Scientific Article

Positive Affect and Negative Affect Scale PANAS: Tunisian Sport and Exercise Context

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ABSTRACT

Objectives: We aimed to adapt an instrument which is one of the most used in studies of emotions and mental evaluation, therefore we tried to verify if it is still applicable in sport domain and propose a Tunisian version pf the scale. **Method:** An experimental approach was used, plying the scientific research methods such as the linguistic adaptation, the factorial and statistical analysis of our data. **Results:** The varimax rotation with only 15 items alpha Chrombach improves .65 to .72 by removing the items (9, 10, 12, 16 and 17). Hence, the possibility of abbreviated 15 items instead of 20 was one of our goals, namely to create a new sensitive faithful and valid tool adapted to the Tunisian athlete population. **Conclusion:** Psychometric evaluation confirms an inter-sample stability, internal reliability, temporal stability, a transcultural factorial invariance, and the validity of the convergence criteria.

Keywords: Emotions, sports, mental efficiency, scale, scientific research

INTRODUCTION

Competition is the best situation in which emotions are at their peak. Positive Affect and Negative Affect. PANAS; Watson, D., Clark, L. A, and Tellegen, A. (1988) is a tool designed to identify affective and emotional factors and their impact on performance. The list of self-attributed adjectives contains ten series of two items each dimension to measure positive affect (active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud and strong) and negative affect (fearful, intimidated, distressed, guilty, hostile, angry, funky, nervous, anxious and frustrated). The PANAS is administrated to measure emotional states of mood and the features of them depend on



the structure of time due to the instructions (Watson and Clark, 1997).

Combined with adequate psychometric properties, this scale is used in the social field (Koestner, Lekes, Powers, and Chicoine, 2002), in Health (Roberts, Dimsdale, East, and Friedman, 1998), in Labor (Bowman and Stern, 1995), in Education (Gumora and Arsenio, 2002) and in sport psychology (Crocker and Graham, 1995).

A research carried out by Thompson (2007) subjected the built of PANAS to develop a short version. Results in the release (I-PANAS-SF) to ten items. This validation was performed with (407) subjects, an exploratory quantitative study was applied taking into account the type of cultural background in order to systematically identify what items to remember from the twenty on the version of (Watson et al. 1988).

In another research, Gaudereau, Sanchez, &Blondin (2006)attempted to compare possible factorial structures of the Canadian version of the questionnaire among a sample of athletes from different sport's

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competition levels the first (n = 305) the second is rather with what the authors were intended to (cross/ validate) the most suitable model with the sample size. A study conducted by Galinha and Pais-Ribeiro (2005) clarified the concept of affect, based on the review of the literature, that led to the integration of various aspects of the concept, such as; the concept of affect state (emotion), mood (depression and anxiety and affect trait (personality), the various modes, such as, two-dimensionality versus multidimensionality, orthogonality: independence versus bipolarity, inverse correlation between positive affect and negative affect.

However, In tennis, a research led by Kriese (1993) with the assumption that discerning tennis players must remain calm and control their emotions. Starting assumptions of this study showed that the negative affects such as rumination and mood could be negatively correlated to performance scores (1- male athletes and 6 female) that were followed along a sports season and were subjected to a measurement protocol. Kriese shows that rumination is negatively correlated with athletic performance. Except for the mood, it turned out that it tends to produce less effect on the court and the mood is associated with the performance. Finally, as a negative affect, pre-competitive measures (early season) have no correlation with the performance. Athletes who have not played well reflect more of negative effect after the meeting. However, for positive affect, and even the earliest measures in the season will line up with no performance measurement, the results (before/after) will not correlated to any measurement of performance.

METHOD

We choose the PANAS in order to explore emotions in our sample that are belonging to three types of sports, positive and negative effects, their impact on the efficiency and the competitive performance. First, we start with the development of a preliminary version. Subsequently, the evaluation of the reliability and validity of the instrument consists in factor analysis called "exploratory" and a search for internal consistency.

Participants

To carry out this study, we chose athletes from team, individual and combat sport, N 156 (men 109 and 47 women;18.97 \pm 2.73 years).All young athletes (pupils and students) with educational average mean level(12.76 \pm 2.82 years) (Table 1).

