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ORIGINAL ARTICLE

Psychometric Properties of the Portuguese Version of The PERMA-Profiler

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Abstract

This study evaluates the psychometric properties of a Portuguese version of The PERMA Profiler in a sample of 1258 Portuguese adults (72.3% females) with a mean age of 36.74 years (SD = 11.313). The PERMA Profiler is a questionnaire that assesses the five dimensions of psychological flourishing, according to Seligman's well-being theory. According to this theory, the well-being pillars known by the acronym PERMA are positive emotions, engagement, relationships, meaning, and accomplishment. Confirmatory factor analysis was conducted to test Seligman's model. Results support a reasonable model fit for the five-factor model, but based on the results of bootstrap sample analysis the model was not confirmed. There is also a lack of discriminant validity between PERMA constructs and a lack of validity and reliability of engagement factor. Internal consistency was satisfactory for all five sub-scales, except for engagement. Concurrent validity was demonstrated through the strong and very strong correlations between the PERMA factors and Flourishing Scale. A Portuguese version of The PERMA Profiler is a new tool to assist researchers to refine the measurement and understanding of well-being in Portuguese cultures. Future recommendations and limitations are highlighted.

Keywords Psychological flourishing · PERMA model · Well-being · Measurement

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Introduction

Psychological flourishing is a promising construct in well-being theory emphasizing that mental health is a multidimensional condition of high levels of hedonic (Diener, 1984) and eudaimonic well-being (Ryan & Deci, 2001; Ryff & Keyes, 1995; Waterman, 1993). This construct derives, theoretically, from the understanding of mental health beyond the absence of mental disease, as a general state of positive feelings and functioning effectively in life (Huppert, 2009; Seligman, 2011; Westerhof & Keyes, 2010).

It is well established that both hedonic and eudaimonic factors are crucial to the maintenance and balance of well-being (Huta & Waterman, 2014; Ryff, 2014). Furthermore, the scientific debate about flourishing (Hone et al., 2014a, 2014b) focuses on the associations between the two main traditions of well-being (Keyes & Annas, 2009): happiness or hedonic well-being (emotional well-being, feeling good) and human potential or eudaimonic well-being (psychological and social well-being, functioning well). The concept of flourishing assumes mental health as a broader condition that includes respectively life satisfaction, positive affect, and positive psychosocial functioning (Gallagher et al., 2009).

However, there are different conceptual models (Diener et al., 2010; Huppert & So, 2013; Keyes, 2002; Seligman, 2011) for defining psychological flourishing with correspondent different ways to measure it. It is essential to clarify the characteristics and causes of flourishing and how to measure it reliably (Huppert, 2014).

The concept of flourishing was introduced by Keyes (2002), based on Jahoda's (1958) mental health conception, asserting that mental health lies on a continuum where high levels of emotional/subjective (Diener et al., 1999), psychological (Ryff, 1989) and social well-being (Keyes, 1998) represent flourishing. This condition can be evaluated through the Mental Health Continuum Short Form, a self-report questionnaire for positive mental health assessment (Lamers et al., 2011). The instrument evaluates three dimensions: the presence of positive feelings (positive affect and life satisfaction), positive functioning in personal life, and positive social functioning.

Huppert and So (2013), in turn, developed an unidimensional operational definition of flourishing, based on the opposite symptoms of anxiety and depression, according to international criteria (American Psychiatric Association, 2013; World Health Organization, 1993). A state of high levels of mental well-being was characterized by ten positive indicators: emotional stability, vitality, optimism, resilience, positive emotion, self-esteem, engagement, competence, meaning, and positive relationships.

Diener, although traditionally interested in subjective/hedonic well-being, considers it important to investigate the variables associated with psychological flourishing and developed a specific scale for this purpose, the Flourishing Scale (Diener et al., 2010). This unidimensional instrument measures areas of positive functioning and was designed to understand the global impact of these items (purpose in life, relationships, self-esteem, feelings of competence, and optimism) in personal well-being. This scale was validated in Portuguese (Silva &

Caetano, 2013) and demonstrated satisfactory psychometric characteristics. The same conclusions were obtained by a Chinese (Tang et al., 2016) and a New Zealand (Hone et al., 2014a, 2014b) studies.

Seligman (2011) introduced the PERMA model to explain his well-being theory. In this conception, flourishing is attainable through the development of five central dimensions to well-being, hedonic, and eudaimonic: positive emotion (P), engagement (E), relationships (R), meaning (M), and accomplishment (A). These domains are present in case of positive mental health diagnosis (Kern et al., 2015). A growth body of research demonstrates the positive role of these factors in mental health (Bazargan-Hejazi et al., 2021).

