

## **Preliminary study of the psychometric properties of the Positive Psychological Functioning Scale in a sample of Uruguayan adolescents**

### **Estudio preliminar de las propiedades psicométricas de la Escala de Funcionamiento Psicológico Positivo para una muestra de adolescentes uruguayos**

### **Estudo preliminar das propriedades psicométricas da escala Positive Psychological Functioning para uma amostra de adolescentes uruguaios**

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**Abstract:** The objective of this paper was to evaluate the psychometric properties of the Positive Psychological Functioning scale (PPF) in Uruguayan adolescents. The scale is composed of 33 items that measure 11 psychological resources. The PPF constitutes a second-order construct of eudaimonic well-being. An instrumental study was carried out using a convenience sample made up of 183 adolescents (ages 12 through 17) from the general population. The results of the factor analysis carried out had a seven-dimensional structure: self-esteem, autonomy, purpose in life, optimism/enjoyment, curiosity, sense of humor, and environmental mastery (RMSEA = .09, CFI = .99, TLI = .97), and adequate reliability values. The factorial solution organized into seven factors explains 62.15 % of the variance. These results coincide with the only published study for an adolescent population, which differs from the original and subsequent studies given that these analyzed samples from university students.

**Keywords:** positive psychological functioning; factor analysis; psychometric properties

**Resumen:** El objetivo del presente trabajo fue evaluar las propiedades psicométricas de la escala de Funcionamiento Psicológico Positivo (FPP) en adolescentes uruguayos. La escala está compuesta por 33 ítems que miden 11 recursos psicológicos. El FPP se constituye en un constructo de segundo orden del bienestar eudaimónico. Se realizó un estudio de tipo instrumental con una muestra por conveniencia conformada por 183 adolescentes (de 12 a 17 años) de población general. Los resultados de los análisis factoriales realizados resultan en una estructura de siete dimensiones: autoestima, autonomía, propósito vital, optimismo/disfrute, curiosidad, humor, y dominio del entorno (RMSEA= .09, CFI= .99, TLI= .97), y adecuados valores de fiabilidad. La solución factorial organizada en siete factores explica el 62,15 % de la varianza. Estos resultados concuerdan con el único estudio publicado en población adolescente, que a diferencia del original y los posteriores replicados, utilizaron muestras de universitarios.

**Palabras clave:** funcionamiento psicológico positivo; análisis factorial; propiedades psicométricas



**Resumo:** O objetivo deste trabalho foi avaliar as propriedades psicométricas da escala de Funcionamento Psicológico Positivo (FPP) em adolescentes uruguaios. A escala é composta por 33 itens que medem 11 recursos psicológicos. O FPP constitui um construto de segunda ordem do bem-estar eudaimônico. Realizou-se estudo instrumental com amostra de conveniência composta por 183 adolescentes (12 a 17 anos) da população geral. Os resultados da análise fatorial realizada resultam em uma estrutura de sete dimensões: autoestima, autonomia; resiliência, otimismo, curiosidade, prazer e domínio do ambiente (RMSEA = 0,09, CFI = 0,99, TLI = 0,97) e valores de confiabilidade adequados. A solução fatorial organizada em sete fatores explica 62,15 % da variância. Esses resultados são consistentes com o único estudo publicado em uma população de adolescentes que, ao contrário do original e das réplicas subsequentes, utilizou amostras de estudantes universitários.

**Palavras-chave:** funcionamento psicológico positivo; análise fatorial; propriedades psicométricas

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Adolescence is the stage of the vital cycle characterized by biological maturation processes and the psychological, cognitive, and social developments that allow the passage from childhood to adulthood (Gaete, 2015). One of the main characteristics of this stage is the search for one's identity, the motivation to belong to a group of peers and a shift to independence from the family unit. Multiple changes occur in different areas of life during this normal developmental process, so it becomes essential to measure the healthy aspects available to adolescents.

Psychological resources are dominant factors because they are attributes that help improve an individual's performance skills and the way they adapt in different life situations, given that through them people are able to regulate themselves and their relationship with the environment (Alvaro et al., 2010).