Procedures

We have translated the Arabic simple scale, and back translation (Forward/Backward translation) translation tools are French/Arabic dictionaries. We asked a university professor to translate our own translation Arabic to French. We applied concurrent evaluations and content and analyzed the reliability and validity of research built by the factor structure to assess, the internal consistency.

RESULTS

Main Analysis

The sample consisting of 156 all athletes from different sport specialties. All young, adults men and women that were chosen as volunteers who agreed to take the test half an hour before the competition. Analyses show a normal distribution and the lack of significant difference p > 8.26. Results show for the Positive Affect an average mean of 37.88 ± 5.20 . However, in the Negative affect an average mean of 20.51 ± 6.26 . For the total score the average mean is 58.40 ± 8.26 . The subgroup of 109 athletes men on positive affect obtains an average mean of 38.24 ± 5.16 . However, for Negative Affect the average mean is 20.15 ± 6.45 . The total score of average mean for men is 58.40 ± 8.32 (Table 2).

However in women's subgroup n 47, the average mean of positive affect is $37,04 \pm 5.25$ and for negative affect average mean 21.36 ± 5.76 and the total score mean for

Table 1: Descriptive statistics N156

	Men	Women	Total
Sample size	109	47	156
Age	18,81 (2.35)	18,97 (3.47)	18,97 (2.73)
Level of education	12,68 (2.40)	12,76 (3.62)	12,76 (2.82)

Table 2 : Descriptive Statistics PANA	AS Men n109
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	Sample size	Mean	SD
Positive affect	109	38.24	5.16
Negative affect	109	20.15	6.45
Total	109	58.40	8.32

Table 3: Descriptive Statistics PANAS Women n 47

	Sample size	Mean	SD
Positive affect	47	37.04	5.25
Negative affect	47	21.36	5.76
Total	47	58.40	8.21



Phigure 1: Distribution of the different PANAS factorial weight Among the Tunisian sample

women's subscale of positive affect and negative affect is $58,40 \pm 8.32$ (Table 3).

Factorial Analysis

Factorial analysis performed on data collected after placing 156 athletes from various sport specialties girls and boys practicing team sports, individual and combat in pre-competitive situation, thirty minutes before the competition led to identify six factors, as following:

Factor 1: Item 1 (concerned) to .65, item 2 (distressed) .50, item 3 (excited) to .56, item 4 (angry) at .49. Factor 2: item 5 (strong) to .61, item 9 (excited) to .66, item 10 (proud) to .57, item 17 (attentive) to .62 and item 19 (active) to .71. Factor 3: 12 item (alert) to .62, item 14 (inspired) to .77, and item 16 (determined) to .58. Factor 4: 8 item (hostile) to .71, item 11 (irritated) to .61 and item 15 (nerve) to .62. Factor 5: this factor that consists of three items: 6 (guilty) to .78, item 7 (scared) to .63 and item 13 (shame) to .43. Factor 6: a single item 20 (fearful) to .71.

The analysis of inter-item correlations were subjected to principal components factor analysis followed by varimax orthogonal rotation procedure to isolate the best items saturating the factors studied. A second analysis was performed on selected items. In order to provide the best possible compromise between the extent of the scale and its internal consistency.

The varimax rotation with only 15 items alpha Chrombach improves .65 to .72 by removing the items (9, 10, 12, 16 and 17). Hence, the possibility of abbreviated 15 items instead of 20 was one of our goals, namely to create a new sensitive faithful and valid tool adapted to the Tunisian athlete population.