Positive emotions encompass hedonic feelings of happiness (e.g., feeling good) and optimistic views of the world; engagement refers to the ability to be absorbed by an activity and implies the experience of flow; positive relationships are an integral part of healthy living as it relies on perceptions of belonging and quality of social support; meaning allows for feelings of happiness and fulfillment related to purposeful living and a goal bigger than oneself; accomplishment is the last dimension, and it is attached to setting and achieving goals and objectives, thus allowing the individual to go further and feel accomplished (Forgeard et al., 2011).

The conceptual understanding of flourishing as a state composed by five specific domains, hedonic and eudaimonic, allows investigating the role of each of these dimensions in well-being and psychological health. It is a systematic and summarized way to find the meaning of this multidimensional phenomenon.

PERMA Profiler

The PERMA Profiler (Butler & Kern, 2016), a multidimensional measure, was developed to facilitate the research on well-being through the model proposed by Seligman. The original version of the instrument demonstrated an acceptable model fit of the five-factor model ($N = 31{,}966$; RMSEA = 0.064, SRMR = 0.031, CFI = 0.967, TLI = 0.956, $\chi^2 = 10{,}606$, df = 80) and the factor loadings ranged from 0.46 to 0.88. The Cronbach's alpha ranged between 0.72 and 0.94 and Guttman´s λ-6 ranged between 0.63 and 0.95. The instrument offers additional items to assess overall well-being (OWB), physical health (H), negative emotion (N), and loneliness (Lon).

Other versions of The PERMA Profiler founded the same pattern of results, sustaining the five-factor model of the instrument. The German version (Wammerl et al., 2019) showed an acceptable model fit (RMSEA = 0.045, SRMR = 0.034, CFI = 0.972, TLI = 0.964, $\chi^2 = 220.05$, df = 80); the Greek version (Pezirkianidis et al., 2019) founded similar results (RMSEA = 0.08, SRMR = 0.05, CFI = 0.92, TLI = 0.90, $\chi^2 = 1469.306$, df = 80); the Italian version (Giangrasso, 2018) showed a reasonable model fit (RMSEA = 0.071, SRMR = 0.039, CFI = 0.98, GFI = 0.94); the Brazilian version (Carvalho et al., 2021) and the Turkish version (Demirci et al., 2017) revealed a satisfactory model fit, respectively: RMSEA = 0.06, CFI = 0.97, GFI = 0.953, $\chi^2 = 354.9$, df = 80 and RMSEA = 0.08, SRMR = 0.05, CFI = 0.97, $\chi^2 = 191.79$, df = 78.

Because of the implications of measuring flourishing for national public policies, it is important to develop a consensual understanding of flourishing combined with reliable and valid measures (Hone et al., 2014a, 2014b). The diversity of instruments that attempt to measure well-being confirms the necessity of increasingly complex models that integrate different perspectives harmoniously (Friedman & Kern, 2014; Huppert & So, 2013).

The aim of this study is to evaluate the psychometric properties of a Portuguese version of The PERMA Profiler in an independent sample of Portuguese adults. The research questions are (1) is there evidence of validity and reliability for The PERMA Profiler as an instrument for measuring psychological flourishing, according to Seligman's well-being theory? (2) Is there concurrent validity between The PERMA Profiler and other measures of psychological flourishing, like Flourishing Scale?

Method

Participants

A convenience sample of 1258 Portuguese adults from the general population, between the ages of 17 and 80 years, answered a complete Portuguese version of The PERMA Profiler. Of the respondents, 72.3% were female; *M* age = 36.74 (*SD* = 11.313); 10.2% had no high school; 28.6% had high school or equivalent; 61.3% had higher education. To test concurrent validity, 230 participants from the total sample, between the ages of 19 and 66 years; *M* age = 34.43 (*SD* = 0.659); 91.3% of females; 27.7% had no high school; 9.1% had high school or equivalent; 63.2% had higher education, also answered the Portuguese version of the Flourishing Scale (Silva & Caetano, 2013).

Procedure

The data was collected anonymously in a web-based survey, by voluntary participation. The questionnaires were shared on social media platforms at two different times and they were available for 3 weeks. In the first time, the participants have filled in the sociodemographic information and answered The PERMA Profiler. In the second time, the participants have filled in the sociodemographic information, answered The PERMA Profiler and then the Flourishing Scale. The study was restricted to native speakers of European Portuguese and Portuguese citizens, whether or not they live in Portugal.

Cross-Cultural Translation of PERMA Profiler

The translation of the original version of The PERMA Profiler into European Portuguese has followed the recommended procedure translate-translated back (Hill & Hill, 2012). It was conducted by three independent psychologists, Portuguese-speaking citizens and also fluent English speakers, residing in Portugal. Firstly, the items of the instrument were translated by two of them independently. After that the two translated versions were compared. The translations were identical and the

Portuguese version was back-translated from Portuguese to English by the third translator. This final version was identical to the original one. The original version of the instrument is available at the official platform of the author's measure (https://www.peggykern.org/questionnaires.html), and the Portuguese language version on this website is the Brazilian version.