In this regard, the psychological unfolding processes are activated depending on each person's abilities to manage high stress situations, as explained by Hobfoll's (1989) theory of Conservation of Resources. This theory establishes that the psychological resources are utilized in the case of a perceived threat, as well as for a perceived loss of resources, as real loss constitutes a source of stress. The environment is constantly testing individuals as they are pushed to regulate, adapt, and adjust. The resources are used to confront high stress situations and to pursue desired goals; they are positive aspects of the personality. According to Hobfoll's (2002) theory, the activation of the resources allows for a better adaptation to the environment; on the other hand, these resources are not independent: they cause a chain activation, meaning the stimulation of a resource triggers the activation of the others. Multiple studies back this theory (González, Andrade & Jiménez, 1997; Rueda & Pérez, 2005; Vázquez, Rivera & Quintanilla, 2011).

Following this line of thought, the Positive Psychological Functioning model (PPF) offers a relevant perspective and theoretical framework to understand the individual differences regarding psychological resources during both the diagnostic evaluation and the therapeutic process, given that the psychological resources can be evaluated and trained.

From a conceptual point of view, the PPF's background can be linked to the eudaimonic well-being perspective and the theory of Conservation of Resources.

Well-being can be conceptualized based on two aspects: subjective or hedonic, related to happiness, and psychological or eudaimonic, whose theoretical development is focused on people's potential and ability to adjust to the environment (Muratori, Zubieta, Ubillos, González, & Bobowik, 2015). In this regard, Robert Cumminis, renowned author in the area, developed the theory of subjective well-being homeostasis using the concept of homeostasis to represent the management of the state of well-being. He conceptualizes that there is a general disposition in subjects to maintain their subjective levels of well-being within a certain threshold (Tomyn, Weinberg, & Cummins, 2015). This conceptualization states that, when homeostasis fails due to the presence of a major negative challenge, people experience a negative affect that may become a chronic condition if it lasts in time. However, if the external demands are intense, they may affect homeostasis; whether these levels off or becomes chronic depends on the personal resources available to the individual to adapt to the circumstances (Tomyn et al., 2015).

On the other hand, the PPF model was developed based on the theory of Conservation of Resources, which defines psychological resources as personality traits that are valuable by their very nature because they are linked to achieving positive results. They favor the attainment of achievements and goals by enabling individuals to adapt to their environment; and finally, they are stable and can be learned (Hobfoll, 1989). According to this author, these resources are usually linked, forming clusters in such a way that obtaining a resource enables the activation of another. The same occurs when a resource is lost (a concept he denominated *resource caravans*).

Carol Ryff, on her part, developed a multidimensional model for Psychological Well-being that is composed of the following resources: Self-acceptance, Positive Relations with Others, Autonomy, Environmental Mastery, Purpose in Life, and Personal Growth (Ryff, 1989). This model is in line with the one previously mentioned, as it also proposes the resources are linked.

The presence or the development of psychological resources contributes to an individual's optimal functioning, allowing them to confront internal and external situations, to increase individual, family, and social strength and, ultimately, to achieve well-being from an eudaimonic perspective (Padrós & Rivera, 2014).

The Positive Psychological Functioning construct emerged from a recent research by the Universidad Complutense de Madrid which consisted of two studies. The aim of the first study was to describe how the psychological resources are organized (autonomy, resilience, self-esteem, purpose in life, enjoyment, optimism, curiosity, creativity, sense of humor, environmental mastery and vitality). The second study sought to replicate the results achieved in the first and to test the scale. The results indicated that there exists an interconnection between the psychological resources, which make up a second order construct they denominated PPF (Merino & Privado, 2015).

The PPF is defined as “a molecule consisting of a set of interconnected atoms (psychological resources) whose contribution to the molecule varies depending on its magnitude (factor loadings)” (Merino & Privado, 2015, p. 52). Thus, the concept links psychological functioning, the resources, the strengths and weaknesses, as well as the tendency of the magnitude of the factors. In consequence, the PPF is a second order construct of eudaimonic well-being, giving the idea of a dispositional tendency of positive psychological functioning, in accordance with the factorial weight of the psychological resource factors. Therefore, the definition of the PPF would be the positive functioning disposition of a person, which is composed of the mobility of the positive factors that integrate it, being activated by the strengths or weaknesses of the resources that compose it.

