



Research report

Temperament in Portuguese university students as measured by TEMPS-A: Implications for professional choice

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ABSTRACT

Background: The structure of temperament displays subaffective traits as attributes of adaptive value. There are few studies on how different professions compare on temperaments. Our aim was to examine the relationship between the choices of Portuguese students in their fields of study, and their respective temperaments.

Methods: The sample included 1386 students from six different universities (law, engineering, arts, medicine, psychology, and nursing), of both genders (67% female), and ages between 17 and 58 ($X \pm SD = 21 \pm 3.4$).

Results: Law and art students presented a cyclothymic or irritable temperament. Engineering students presented a hyperthymic temperament. Psychology and nursing students presented predominantly depressive and anxious temperaments. Medicine students were least extreme in temperament scores or frequencies.

Limitations: Nursing students came largely from one university located in a Portuguese city (northeast from Lisbon) which could be a potential limitation to be confirmed.

Conclusions: Distinct temperamental profiles of students enrolled in different professional fields could be identified in our sample taking into account the presence or absence of excessive temperaments. Future physicians did not present a predominant temperament, future lawyers and artists presented predominantly a cyclothymic or irritable temperament, future engineers presented a hyperthymic temperament and, future psychologists and nurses presented predominantly depressive and anxious temperaments.

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1. Introduction

The structure of temperament as reported by Akiskal and Akiskal (2005) shows subaffective traits as “positive” attributes of adaptive value, providing a description of patients

and reporting their vulnerabilities and personal assets, which is important in the readjustment during the recovery process. This approach was pioneered by Mackinnon (1965) and Barron (1972), and has been subsequently extended to art students and the study of temperament in different professional domains. For instance, in a sample of psychiatric outpatients, Akiskal et al (2005a) reported that physicians were most dysthymic, managers were predominantly hyperthymic but not cyclothymic, industrialists were mostly hyperthymic, journalists presented either a cyclothymic or

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hyperthymic temperament, architects were as cyclothymic as dysthymic but not hyperthymic, and artists were predominantly cyclothymic.

With this background, our objective was to find out which temperaments were related to the professions chosen by Portuguese university students.

2. Methods

2.1. Measures

The TEMPS-A (Temperament Evaluation of Memphis, Pisa, Paris and San Diego-Autoquestionnaire) is a 110-item temperament scale in 5 dimensions (sub-scales: depressive, cyclothymic, hyperthymic, irritable and anxious). It is a “yes” or “no” type self-report questionnaire developed by Akiskal and collaborators (Akiskal and Akiskal, 2005; Akiskal et al., 2005b) in 12 languages and validated in the Portuguese population by Figueira and collaborators (2008).

The Portuguese–Lisbon validation study upheld 5 factors presenting a good to moderate internal consistency coefficient ($\alpha=0.67$ to 0.83) and with a mildly higher scores of hyperthymic and anxious sub-scales. Subjects scoring above the 2Z score (the cut-point) were considered to have an excessive temperament, that is scoring ≥ 13 points in the depressive sub-scale, ≥ 16 points for the cyclothymic, ≥ 20 for the hyperthymic, ≥ 12 for the irritable and ≥ 19 for the anxious (Figueira et al., 2008).

2.2. Subjects

We included 1386 university students from Portugal, in six different universities: Law ($n=196$), Engineering ($n=263$), Arts ($n=114$), Psychology ($n=349$), Medicine ($n=235$), and Nursing ($n=229$). Subjects were of both genders with a mean age of 21 years old ($SD=3.4$, Median = 20). We did not screen subjects for psychiatric or family history of a psychiatric disorder.

2.3. Statistics

The total score of TEMPS and of each subscale was the result of the sum of all “true” answers, and missing values were considered as “absent”, scored zero.

Correlations among the five subscales were performed using the Pearson's bivariate correlation.

One-Sample Kolmogorov–Smirnov Test was used to evaluate the distribution for each sub-scale and for the total 110-scale.

ANOVA test (F) was used to compare a) ages, and b) means scores in each sub-scale among the six groups of university students. Comparison of means among the 5 subscales, in each university group, was performed using the paired t -test (t).

Chi-square (χ^2) was used to compare frequencies 1) in the sample of students, and 2) of subjects scoring higher or above the 2Z scores/cut-points, among the six university groups, in each subscale.

The overall analysis was performed using the SPSS 16 with a maximum two-tailed p -value of 0.05.

3. Results

3.1. Comparisons among the six university groups

3.1.1. Demographic characteristics by temperament in the six groups

In five groups, excluding engineering, there were more females than males ($\chi^2=284$, $p<0.001$), which reflects the gender ratio of students in the university population in Portugal. The comparison between genders in temperament distribution will be the subject of a subsequent analysis.

There were differences in mean age ($F=18.59$, $p<0.001$) between the six university groups (Mean \pm SD: Law: 20.8 ± 4.7 ; Engineering: 22.1 ± 4 ; Arts: 19.7 ± 1.8 ; Psychology: 21.4 ± 3.7 ; Medicine: 19.7 ± 1.8 ; Nursing: 21 ± 1.8). Students from medicine and arts were younger than students from the remaining groups and students from engineering were older than the students from the other 5 groups.

3.1.2. Correlation among the 5 sub-scales

One-Sample Kolmogorov–Smirnov Test for each sub-scale (p -value <0.000) and for the total scale (p -value <0.001) scores suggested that the data did not follow a specific distribution.

Scales were mostly correlated with each other (Pearson's correlations: Depressive–Cyclothymic = 0.46; Depressive–Hyperthymic = -0.40 ; Depressive–Irritable = 0.28; Depressive–Anxious = 0.59; Cyclothymic–Hyperthymic = -0.11 ; Cyclothymic–Irritable = 0.53; Cyclothymic–Anxious = 0.52; Hyperthymic–Anxious = -0.26 ; Irritable–Anxious = 0.41); only subscales of the hyperthymic and irritable were uncorrelated.

3.1.3. Comparisons of means among the 6 university groups (Table 1)

Using the ANOVA test to compare the means among of the six university groups, the results revealed that for the depressive temperament subjects from engineering had the lowest mean scores. For the cyclothymic temperament, subjects from law and arts groups had the highest mean scores. For the hyperthymic temperament, subjects from the engineering group had the highest mean scores and subjects from medicine had the lowest mean scores. For the irritable temperament, subjects from law and arts groups had the highest mean scores. For the anxious temperament, subjects from law and nursing groups had the highest mean scores. For the total score in the TEMPS, the medicine group had the lowest scale scores and the law group had the highest means scale scores (Table 1).

3.1.4. Comparisons of frequencies among the 6 university groups (Table 1, Fig. 1)

The comparison of the frequencies of subjects presenting scores higher than the 2Z scores/cut-point among the 6 university groups presented statistical significances such as: 1) nursing was the group with the highest frequency on depressive ($\chi^2=1.27$, $p<0.01$), cyclothymic ($\chi^2=82.4$, $p<0.01$), irritable ($\chi^2=85.2$, $p<0.01$) and anxious ($\chi^2=1.83$, $p<0.01$) temperaments. Nevertheless, for the depressive and cyclothymic temperament law group presented high frequencies, and for the irritable temperament law group also presented a high

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