for the measurement of temperament, the Temperament Evaluation of the Memphis Pisa Paris and San Diego-Auto-questionnaire (TEMPS-A) stands unique, in its short and long version, for assessing five affective temperaments: depressive, cyclothymic, hyperthymic, irritable and

anxious subscales [13,14]. The TEMPS-A had been adapted so far to more than ten national versions and had been successfully used in clinical and epidemiologic studies [11,15-20]. The TEMPS-A had been useful in linking temperament not only to classical pathology such as bipolar disorders [5], but also emerges as a possible indicator of social interactions, choice of career, etc. [21]

In 2002/2003, the Institute for Development Research Advocacy and Applied Care (IDRAAC) initiated the Lebanese Evaluation of the Burden of Ailments and Needs Of the Nation study (L.E.B.A.N.O.N study) on a nationally representative sample (N= 2857). This national study is constituted of 2 components. The first component is the L.E.B.A.N.O.N World Mental Health surveys [22] where the Arabic Composite International Diagnostic Interview (CIDI 2000) was the instrument used for the diagnostic assessment of mental health disorders (Depression, Mania, Anxiety, Panic, Phobias, Substance Use, Obsessive Compulsive Disorder, etc), risk factors, treatment, physical condition, demographic variables, etc. [23]. The L.E.B.A.N.O.N-TEMP is the second component of the national study and the Lebanese-Arabic version of the TEMPS-A was used for the national assessment of temperament in Lebanon [20].

The Lebanese-Arabic TEMPS-A is a self-filled scale with 110 items, it has a good internal consistency, with the majority of the respondents (82.1%) having no difficulty in understanding the items of the subscales. Five main factors emerged from the factor analysis: Depressive-Anxious (Worrying), Hyperthymic, Irritable, Anxious (Somatic), and Depressive-Cyclothymic factor. The average response time of the questionnaire was 16.6 ± 10 minutes. Older and illiterate respondents preferred direct interview [20, 24].

Our first results have shown that the Lebanese (adults) scored highest on the hyperthymic temperament subscale as compared to the other subscales. Females scored higher on the depressive, anxious, and cyclothymic subscales; whereas males scored higher on the hyperthymic subscale. Older people scored higher on the depressive subscale and lower on the cyclothymic and irritable subscales [20] (Table1). The majority of respondents (90.3%) thought that their answers on the five temperament subscales represented them since age 18 years and up to the time they were given the interview. Fluctuations in answers were mainly due to getting older or scoring high on the cyclothymic temperament subscale [24].

In our Lebanese national sample, hyperthymia was a highly "favored" temperament. When respondents were then asked, and in a separate section to subjectively pick up in one sentence only, the one "temperament" that describes them the best, not only the 34.3% who picked hyperthymia, but also those who described themselves as even-tempered (48.5%) scored highest on the hyperthymic temperament. Stability of answers on the TEMPS-A scale throughout an individual's lifespan was associated with having a higher mean score on the hyperthymic subscale [24]. Thus, hyperthymia seems to be looked at as a socially desirable temperament and stable as compared to other temperaments [25].

We had looked previously at mental health disorders and their association with various factors, especially exposure to war [26-30]. Currently, the L.E.B.A.N.O.N study offers a unique chance to assess the relationship between affective temperaments and a variety of outcomes on a national level such as: mental health disorders, suicide, employment, education, alcohol and substance use, physical activity, social network, marriage, and other variables such as exposure to war, socioeconomic status, etc.

At this stage of our research, fundamental questions are emerging: what is the best method to determine the specific temperament of an individual? Published findings tilt towards determining a dominant temperament for an individual based on a Z-score (+ 2 SD) above the population mean [17,19]. We have previously expressed our doubts towards this approach of determining a cutoff, since in our sample, no Lebanese subjects would have a hyperthymic temperament (+2SD) due to the high population mean score on the hyperthymic temperament subscale [20]. This was shown in reports from Italy as well. [31]

In clinical studies, the cutoff for each type of temperament could be determined as a predictive value for disorders such as soft bipolarity, or can be correlated with variables such as suicide, social status, exposure and reaction to stress, and physical comorbidity (cardiovascular diseases...). In the French multi center study (EPIDEP) the cutoff of temperament was determined based on its relation to some outcomes; for example, a cutoff sore of 10 or more on the cyclothymic temperament subscale captured 88% of Bipolar II cases among depressive patients [32]. In a second French study, Hantouche et al showed that in a sample of 613 Obsessive Compulsive Disorder patients, a dis-

Table 1. Characteristics of the Lebanese-Arabic TEMPS-A sample and differences by gender, mean (± SD).*

Temperament subscale	N	All	Males	Females	P
Mean age (years)	1320**	43 (16)	44 (17)	43 (16)	0.2
Depressive temperament	1268	7.6 (2.9)	7.1 (2.6)	8.0 (3.1)	<0.001
Cyclothymic temperament	1272	5.9 (4.3)	5.4 (3.9)	6.4 (4.6)	<0.001
Hyperthymic temperament	1278	12.5 (4.5)	13.8 (4.1)	11.3 (4.5)	<0.001
Irritable temperament	1279	2.8 (3.1)	2.8 (3.2)	2.6 (2.9)	0.2
Anxious temperament	1285	6.6 (5.2)	5.4 (4.5)	7.5 (5.6)	<0.001

** Reference 20*

*** Sample number that was given the Lebanese-Arabic TEMPS-A.*

tinct subgroup scored 10 or more on the cyclothymic temperament subscale [33].

Another method of determining the dominant temperament for an individual is choosing the temperament subscale with the highest total score among the five affective subscales [17,19]. This method has its own limitations where one could score quite high on two temperament subscales although one is higher than the other. In addition, this method would give equal weights to the five affective temperaments. An individual having a total score of 7 on the depressive subscale and 11 on the cyclothymic subscale is not necessarily more cyclothymic than depressive. In fact, a lower score on the depressive temperament subscale might in its own right be more important in its predictive value than a higher score on the cyclothymic temperament subscale.

We suggest that there is no "one dominant temperament" for an individual, but rather a dimensional score of affective temperaments that vary from one individual to another, and could range from normal to pathological. This dimensional approach is currently being suggested for the DSM V (Diagnostic and Statistical Manual) as a refinement of the present categorical approach. Several studies have pointed to the advantages of adopting a dimensional approach vs. a categorical one in clinical practice [34,35]. Applying this to temperament is definitely worth being addressed.

It is clear that each subject will have a different combination of scores on the various subscales of the TEMPS-A. Although this seems obvious at first sight, the implications could nevertheless be far reaching. Indeed, a scale that initially looked at the continuum between major affective disorders and "subclinical" conditions appears to be possibly related to other outcomes such as profession, social interactions, creativity, etc. Thus we might need to look not only at cutoffs that traditionally are designed to target pathology but also at the elaboration of a temperament fingerprint that might show to be very useful in linking temperament to human behavior.

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Reviewer 1:

Alterations suggested made and accepted.

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