The scale that evaluates the PPF is composed of 33 items that are answered using a Likert-type scale from 1 to 5, where 1 is *strongly disagree* and 5 is *strongly agree*. The dimensions of the scale are composed as follows: self-esteem: items 1, 18, 20; resilience: items 2, 14, 25; optimism:

items 3, 15, 21; creativity: items 4, 9, 12; autonomy: 5, 8, 10; environmental mastery: 6, 22, 31; vitality: 7, 19, 32; purpose in Life: 11, 24, 26; sense of humor: 13, 23, 29; enjoyment: 16, 28, 33; curiosity: 17, 27, 30 (item 22 is inverted).

The original data reported by the authors are that the second order factor loading on the first order factors is  $>.74$  and the first order factor loading on the elements is  $>.60$ . The factor loadings proved to be statistically significant ( $p < .001$ ). The RMSEA value was .06, indicating a good adjustment to the proposed factorial structure. The incremental fit index shows a moderate adjustment, the NFI value was .702 and CFI was .878. The parsimony-adjusted index presented values higher than .50, PNFI .644, showing a good adjustment of the data to the model (Merino & Privado, 2015).

Subsequently, a research was carried out in Mexico City to validate the PPF scale. Data indicate that the reliability of the test is adequate, with a Cronbach's alpha of .70. The least reliable subscale is resilience (.56). The total score of the scale (including said subscale) showed adequate reliability (.91). The obtained NFI was .88 and the CFI was .92, meaning the model showed moderate adjustment (Merino, Privado, & Gracia, 2015).

In addition, a study was published on the adaptation and validation of the scale for a Portuguese university population. It was composed of 1131 university students with an average age of 19.6. It reported good PPF psychometric properties, where most of the subscales had a Cronbach's alpha of  $>.60$  and the total of the scale had an  $\alpha$  of .90, concluding that the scale presents reliable levels for its use on the target population (Oliveira, Merino, Privado, & Almeida, 2017).

A PPF scale validation study was recently published in Mexico with a sample of 313 adolescents with an average age of 12.7. Said research showed a 4-factor structure that, as a whole, explains 56.83 % of the total variance. Factor 1 was composed of 10 items corresponding to the self-esteem and resilience dimensions. Factor 2 included the enjoyment dimension, composed of 8 items. In the case of factor 3, 6 items were incorporated from the optimism dimension and factor 5 had 5 items from the autonomy-vitality dimension. 29 out of the 33 original items were used, while items 8, 9, 10 and 22 were eliminated (González, Torres, González, & Ruiz, 2018).

The published validation studies, both the original and the ones carried out in the cities of Mexico and Portugal, which maintain the 11-factor scale distribution, all studied a university population; meanwhile, the last study, which presented a different factorial structure (of 4 factors), used a sample of adolescents, resembling the present instrumental study.

## Method

### *Participants*

The sample was composed of 183 Uruguayan adolescents from the general population between the ages of 12 and 17, with an average age of 15. 49.2 % of the participants were from the capital city, while 50.8 % lived in the interior of the country. 54.6 % were female and 45.4 % male. The recruitment process was carried out using a non-probabilistic sample, based on the snowball method.

### *Instruments*

The Positive Psychological Functioning scale (Merino & Privado, 2015) is composed of 33 items with a Likert-type scale from 1 to 5 where 1 is *strongly disagree* and 5 is *strongly agree*. The original version is in Spanish and measures eleven dimensions: Self-esteem; Resilience; Optimism; Creativity; Autonomy; Environmental Mastery; Vitality; Purpose in Life; Sense of Humor; Enjoyment and Curiosity.

