

# Mexican validation of the Positive Psychological Functioning Scale. Perspectives on the study of well-being and its measurement

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Original article

## ABSTRACT

### Background

The Positive Psychological Functioning scale (PUFF) is a newly-developed measure in Spain. It consists of 11 psychological resources: Autonomy, resilience, self-esteem, purpose in life, enjoyment, optimism, curiosity, creativity, humor, environmental mastery, and vitality. All of them are grouped into a second-order factor called Positive Psychological Functioning. This measure has adequate validity and reliability. In addition, the confirmatory factor analysis showed a good level of adjustment.

### Objective

The goal of this research is to validate the PUFF in Mexico.

### Method

We used a sample of 184 college students from the Universidad Nacional Autónoma de México (UNAM). They were submitted to the PUFF and other scales to calculate their reliability and validity in Mexico.

### Results

The results obtained in the PUFF scale showed good psychometric properties (reliability and validity). Moreover, the scale has a hierarchical factorial structure formed by 11 prime order factors, and one second order general factor. The same result was found in the Spanish scale validation. The results allow us to recommend the application of this scale in Mexico.

### Discussion and conclusion

This is something innovative because, to our knowledge, there is no scale to measure Positive Functioning in this country, since attempts to adapt other similar scales have not been satisfactory.

**Key words:** Well-being, positive functioning, assessment, validation.

## RESUMEN

### Antecedentes

La escala de Funcionamiento Psicológico Positivo (FPP) es una escala recientemente desarrollada en España. Está formada por 11 recursos psicológicos: autonomía, resiliencia, autoestima, propósito en la vida, disfrute, optimismo, curiosidad, creatividad, humor, dominio del entorno y vitalidad. Éstos se agrupan en un factor de segundo orden que da nombre a la escala. Se trata de un instrumento que presenta una adecuada validez y fiabilidad. Además, los análisis factoriales confirmatorios arrojaron un buen nivel de ajuste.

### Objetivo

El propósito del presente estudio es validar la escala de FPP en México.

### Método

A tal fin, contamos con una muestra de 184 estudiantes de Psicología de la Universidad Nacional Autónoma de México (UNAM) a la que hemos aplicado la escala de FPP junto con otras medidas relacionadas para calcular la fiabilidad y validez de la escala en México.

### Resultados

Los resultados obtenidos en la escala de FPP muestran una fiabilidad y validez adecuadas. Además, el cuestionario presenta una estructura factorial jerárquica formada por 11 factores de primer orden y un factor general de segundo orden. Los mismos resultados se encontraron en la validación española.

### Discusión y conclusión

Al menos que sepamos, no hay otra escala que mida funcionamiento positivo en México, pues los intentos de adaptar otras escalas semejantes no han sido satisfactorios. Los resultados encontrados nos permiten recomendar la aplicación de esta escala en México.

**Palabras clave:** Bienestar, funcionamiento positivo, medición, validación.

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## BACKGROUND

The majority of studies on happiness can be classified within two related but different perspectives which are connected to two philosophical traditions around wellbeing: hedonic wellbeing eudaimonic wellbeing.<sup>1-3</sup>

Hedonic wellbeing identifies happiness as the enjoyment of life experiences.<sup>4</sup> Currently, subjective wellbeing directs attention to the balance between positive and negative emotions, as well as the overall assessment of one's own life.<sup>2,5</sup> Some of the more extensive scales to measure this type of happiness are the *Satisfaction With Life Scale*<sup>6</sup> (SWLS) which focuses on the more cognitive part of wellbeing, and the *Positive and Negative Affect Schedule*<sup>7</sup> (PANAS) which assesses the balance between affects.

Eudaimonic happiness identifies happiness with personal realization and focuses attention on the human potential which allows us to function positively and "flourish" as people.<sup>2,4</sup> Therefore, the assessment of this type of happiness considers the potentials which help us in achieving our personal goals. However, depending on the model we adopt, these potentials could be any of a number of things, without there being a universal agreement in that respect. In this sense, Ryff proposes a multi-dimensional model of positive functioning, well supported from the theoretical point of view, which includes six factors: self-acceptance, autonomy, environmental mastery, positive relations with others, purpose in life, and personal growth. These factors measure psychological wellbeing and, thanks to the wealth of information developed by the author, they have been widely used.<sup>8</sup> However, some authors have expressed doubt around the latent structure and factorial validity of the model.<sup>9</sup> The same is the case with the Mexican adaptation of this scale, in which it has not been possible to replicate the six factors proposed by Ryff.<sup>10</sup>

One of the best predictors of wellbeing, either subjective or psychological, is personality.<sup>11</sup> Certainly, it has been observed that neuroticism and extraversion are strongly linked to both types of wellbeing.<sup>11,12</sup> Furthermore, in the case of psychological wellbeing measured with the Ryff scale,<sup>8</sup> the predictor of responsibility also appears.<sup>12,13</sup> However, it is true that the association of the six dimensions of psychological wellbeing with the personality traits of the five-factor model 14 vary, one feature or another acquiring more or less prominence depending on the dimension of wellbeing being considered.

