Research report

Affective temperaments in tango dancers

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A B S T R A C T

Background: Links between affective temperaments and folk culture have been infrequently explored systematically. Creativity and personality and temperament studies, conversely, have reported several associations. Tango is one of the most typical Argentinean folk dance-musical repertoires. The main purpose of this study is to compare affective temperaments between Argentinean professional tango dancers and the general population.
Methods: TEMPS-A was administered to a sample of 63 professional tango dancers and 63 comparison subjects from the general population who did not practice tango. Subscale median scores and total median scores with non-parametric statistics were analyzed.
Results: Median scores on hyperthymic subscale ($p \leq 0.001$), irritable subscale ($p = 0.05$) and total median score were significantly higher among tango dancers compared to controls ($p \leq 0.001$).
Limitations: Self-report measures were used. A larger sample size would have provided greater statistical power for data analysis. Besides, the naturalistic study design did not allow controlling for other clinical variables and limited the generalization of results to broader populations.
Conclusions: Our data adds new evidence for the hypothesis that artistic performance is related to one's temperament. Tango passionata, which has both melancholic and vigorous (including "upbeat") features, seems to impart tango dancers' hyperthymic and irritable temperament features. Our study supports the increasing literature on the validity of utilizing temperament as a sub-affective traits in relation to artistic creativity and performing arts.

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1. Introduction

In contrast to the vast literature devoted to creativity and personality, the relationship between artistic tendencies and affective temperaments is less well known (Akiskal and Akiskal, 2007; Nęcka and Hlawacz, 2013). However, musical creativity has been studied amongst the most accomplished German composers (Eliot Slater, quoted in Ostwald (1985)).

Affective temperaments refer to innate emotional traits involving reactivity; temperaments involve an individual's liabilities and positive attributes. They are relevant for understanding affective illness, postulated as a continuum of several conditions, ranging from normal subthreshold affective traits to the emergence of severe affective pathologies (Akiskal and Pinto, 1999; Vázquez et al., 2008).

Sub-affective traits are highly prevalent in clinically well populations. Besides, recent data suggests that the temperamental foundations of affective disorders, in their dilute forms, are very much part of human nature (Akiskal and Akiskal, 2005b). Temperaments characterize each individual's basic affective traits that could be mild or extreme but, and although they can precede psychopathology, they do by themselves refer to a specific clinical disorder. However, in interaction with other factors, they may constitute a relevant predisposition for the emergence of an affective episode (Akiskal and Akiskal, 2007; Vázquez et al., 2008).

The cyclothymic temperament is most often invoked in creative aptitudes (Akiskal and Akiskal, 2007). In addition, current research associates temperaments with the profession or artistic behaviors of individuals who are performing musicians (Akiskal and Akiskal, 2012). Although several professions have been recently assessed (Akiskal et al., 2005; Vellante et al., 2011), links between folk culture and predominant affective temperaments have been less explored. In view of this, Argentinian Tango is very relevant to such studies. Tango was developed in the 19th century in the

suburbs near the city of Buenos Aires. It is described as being a "passionate" discipline that encompasses many vigorous and melancholic features. It is danced vigorously with sharp, staccato movements, and rigid poses that are fueled by rage and jealousy (Azzi, 2001; Qing and Caifeng, 2012). To this point in time, no research has inquired about the potential link that exists between tango professional dancers and their affective temperaments.

Notwithstanding, research in affective temperaments has navigated years of academic experience. Results derived from semi-structured interviews and valid psychometric scale developments. The TEMPS-A (Temperament Evaluation of the Memphis, Pisa, Paris and San Diego—Autoquestionnaire, Akiskal and Akiskal, 2005a) assesses temperament traits along the affective spectrum [dysthymic, cyclothymic, hyperthymic, irritable, and anxious]. Its background stems from an evolutionary biological perspective (Akiskal and Akiskal, 2005b). It has received support from genetic studies (Gonda et al., 2006; Greenwood et al., 2013), and has been translated into different languages and validated in many countries (e.g. Karam et al., 2006; Vázquez et al., 2007; Rózsa et al., 2008; Pompili et al., 2008; Vellante et al., 2011; Lin et al., 2012; Fountoulakis et al., 2013). Studies in affective disorders have not only proven associations between bipolar disorder and high scores on the cyclothymic subscale, but also between depression and dysthymic temperament (Akiskal and Vázquez, 2006). For example, recently, adult inpatients with either major depression or bipolar disorder and a significant cylothymic phenotype have shown distinct clinical features in comparison to inpatients with major mood disorders but without this temperamental profile (Innamorati et al., 2015). Research in non-clinical populations could offer additional evidence regarding associations between temperament, artistic tendencies, and sub clinical affective traits (Akiskal et al., 2005; Vázquez et al., 2008; Vellante et al., 2011).