After contacting and receiving authorization from the original creator of the scale (Merino & Privado, 2015) for its use in this paper, a linguistic adaptation of the scale was performed, considering the possibility that it may be convenient to modify certain items or words to match local regionalisms. The scale was applied to 15 Uruguayan adolescents who were students at a local secondary education institution in the capital city, whose native language was Spanish and who resided in Uruguay. The conceptual and semantic equivalence was evaluated.

It was essential that language was clear, the wording was adequate, and the items in the questionnaire were understood according to three criteria: a. that the general concept of what is being expressed in every item can be understood; b. that they analyze every item word for word to see if they are understood; c. that they share their opinion on whether a word needs to be modified to be better understood by their peers (adolescents).

The participants suggested:

- in item 6, change the word *compagino* (balance) for *combino* (combine);
- in item 9, change the word *dispares* (dissimilar) for *diferente* o *distintas* (different); the word *diferente* was chosen as it was suggested by more participants;
- in item 11, change the word *entregado* (dedicated) for *enfocado* (focused);
- in item 22, they considered that the word *estudios* (studies) should be used instead of *trabajo* (work) and *novio/a* (boyfriend/girlfriend) instead of *pareja* (partner);
- in item 31, change the word *agobios* (strain) for *cansancio* (tiredness).

Four months later, the questionnaire was reapplied, incorporating the proposed modifications; the respondents were asked to follow the same instructions: every item in the questionnaire has three columns (item concept- word for word- observations). This version of the questionnaire was taken by a total of 12 participants of the same educational institution and, after offering no further changes for the items' general comprehension or to the word for word column, it was resolved to incorporate those modifications.

### ***Proceeding and ethical concerns***

Access was requested to contact adolescents through private secondary education institutions in the city and the interior of the country. The participants were authorized by their families through each institution's inner communication channels. For the high schools in Montevideo, the sampling was done in person, while in the interior of the country the sampling was done digitally.

Participation was voluntary and the adolescents did not receive compensation. The scale was digitalized to be answered online. In both the in person and the digital versions, the instructions to answer individually were clear; the participants were informed of the confidentiality of the information and of the fact that there were no "right" or "wrong" answers, but that the goal was to understand the positive psychological functioning in Uruguayan youngsters.

### ***Data analysis***

The data analysis was carried out using the programs SPSS 22.0 and FACTOR 10.8.04 (Lorenzo-Seva & Ferrando, 2006). FACTOR was used for the exploratory factor analysis (EFA) due to the advantages it possesses for polychoric correlation matrices, which are suggested for items that present a Likert answer type (Muthen & Kaplan, 1992).

## Results

Firstly, the items' descriptive data were analyzed (see Table 1). Bartlett's test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy were performed to determine if the items are sufficiently correlated. Bartlett's test had a significant index, ( $\chi^2= 3073,7$ ;  $gl= 528$ ;  $p< .000$ ) which rejects the null hypothesis, while the KMO index was .898, which indicates a very good adequacy level (Llorente, Ferreres, Hernández, & Tomás, 2014). This confirms the relevance of using the scale for factor analysis.

Table 1.  
*Descriptive statistics of the items*

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
item 1	3.98	1.11	-1.04	0.39
item 2	3.80	1.06	-0.70	-0.09
item 3	3.70	1.07	-0.67	-0.13
item 4	3.52	1.06	-0.36	-0.30
item 5	3.67	1.14	-0.53	-0.55
item 6	3.41	1.04	-0.36	-0.41
item 7	3.75	1.04	-0.48	-0.44
item 8	3.86	1.08	-0.53	-0.49
item 9	3.35	0.99	-0.07	-0.32
item 10	3.77	1.02	-0.62	0.04
item 11	4.09	1.24	-1.25	0.42
item 12	3.83	1.10	-0.60	-0.59
item 13	4.16	1.17	-1.41	1.08
item 14	3.71	1.16	-0.64	-0.43
item 15	3.35	1.22	-0.26	-0.86
item 16	3.79	1.09	-0.62	-0.43
item 17	3.48	1.15	-0.35	-0.75
item 18	3.89	1.17	-0.90	-0.08
item 19	3.69	1.07	-0.68	-0.06
item 20	3.76	1.39	-0.84	-0.59
item 21	4.02	1.15	-1.08	0.44
item 22	3.01	1.27	0.04	-1.04
item 23	4.14	1.17	-1.35	0.96
item 24	4.18	1.10	-1.48	1.56
item 25	3.87	1.21	-0.84	-0.25
item 26	3.98	1.10	-0.90	0.06
item 27	3.95	1.22	-1.01	-0.01
item 28	3.57	1.13	-0.51	-0.42
item 29	3.77	1.20	-0.62	-0.52
item 30	3.81	1.22	-0.75	-0.48
item 31	3.25	1.15	-0.27	-0.57
item 32	3.66	1.07	-0.48	-0.42
item 33	3.87	1.09	-0.81	0.02