### The Positive Psychological Functioning scale

The Positive Psychological Functioning Scale is related to the eudaimonic tradition, but more interested in the concept of psychological resources. Recently validated, it is a scale formed of 33 items grouped into 11 psychological resources which in turn form a second-order factor.<sup>a</sup> The 11 dimensions are: autonomy, resilience, self-esteem, purpose in life,

enjoyment, optimism, curiosity, creativity, humor, environmental mastery, and vitality.

In order to validate the internal structure of this scale, a confirming factorial analysis was performed, and a representative sample of the Spanish population was used, made up of 3 000 individuals. Furthermore, a sample formed of 130 third-year Psychology university students was also used, which served to confirm the validity of the scale, as well as replicate the factorial structure found in the most representative sample.

The results found showed that the factorial structure is replicated in both samples, and that the adjustment levels of the models were suitable for the representative sample of the Spanish population (RMSEA=.048) and for the university sample (RMSEA=.060).

Other suitable convergent validity values were found which correlate with other scales as follows: .76 with the Psychological Wellbeing scale;<sup>8</sup> .74 with the PANAS Positive Affect Scale;<sup>7</sup> .56 with the satisfaction with life scale;<sup>6</sup> .55 with the subjective happiness scale;<sup>15</sup> -.49 with the PANAS Negative Affect Scale;<sup>7</sup> -.61 with the state-trait anxiety inventory (STAI);<sup>16</sup> and -.37 with the Beck Depression Inventory (BDI).<sup>17</sup>

The scale's viability was also adequate, as it obtained a Cronbach's alpha of .91 for the whole scale and values between .62 and .89 for the different dimensions in the two samples assessed.

## OBJECTIVE

We now ask ourselves if this PUFF scale would be applicable in other cultures. In other words, whether in other populations different to Spain, we would find the same factorial structure, as well as other suitable psychometric properties. In this sense, the proposal of the present study is to analyze the factorial structure of the PUFF, as well as its psychometric properties (validity and reliability) in a Mexican sample.

## METHOD

### Participants

A sample of 184 students taking the Psychology degree at the Universidad Nacional Autónoma de México (UNAM) were assessed. Of these, 98% were in the fifth and seventh semesters, with an average age of 21.12 years (DT=2.23) and where 79.9% were women.

### Measures

The same versions of the scales used in the Spanish validation study were also used here.<sup>b</sup> The measures used were as follows:

<sup>a</sup> Merino MD, Privado J. Positive Psychological Functioning: Evidences for a new construct and its measurement. *Anales de Psicología* (in print).

*PUFF scale.* This scale is made up of 33 Likert-type items grouped into 11 dimensions (autonomy, resilience, self-esteem, purpose in life, enjoyment, optimism, curiosity, creativity, humor, environmental mastery, and vitality). These in turn form a second-order factor which give the scale its name. Overall internal consistency in the present study was .91 (Table 1).

*The Psychological Wellbeing scale.*<sup>8</sup> The Spanish-language adaptation of this scale in its shortened version was used.<sup>18</sup> This measure has 29 Likert-type items grouped into six dimensions (self-acceptance, positive relations with people, autonomy, environmental mastery, personal growth, and purpose in life). These in turn form a second-order construct called Psychological Wellbeing. Although attempts to validate this scale in Mexico<sup>10,19</sup> have not managed to replicate the six factors structure, we decided to use it because it is a good indicator of convergent validity, as second-order constructs that measure both scales follow positive functioning. The consistency of this scale's dimensions in the present study have acceptable values (between .67 and .86) as can be seen in Table 1, as well as in the total scale (.84).

*The Satisfaction with Life scale (SWLS).*<sup>6</sup> This is a widely-used subjective wellbeing scale that includes five Likert-type items which are grouped into a one-dimensional construct called life satisfaction. The Spanish-language adaptation was used.<sup>20</sup> The Cronbach's alpha for the present study was .86 (Table 1).