The purpose of this study is to compare the affective temperaments of professional tango dancers relative to the general population. Given previous results that indicate relations between artistic tendencies and cyclothymic features (Akiskal et al., 2005; Vellante et al., 2011; Johnson et al., 2012), it is hypothesized that tango dancers present higher scores on the TEMPS-A cyclothymic subscale. A second aim of this study is to identify tango dancers and their predominant affective temperaments ($+2$ S.D.) relative to a control group. We also hypothesize that our sample of tango dancers presents significantly more individuals with a cyclothymic dominant temperament than of controls.

2. Methods

2.1. Subjects

A total of 63 professional tango dancers (mean age 32.92 ± 14.50, women, 34.9%, men 65.1%) and 63 comparison subjects from the general population (mean age 33.34 ± 13.97, women, 34.9%, men 65.1%) who neither practiced the tango discipline nor received income from an artistic profession participated in this study. Subjects under the age of 18 or who reported a clinical diagnosis of previous or current psychopathological disorders were excluded. Professional tango dancers first reached through official tango dance schools in Buenos Aires city. Control subjects were invited to participate by a snowball sampling method which took place in the same city areas where tango dancers were enrolled. After participants had been provided with a thorough description of the procedures, written informed consent was provided. Data collection was conducted between April 26th 2012 and June 10th 2013 by local experts in the clinical affective field. A complete socio-demographic profile of the total sample is displayed in Table 1.

2.2. Measures

TEMPS-A is a self-reporting instrument that was developed by the senior authors (K.K.A. and H.S.A.) of this article (Akiskal and Akiskal, 2005a,b). It is used as a worldwide assessment that quantifies the basic affective temperaments: hyperthymic, depressive, cyclothymic, irritable and anxious in psychiatric patients as well as in healthy subjects (Akiskal and Akiskal, 2005a). The adapted Argentinean version (TEMPS-A Buenos Aires, Vázquez and Akiskal, 2005) consisted of 110 items, and was validated on a clinically-well sample with satisfactory psychometrical properties (Vázquez et al., 2007).

2.3. Procedure

Participants were tested individually after they filled in an informed consent form.

2.4. Statistical analysis

All data was coded and analyzed using version 18 of the Statistical Package for Social Sciences (SPSS) for Windows 7.

Table 1
General characteristics of the sample.

Variables	All subjects	Tango dancers	Controls	Statistics	*p*-Value
Cases (*n* [%])	126 (100)	63 (50%)	63 (50%)		
Age (S.D.)	33.63 (14.19)	33.92 (14.50)	33.34 (13.97)	0.03[a]	0.85
Sex (%)				0.00[b]	1.00
Women	44 (34.9)	22 (34.9)	22 (34.9)		
Men	82 (65.1)	41 (65.1)	41 (65.1)		
Education (years [%])**				3.21[b]	0.35
≥ 7	21 (16.7)	13 (20.6)	8 (12.7)		
≥ 12	73 (57.9)	37 (58.7)	36 (57.1)		
≥ 16	27 (21.4)	10 (15.9)	17 (27)		
Marital status (%)***				5.16[b]	0.27
Single	74 (58.7)	35 (55.6)	39 (61.9)		
Married	35 (27.8)	16 (25.4)	19 (30.2)		
Separated or divorced	13 (10.3)	8 (12.7)	5 (7.9)		
Widowed	3 (2.4)	3 (4.8)	0 (0)		

[a] Median test.
[b] Chi-square test.
** 3 missing data in tango dancers and 2 in controls.
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All tests were two-tailed, with a conservative $p = 0.05$. Data was analyzed with non-parametric statistics (median test) due to non-normality (Kolmogorov–Smirnov, with Lilliefors significance correction, p-value ≤ 2 in all explorations). Dominant temperaments were compared with a chi-square test.

3. Results

3.1. Comparisons between temperaments

Both median groups were compared. Statistical differences were found in Tango dancers on a hyperthymic subscale with median values (tango dancers $58 >$ median, $5 \leq$ median; controls $3 >$ median, $60 \leq$ median; $p \leq 0.001$), irritable subscale median values (tango dancers $35 >$ median, $28 \leq$ median; controls $24 >$ median, $39 \leq$ median; $p \leq 0.05$) and TEMPS-A global median scores (tango dancers $43 >$ median, $20 \leq$ median; controls $18 >$ median, $45 \leq$ median; $p \leq 0.001$) (Table 2).