To assess the validity of the scale it was necessary to carry out an exploratory factor analysis using the Unweighted Least Squares method (Pérez, 2004). This estimation method is recommended for small samples, as it recovers the weak factor in the cases where the maximum likelihood method fails, and the model includes a higher number of factors (Ximénez & García, 2005). The results put forward a seven-factor solution that explains 72.91 % of the variance. It is worth noting that other studies used different methods and they all yielded a seven-dimension solution (see Table 2).

Table 2.

*Factorial structure of the scale*

Item	Factor						
	1	2	3	4	5	6	7
1	<b>.76</b>	.20	.20	.21	.05	.25	.19
2	.25	.08	<b>.54</b>	.18	.04	.05	.08
3	.43	.04	.09	<b>.62</b>	.30	.15	-.12
4	.23	.12	.31	-.02	<b>.52</b>	.15	.25
5	<b>.82</b>	.15	.18	-.01	.28	.12	.29
6	.26	.26	.11	.16	.12	-.08	<b>.32</b>
7	.30	.20	.18	<b>.74</b>	.26	.12	.27
8	.15	<b>.57</b>	.19	.14	.17	.15	.06
9	-.09	.23	.02	.05	<b>.37</b>	.02	.08
10	.11	<b>1.04</b>	.04	.01	.23	.01	.12
11	.24	.43	<b>.82</b>	.24	.09	.27	.06
12	.07	<b>.53</b>	.30	.12	.28	.17	.01
13	.28	.26	.29	.29	.13	<b>.67</b>	-.08
14	.22	.19	<b>.47</b>	.04	.25	.28	.18
15	.23	.12	.01	<b>.47</b>	.25	.20	.06
16	.18	.28	<b>.51</b>	.12	.18	.14	.21
17	-.01	.19	.13	.12	<b>.46</b>	.18	.23
18	<b>.90</b>	.24	.22	.21	.17	.22	.24
19	.29	.04	.22	<b>.61</b>	.17	.37	.19
20	<b>.77</b>	.21	.03	.24	.04	.20	.27
21	.30	.26	.35	<b>.79</b>	.17	.25	.12
22	-.16	.10	-.01	.08	.09	.10	<b>-.48</b>
23	.31	.19	.32	.22	-.05	<b>.71</b>	.02
24	.17	.36	<b>.91</b>	.32	.08	.27	.13
25	.14	.43	<b>.82</b>	.25	.14	.22	-.01
26	.17	.33	<b>.72</b>	.24	.22	.10	.26
27	-.09	.28	.17	.33	<b>.81</b>	.35	.26
28	-.07	.16	-.01	.33	<b>.58</b>	.33	.22
29	.07	.02	.03	.07	.31	<b>.76</b>	.03
30	-.07	.09	.33	.11	<b>.82</b>	.32	.37
31	.01	.06	-.01	.12	.08	.07	<b>.66</b>
32	.28	.01	.10	<b>.63</b>	.16	.28	.26
33	.11	.12	.26	<b>.78</b>	.21	.18	-.02

Extraction method: unweighted least squares. Method of rotation: Equamax with Kaiser normalization.