*Positive and negative affect scale (PANAS).*<sup>7</sup> The Spanish-language version was used.<sup>21</sup> This is a scale which measures two dimensions: positive affect and negative affect. In the version used here, ten Likert-type items were used which measured each factor (20 in total). The internal consistency rates for each factor were .84 and .88 respectively (Table 1).

*NEO-FFI Personality Inventory.* This is a shortened version of the original instrument.<sup>14</sup> Just like the original version, it measures five dimensions of personality through Likert-type options (neuroticism, extraversion, openness to experiences, amiability, and responsibility), but now this is done through 12 items. In this study, the internal consistency levels were between .73 and .88 (Table 1).

## Procedure

A pair of pre-tests were conducted with the aim of making the PUFF scale suitable for the Mexican population and guaranteeing that the language would be understood in the same way in both populations.

The first used the PUFF Scale employed in the Spanish samples on eight students from the School of Psychology at the UNAM, who had prior knowledge of the objective of the questionnaire and its underlying factors. They were

each asked separately to respond to the test and annotate comments and possible modifications. There was later a discussion of the items one by one and any possible modifications. It was then decided to modify four of the 33 items on the questionnaire; the changes were basically substitutions of vocabulary or common expressions in Spain for others that are more frequently used in Mexico. For example, in item 6 ("I combine my work, social, and personal life well"), the word "compaginar" [to combine; balance] was substituted for the word "compatibilizar" [to juggle; coordinate]. In item 9, ("I can relate disparate things and make something different"), the word "disparaes" [disparate] was changed for "desiguales" [unequal; various]. In item 22 ("In my daily life, I don't get around to everything: work, family, partner, friends"), the word "llego" [from "llegar" - to arrive at; get around to] was changed for the words "no alcanzo a atender..." [I don't manage to take care of...]. In item 28, ("I get along well doing anything"), the term "pasarle bien" [to get along; have a good time] was changed to the term "entretenerse" [to be entertained; amused]. None of these changes modified the structure or meaning of the phrase.

Later, it was proposed that a pilot test was run with the new modifications on a sample of ten students from the School of Psychology. In the instructions for the new questionnaire, it was stated that it was a pilot study and a space was given at the end of the questionnaire for comments to be added. None of the comments affected the modified questions in the PUFF Scale, which was taken as a green light to go to an objective sample.

Finally, the applications of the final questionnaires on participants in the study were done on eight occasions between 10 and 20 minutes long; the evaluator was the same for all the applications.

## Statistical analysis

First, the reliability of each one of the different scales and subscales applied in the study were calculated. Cronbach's alpha coefficient was estimated. Secondly, a Confirmatory Factor Analysis was performed with AMOS 7.0<sup>22</sup> to analyze the internal structure of the PUFF Scale. Finally, the correlations between the different measures were calculated with the scale and subscales of the PUFF with the aim of calculating the convergent validity of the same.

## RESULTS

### Viability

As seen in the last line of Table 1, the viability of most tests applied in this study is suitable for a research study, with values around .70 or above.<sup>23,24</sup> The subscale with the lowest

<sup>b</sup> Merino MD, Privado J. Positive Psychological Functioning: Evidences for a new construct and its measurement. *Anales de Psicología* (in print).