3.2. Prevalence of affective temperaments according to cut-off points

Based on mean scores obtained from a previous Argentinean national sample, a cut-off of two standard deviations ($+2$ S.D.) was utilized in order to identify predominant affective temperaments (Vázquez et al., 2007). A total of 12 tango dancers (19.04%) and 4 controls (6.34%) had at least one predominant temperament (Tango group: 5 dysthymic, 3 cyclothymic, 3 irritable and 1 anxious dominant temperaments; control group: 1 dysthymic, 2 cyclothymic and 1 irritable dominant temperaments). No statistical significant differences between groups were found regarding dominant temperaments within each subscale.

4. Discussion

Tango passionata is a highly passionate Argentinean traditional artistic discipline (Azzi, 2001). One of the major interests of studying affective temperaments is the possibility to explore sub-affective traits and their clinical significance. Affective temperaments are present in distinct mood disorders and in sub-clinical forms (Innamorati et al., 2015). Temperament refers to stable behavioral traits with affective mood coloring. Associations between artistic tendencies, temperament, and emotional disorders have been proven (Akiskal and Pinto, 1999; Vázquez et al., 2008). These Artistic tendencies could be seen as predictors of the development, and inter-episodic manifestation, of recurrent episodes within the affective spectrum (Vellante et al., 2011).

This study tested whether professional tango dancers compared to non-tango dancers were more likely to show indicators of affective temperaments assessed by the TEMPS-A Buenos Aires. Given that previous reports had reported associations between affective temperaments and creativity (Akiskal et al., 2005; Figueira et al., 2010; Srivastava et al., 2010; Vellante et al., 2011), we hypothesized that cyclothymic features are likely to differentiate tango dancers from non-artisitc controls. Results indicated that tango dancers presented significantly higher scores on a hyperthymic and irritable subscale. An ethological perspective could serve a heuristic function (Akiskal and Akiskal, 2005b). Specifically, one states that the hyperthymic temperament is characterized by exuberant, upbeat, over energetic, and overconfident lifelong traits. On the other hand, irritability is associated with high sensitivity and a low arousal threshold. In fact, these traits have great relevance to territoriality and leadership (Akiskal and Akiskal, 2005b). Finally, our analyses of Tango dancers (Azzi, 2001; Qing and Caifeng, 2012) are in concordance with the research of Akiskal and Akiskal (2005a and 2005b).

Several limitations should be considered. The study used a self-report measure and a relative small sample size which could have affected data reliability and reduced statistical power. Furthermore, the study shares the typical limitations of naturalistic designs and several relevant clinical variables could not be controlled. Affective illness was not measured, nor did we use other relevant psychometric instruments. This missing data could have enriched the results of our analyses. Moreover, the descriptive nature of this study limited the possibility to formulate causal inferences and to generalize results to a broader population.

Nonetheless, our data adds new evidence towards the premise that the domain or the field of art that an individual exercises or performs is related to his or her affective temperament. In relation to Tango passionata and its melancholic and vigorous features, we found that tango dancers presented significantly higher scores on hyperthymic and irritable subscales as well as on temperament total scores. The fact that affective temperaments as measured by TEMPS (Xu et al., 2014) is reflected in neurocognitive alterations, in attention, processing speed, verbal working memory and visual spatial memory, could serve as a possible mediating mechanism for our findings.

We submit that exploring the significance of temperaments and their associated artistic tendencies constitutes a valid path towards the identification of creative traits along the broad affective spectrum as originally proposed by Aristotle and supported by contemporaneous research (reviewed in Akiskal and Akiskal (2007)).

Table 2
Affective temperaments as measured by the TEMPS-A.

TEMPS-A scores	All groups	Tango dancers				Controls				Median test	p-value
	Mean (S.D.)	Mean (S.D.)	Median (max/min)	> Median (n)	≤ Median (n)	Mean (S.D.)	Median (max/min)	> Median (n)	≤ Median (n)		
Dysthymic	6.82 (3.41)	7.20 (3.69)	6 (1/17)	29	34	6.44 (3.08)	6 (0/14)	29	34	6.00	1.00
Cyclothymic	6.68 (4.68)	7.66 (4.97)	6 (1/21)	31	32	5.69 (4.18)	5 (0/16)	26	37	6.00	0.371
Hyperthymic	13.34 (5.12)	17.00 (3.28)	18 (2/20)	58	5	9.68 (3.88)	10 (1/17)	3	60	15.00	0.001**
Irritable	5.26 (4.03)	6.26 (4.39)	5 (0/21)	35	28	4.25 (3.38)	4 (0/16)	24	39	4.00	0.05*
Anxious	7.26 (4.77)	8.26 (5.47)	7 (0/21)	31	32	6.26 (3.73)	6 (0/15)	23	40	7.00	0.15
Total Score	39.38 (15.98)	46.41 (15.79)	42 (17/94)	43	20	32.34 (12.85)	31 (5/67)	18	45	36.00	0.001**

* $p \leq 0.05$.
** $p \leq 0.01$.

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