DISCUSSION

Regarding Gaudreau (2006) attempts' to compare possible factor structures of the Canadian version of the scaleamong 305 athletes, our factorial analysis performed on datas collected among 156 athletes aligns with the assumptions of three factors Gaudreau's construct. Moreover, comparing to those of Galinha et al. (2005). Results of this study are alined with the existence of a construct similar to the original hypothesis and aligns with Watson et al. (1988). Furthermore, to study the robustness of the positive and negative affect scale, Tuccitto et al. (2008) conducted a search among a sample of 223 athletes, suggesting that the PANAS scores are reliable and explaining the wide proportions of the variance of items. Thus, we supported the veracity of such results as part of our research, which aligns to internal validity of the PANAS.Our study attempted to bring to light to some correlations, just after calculating the normal distribution indices, using descriptive statistics, we submitted these results to an analysis of variance through which we discovered a significant difference in the relationship (performance/total score of PANAS). Based on the results of our study sample subjected to the repeated measures protocol in pre-competitive situation, we support and confirm these results revealed by Kriese (1993) considering emotions the best predictors of performance. The attention cautiously underlined the fact that emotions, particularly positive affect appears three times positively correlated with the performance. Hence, focused on the importance of this condition in achieving good results. This could depend of course on other variables such as; the type of competition, the type of sport and various socioaffective conditions, presence or absence of parents, playing at home or in the opposition and the level of expertise.

Matching results carried out by Thompson et al. (2007) subjected the built of PANAS to develop a short version. Results in the release (I-PANAS-SF) to ten items. The validation was performed with (407) subjects, an exploratory quantitative that study was applied taking into account the type of cultural background in order to systematically identify what items to remember of the twenty on the version of (Watson et al. 1988).

CONCLUSION

Finally, a psychometric evaluation confirms an intersample stability, internal reliability, temporal stability, a transcultural factorial invariance, and the validity of the convergence criteria. Indeed, we invite colleagues to use this new shorter version, that would facilitate the exploration of the affective components and the study protocols, especially if the battery is quite long.

REFERENCES

Bowman, G. D., & Stern, M. (1995). Adjustment to occupational stress: The relationship of perceived control to effectiveness of coping strategies. Journal of Counseling Psychology, 42, 294-303.

- Crocker, P. R., & Graham, T. R. (1995). Coping by competitive athletes with performance stress: Gender differences and relationships with affect. *The Sport Psychologist*, 9, 325–338.
- Galinha, I. C., & Pais-Ribeiro, L. (2005). Contribuição para o estudo da versãoportuguesa da *Positive and Negative Affect Schedule* (PANAS):
 I Abordagemteóricaaoconceito de afecto. *AnálisePsicológica, 23,* Tuccitto, D. E., Giacobbi, P. R., & Leite, W. L. (2010). The internal structure of positive and negative affect: A confirmatory factor analysis of the PANAS. *EducPsychol Meas.* 70:125–141.
- Galinha, I. C., & Pais-Ribeiro, L. (2005). Contribuição para o estudo da versãoportuguesa da *Positive and Negative Affect Schedule* (PANAS): I – Abordagemteóricaaoconceito de afecto. *AnálisePsicológica*, 23, 2.
- Gaudereau, P., Sanchez, X., & Blondin, J-P. (2006). Tester les structure factorielle du PANAS à travers des échantillons franco-canadiens. *European Journal of Psychological Assessment*; Vol. 22(4): (pp.240-249).
- Gumora, G., & Arsenio, W. F. (2002). Emotionality, emotion regulation, and school performance in middle school children. *Journal of School*

Psychology. 40:395-413.

- Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining Personal Goals: Self-Concordance Plus Implementation Intentions Equals Success. *Journal of Personality and Social Psychology, Vol. 83*, No. 1, 231–244. DOI: 10.1037//0022-3514.83.1.231
- Roberts, K. R., Dimsdale, J., East, P., & Friedman, L. (1998). Adolescent emotional response to music and its relationship to risk-taking behaviors. *Journal of Adolescent Health*, 23, 49–54.
- Thompson, E.R. (2007). Development and Validation of an Internationally Reliable Short-Form of the Positive and Negative Affect Schedule (PANAS). *Journal of Cross-Cultural Psychology*, Vol 38(2), 227-242.
- Watson, D., Clark, L. A, & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *AJ PersSoc Psychol.* 54(6):1063-70.
- Watson, D., & Clark, L.A. (1997). Measurement and mismeasurement of mood: Recurrent and emergent issues. *Journal of Personality* Assessment, 68, 267–296.