**Table 1.** Correlations between the scales and internal consistency. Convergent validity

	1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17	18	19	20	21	22	
<b>1. PUFF self-esteem</b>	<b>1</b>																					
2. PUFF resilience	<b>.508 1</b>																					
3. PUFF curiosity	<b>.445 .426 1</b>																					
4. PUFF optimism	<b>.617 .555 .479 1</b>																					
5. PUFF autonomy	<b>.677 .506 .423 .572 1</b>																					
6. PUFF vitality	<b>.646 .539 .447 .678 .591 1</b>																					
7. PUFF environmental mastery	<b>.354 .244 .228 .354 .467 .494 1</b>																					
8. PUFF purpose in life	<b>.602 .578 .529 .586 .651 .552 .297 1</b>																					
9. PUFF humor	<b>.381 .388 .477 .478 .344 .476 .144 .450 1</b>																					
10. PUFF enjoyment	<b>.449 .469 .578 .533 .440 .539 .241 .470 .550 1</b>																					
11. PUFF creativity	<b>.493 .419 .480 .498 .443 .435 .262 .439 .328 .460 1</b>																					
12. PUFF overall	<b>.792 .718 .694 .823 .790 .840 .534 .786 .647 .736 .668 1</b>																					
13. Subjective wellbeing	.710 .480 .440 .609 .668 .653 .452 .557 .378 .507 .431 .757 1																					
14. Psychological wellbeing	.736 .588 .469 .641 .743 .693 .529 .665 .352 .508 .479 .811 .741 1																					
15. NEO neuroticism	-.537 -.350 -.254 -.503 -.530 -.557 -.496 -.374 -.111 -.357 -.288 -.560 -.551 -.664 1																					
16. NEO extraversion	.313 .314 .302 .452 .274 .564 .370 .260 .345 .335 .175 .474 .430 .451 -.539 1																					
17. NEO openness	.082 .111 .245 .078 .014 .153 .142 .045 .060 .216 .266 .162 .088 .190 -.200 .210 1																					
18. NEO amiability	.123 .152 .107 .260 .062 .238 .175 .129 .154 .177 .106 .206 .230 .256 -.505 .219 1																					
19. NEO responsibility	.380 .391 .303 .337 .467 .395 .531 .410 .027 .209 .263 .478 .459 .527 -.590 .327 .198 .261 1																					
20. PANAS positive affect	.491 .498 .403 .557 .510 .588 .441 .431 .301 .437 .422 .649 .644 .667 -.519 .559 .250 .253 .545 1																					
21. PANAS negative affect	-.390 -.233 -.223 -.386 -.444 -.464 -.425 -.325 -.058 -.284 -.244 -.452 -.427 -.534 .804 -.486 -.153 -.406 -.461 -.462 1																					
<b>Cronbach's Alpha</b>	<b>.792 .559 .669 .722 .693 .801 .660 .843 .772 .527 .684 .911 .863 .864 .857 .886 .732 .765 .869 .840 .888</b>																					

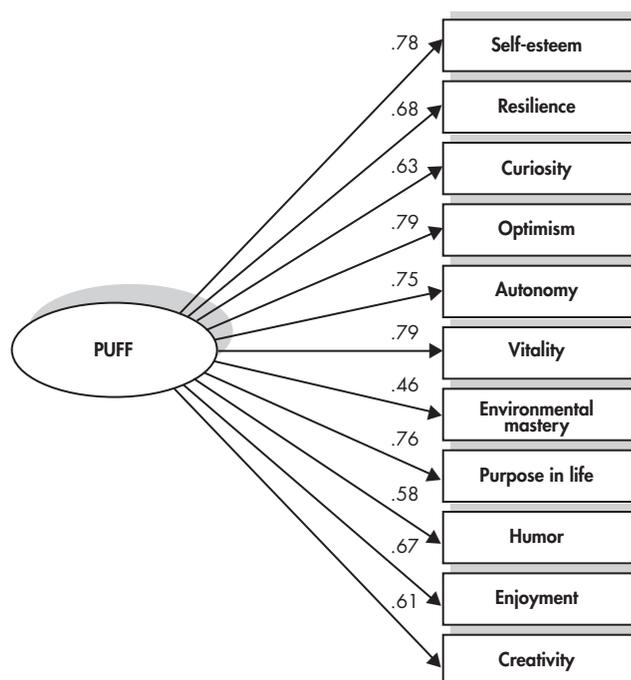
\* Correlaciones > .153 are statistically significant, p < .05.

viability of the PUFF is that of resilience (.56); we decided to leave that scale in the current study with the aim of being able to calculate the rest of the validity rates, as was done previously with the Spanish validation, because the total score of the PUFF Scale (which includes this subscale) has a suitable viability (.91).

### Internal validity

The correlations between the different subscales of the PUFF appear in Table 1. The majority of the values are over .30, which leads us to assume the existence of a latent factor that would take account of the common variance of the subscales for this test.<sup>25</sup> With the aim of validating the internal structure of the test, a Confirmatory Factor Analysis was made in order to see if the data adjusted itself to the presence of a general PUFF factor. These techniques require a minimum of 100 participants and ten times the number of variables observed or indicators. In this case, the sample was formed of 184 participants and there was a total of 11 indicators, so there were approximately 17 participants for each indicator, an adequate value to do this analysis.<sup>26</sup> The model estimation procedure employed was that of maximum similarity based on an  $\chi^2$  test. Figure 1 shows the contrasted model together with its factor weights between .46 and .79 (all statistically significant to 1%).