A parallel analysis was carried out based on the factor's minimum range (Timmerman & Lorenzo Seva, 2011), which reports a single second order dimension, in accordance with the original analyses of the scale. The scree plot confirms the second order structure (see Figure 1).

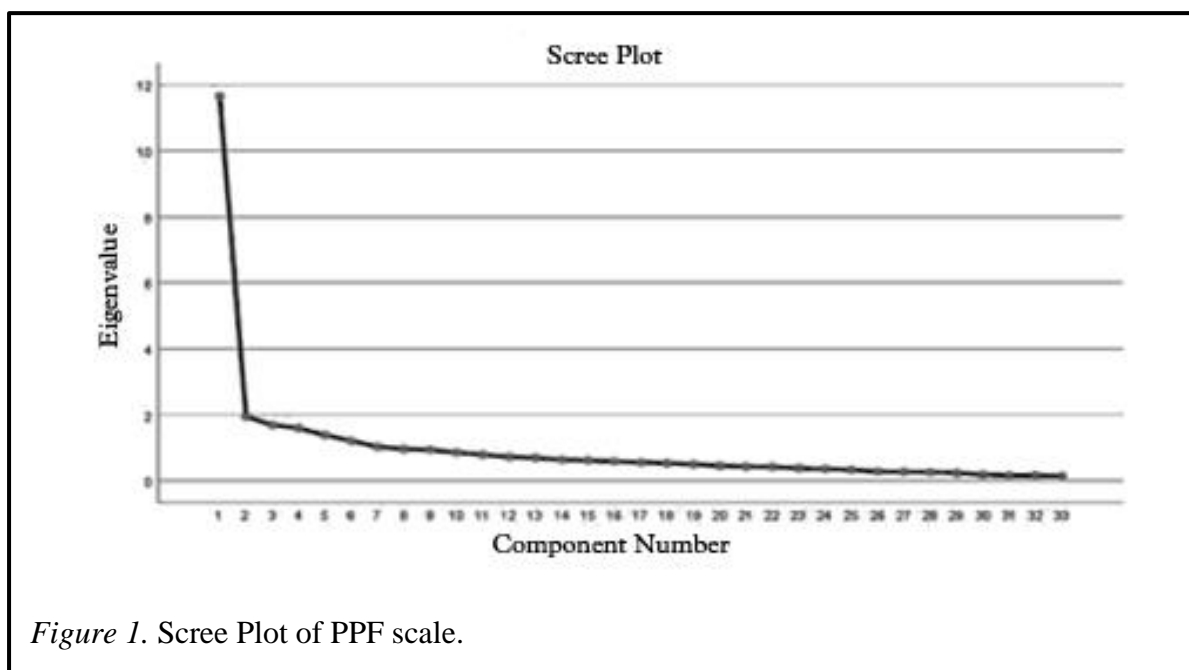


Figure 1. Scree Plot of PPF scale.

The following is a description and interpretation of the emerging factors with an analysis of the obtained results taking into account the involved constructs theory (Martínez-Arias, Hernández-Lloreda, & Hernández-Lloreda, 2006). The seven emerging factors in the sample are grouped as follows: F1 (self-esteem) items 1-5-18-20; F2 (autonomy) items 8-10-12; F3 (purpose in life) items 2-11-14-16-24-25-26; F4 (optimism/enjoyment) items 3-7-15-19-21-32-33; F5 (curiosity) items 4-9-17-27-28-30; F6 (sense of humor) items 13-23-29; F7 (environmental mastery) items 6-22-31.

Moreover, the Cronbach's  $\alpha$  values for the total of participants for each of the seven emerging factors were: Factor 1 corresponds to Self-esteem ( $\alpha$  .84), Factor 2 Autonomy ( $\alpha$  .87), Factor 3 Purpose in Life ( $\alpha$  .82); Factor 4 Optimism/Enjoyment ( $\alpha$  .82), Factor 5 Curiosity ( $\alpha$  .83), Factor 6 Sense of Humor ( $\alpha$  .83) and Factor 7 Environmental Mastery ( $\alpha$  .87).

Table 3.