To compare the goodness of fit of this model with the data, absolute adjustment, incremental, and parsimony indexes were taken into account. The absolute fit value was



**Figure 1.** Confirmatory Factor Analysis of the PUFF scale. All factor weights are statistically significant at 5%.

given by the statistic  $\chi^2$ ; if the null hypothesis is rejected, the theoretical and empirical matrix are not equal. In our case, the hypothesis was rejected [ $\chi^2(44)=113.77, p<.001$ ]. However, it is quite common with large samples to reject this hypothesis, due to which using the *ratio*  $\chi^2/df$  is usually advisable,<sup>27</sup> which gives a good indication of values lower than three. In our case, this *ratio* has a value of 2.59, due to which the model would fit with the data. Another absolute fit index is the RMSEA,<sup>28</sup> in which values below .05 indicate a good fit. The RMSEA obtained by the contrasted model was .093 with a confidence interval of 90% between .071 and .114, due to which the fit of the model would be moderate.

Incremental fit indices allow for a comparison of the model obtained with the null model. The most frequently used ones are NFI<sup>27</sup> and CFI,<sup>29</sup> in which values above .95 indicate that the empirical model would differ from the null model. The NFI obtained was .888 and the CFI was .926, due to which the model would present a moderate fit.

In terms of the parsimony indices, these assess the goodness of fit on the basis of the estimated parameters; that is, they take into account the complexity of the model. One of the most used coefficients is the PNFI,<sup>30</sup> values above .50 indicate the model's good fit. In the contrasted model, a PNFI of .592 was observed, due to which there would be a good fit to the data.

In summary, taking the goodness of fit indices overall, we can conclude that the model of a PUFF factor presents a moderately high fit with the data, which would validate this factorial structure.

### Convergent validity

In terms of convergent validity (Table 1), almost all correlations are statistically significant with a size of effect in many cases over .50.<sup>31</sup> The general PUFF construct presents raised correlations with the different measures of wellbeing (.81 with psychological wellbeing;<sup>18</sup> .76 with subjective wellbeing;<sup>20</sup> .65 with positive affect;<sup>21</sup> -.45 with negative affect<sup>21</sup>). The different PUFF subscales follow the same pattern as the overall measure, but with lower correlations, given that the subscale is part of the overall scale.

In terms of the correlations with personality, the PUFF construct also behaves as expected, as it presents significant correlations with neuroticism, extraversion, and responsibility (-.56, .47, and .48, respectively). When we turn to each of the 11 dimensions making up the scale, the results are also as expected; with the same pattern as the overall score, but again with marginally lower correlations. However, and as expected, creativity and curiosity also correlate with openness to experiences. Sense of humor primarily correlated with extraversion, and more weakly, with others. Optimism also correlated, although in a more subtle way, with amiability, thereby confirming what had been contributed by other studies.<sup>32,33</sup> The same is the case with vitality.

Due to all of the above, we can conclude that the scale, both overall as well as in each of its 11 dimensions, presents an adequate convergent validity.

## DISCUSSION AND CONCLUSION

The results found in Mexico replicate the PUFF model found in Spain,\* which constitutes proof of its transcultural validity. Furthermore, the convergent validity and viability are both suitable. It should also be pointed out that the PUFF construct and Ryff's Scale of Psychological Wellbeing can be considered equivalent to one another. The present study provides various proofs in this sense:

1. There is a very high correlation between both variables (.81) and the same thing occurs in the Spanish sample;<sup>c</sup>
2. The correlations found in other studies between psychological wellbeing and personality traits are equivalent to what we found when correlating the PUFF with the five-factor model.<sup>12,13</sup>

Due to all of the above, we recommend the use of the PUFF Scale in Mexico as an indicator of positive functioning and mental health. This is especially interesting as to date, at least as far as we know, in this country there is no instrument available that is psychometrically suitable to measure positive functioning.<sup>10,19</sup> Furthermore, looking towards psychological intervention, the PUFF Scale is highly useful, as it allows for knowledge of people's psychological state –both overall (PUFF) and also specifically– based on the 11 psychological resources. In this way, it is possible to understand what are the primary strengths and weaknesses of the person being assessed, which allows interventions to be made on the weakest resources, in accordance with those results.

To finish, it is important to remember that the results obtained were found in a sample of Psychology students, which makes it a homogenous group in terms of age, social class, intellectual interests, and stage of development. It is therefore possible that this circumstance translates into greater homogeneity in the measures taken. As is well known, correlations emerge more clearly when working with heterogeneous samples.<sup>23,24,34</sup> However, and in spite of this circumstance, the correlations obtained in the present study have mostly been significant and with a high effect size; over .50 in the majority of cases.<sup>31</sup> Therefore, we believe that this same study, carried out on a more heterogeneous sample, would give equivalent or better results than those found in this sample of university students. However, it would be interesting for future studies to verify that matter.

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## Conflict of interest

The authors do not declare any conflicts of interest.

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