Factor correlation matrix

	Self-esteem	Autonomy	Purp. in Life	Optimism/enjoy	Curiosity	Humor	Env. Mast
Self-esteem	1.00	.40	.59	.66	.46	.57	.27
Autonomy		1.00	.54	.41	.46	.34	.29
Purpose in life			1.00	.68	.71	.63	.33
Optim/enjoym				1.00	.64	.71	.33
Curiosity					1.00	.58	.39
Humor						1.00	.20
Env. Mastery							1.00



Descriptive statistics (mean, standard deviation, minimum, maximum, skewness and kurtosis) of the instrument's 7 resulting factors (see Table 4) were analyzed.

Table 4.

*Descriptive statistics for the sample of adolescents*

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Minimum	Maximum
Self-esteem	16.21	4.144	-1.218	0.945	4	20
Autonomy	10.73	2.466	-0.264	0.41	5	15
Purpose in life	27.09	7.29	-0.955	-0.006	9	35
Optim/Enjoyment	26.48	7.19	-0.517	-1.022	12	35
Curiosity	22.15	5.051	-0.583	0.23	10	30
Sense of humor	11.61	3.445	-1.108	0.304	3	15
Env. mastery	9.03	2.506	-0.442	0.514	3	15

As can be seen, these results suggest adequate values for the emerging factors. Lastly, the calculations for scale reliability resulted in a Cronbach's Alpha of .93 which is considered a very acceptable index.

The scale adjustment indexes for this seven-dimension item grouping model according to their factor loading reached acceptable values:  $\chi^2=5222.96$ ,  $p= .00$ , CFI= .991, TLI= .97, y RMSEA= .09, with an adequate item factor loading for the found factors. This factorial solution explains the 62.15 % variance, which is considered satisfactory given that the minimum reference for social sciences is 60 % of the total variance (Hair, Anderson, Tathan, & Black, 2004).

## Discussion

The objective of this study was to analyze the psychometric properties of the Positive Psychological Functioning scale (Merino & Privado, 2015) in a sample of Uruguayan adolescents from the general population.

The psychometric analysis performed yields statistically significant ( $p= .00$ ) and considerably elevated ( $> .30$ ) factor saturations. The internal consistency of the emerging factors is very good.

The result of this study proposes a different factorial solution than the original version. Out of the eleven factors the authors indicate, seven were considered very satisfactory for this sample; moreover, the second-order construct is replicated.

The EFA was performed, yielding a seven-factor structure which, according to the theoretical concordance of the expression of the items, corresponds to: F1 self-esteem; F2 autonomy; F3 purpose in life; F4 optimism/enjoyment; F5 curiosity; F6 sense of humor; F7 environmental mastery with  $\alpha > .80$  values for every dimension.

The difference in the factorial solution is similar to the results of the only published study regarding adolescents, which reported a scale distribution in four dimensions with an explained variance of 56.83 % (González et al., 2018). This preliminary study may be contributing to the results of said study, given that the differences in the factorial structure of the original scale can be affected by age.

The  $\alpha$  values ( $> .80$ ) for the sample were very acceptable. The scale proves to be a reliable instrument for the adolescent population in Uruguay.

We believe it is important to have acceptable measurement instruments for our population which evaluate positive psychological functioning and address the personal resource areas available to individuals, as they are abilities that can be trained through different therapeutic approaches.

Moreover, it is worth mentioning that this is a new area of study within the discipline of psychology, so it would be enriched and benefited by having reliable measurement instruments in the diagnostic and treatment stages.

The preliminary results of this study indicate that the PPF scale is an acceptable instrument to evaluate Uruguayan adolescents from the general population. However, this study had the following limitations: the size of the sample; the recruitment of participants using the snowball method which biases the selection and prevents the monitoring of the responses, thus possibly being affected by the response time and the environmental conditions.

Considering the stated limitations and in order to achieve a better reliability of the instrument, it would be important to continue studying the psychometric properties in the adult population, as well as expanding the number of participants. At the same time, the application of the scale to a vulnerable socioeconomic population would be desirable to compare the obtained results.

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