Measures

The PERMA Profiler has 23 items, organized in seven sub-scales with 3 items each (positive emotion — P, engagement — E, relationship — R, meaning — M, accomplishment — A, negative emotion — N, and physical health — H) and two more individual items (loneliness — Lon and happy — Hap). The last item (Hap) together with the 15 PERMA's items shape the overall well-being sub-scale (OWB). The answers range in a Likert scale from an 11-point response format. The results of The PERMA Profiler are calculated by averaging the items that make up each factor. The scores of The PERMA Profiler indicate the flourishing psychological profile, the level of overall well-being, negative emotion, physical health, and loneliness.

The Portuguese version of Flourishing Scale (Silva & Caetano, 2013) is an 8-item scale that assesses psychological flourishing through a single factor (GFI = 0.97; CFI = 0.96; NFI = 0.95; RMSEA = 0.04), based on the quality of relationships, the sense of competence, meaning and engagement in everyday activities. The questionnaire evaluates human functioning through a 7-point response format, ranging from 1 (strongly disagree) to 7 (strongly agree). Scores of Flourishing Scale are calculated, according to the measure instructions, based on the sum of the items. The Cronbach's alpha of the Portuguese version of the scale ranges from 0.78 to 0.83.

Statistics Analyses

All the analyses were made with statistic package SPSS v.22 e AMOS v.22 (SPSS, An IBM Company, Chicago, IL).

Testing Assumptions

Normal univariate distribution of the responses was examined by Kolmogorov–Smirnov and the Shapiro–Wilk tests. If these tests are statistically significant ($p < 0.05$), it is considered that the univariate normality of the data was not verified (Razali & Wah, 2011). Multivariate normality was analyzed according to Mardia's coefficient and the corresponding critical ratio (critical ratio > 1.96 or < -1.96 is indicative that the multivariate normality was not confirmed because Mardia's coefficient was significant), both values are provided by AMOS software.

Construct Validity

Confirmatory factor analysis (CFA) was performed using the maximum likelihood (ML) estimation method to test the structural adequacy of the instrument. Maximum likelihood robust (MLR) estimation method is not available in AMOS software. This is an estimation method more appropriate to the assessment of non-normal data. Bootstrap analysis in 2000 samples was performed as an alternative to MLR to test if the proposed model fit is correct ($p > 0.05$).

Three models were tested, according to previous studies: Model 1: first-order five-factor model: five PERMA correlated factors explaining their respective items; Model 2: second-order model: five first-order PERMA factors explained by a second-order factor, representing general well-being; Model 3: single-factor model: a general well-being factor loading all PERMA items. To determine the goodness of fit of the structural model to the data the following indices were used: Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), standardized root mean residual (SRMR); root-mean square error of approximation (RMSEA) and Chi-square (χ^2) statistics. Akaike information criterion (AIC) and sample-size adjusted Bayesian information criterion (BIC) were used to compare the models. Value of CFI > 0.90, GFI > 0.90, TLI > 0.90, SRMR < 0.10, RMSEA < 0.10, and $\chi^2/df < 5$ were considered indicative of a good model fit. AIC and BIC are comparative and smaller indices indicate a better fit of the model (Marôco, 2014).

Reliability

The Cronbach's alpha (α) and the Guttmann reliability coefficient (λ-6) were calculated to analyze the internal consistency of the instrument and sub-scales. Alpha's values > 0.70 are reasonable in social sciences and greater than 0.90 are excellent (Marôco & Garcia-Marques, 2006). Also Guttman coefficient values ≥ 0.70 are good indicators of reliability (Guttman, 1945). The composite reliability (CR) was also calculated, and CR values greater or equal 0.70 are evidence of reliable constructs (Hair et al., 2010; Marôco, 2014).

Convergent and Discriminant Validity

The convergent validity of the factors was evaluated by the average extracted variance (AVE). AVE values greater or equal 0.50 are evidence of convergent validity. The discriminant validity was assessed by comparing the maximum shared variance (MSV) of the factors with the AVE values of each one. There is evidence of discriminant validity when MSV < AVE (Hair et al., 2010).

Concurrent Validity

To test concurrent validity, the scores of the Portuguese version of The PERMA Profiler were used to perform correlation analysis (Pearson's r) with the scores of the Portuguese version of Flourishing Scale. The correlations are considered weak $|r| < 0.25$, moderate $0.25 \leq |r| < 0.50$, strong $0.50 \leq |r| < 0.75$ or very

strong $|r| \geq 0.75$ (Marôco, 2014). Concurrent validity is demonstrated when the correlations between related constructs are positive and strong or very strong.

Results

Descriptive Statistics of the Portuguese Version of The PERMA Profiler

Table 1 shows the descriptive statistics of the Portuguese version of The PERMA Profiler. Univariate normality of the data could not be assumed according to Kolmogorov–Smirnov and the Shapiro–Wilk tests results. The multivariate normality of the fifteen PERMA items was also not verified, since the Mardia's coefficient was significant (critical ratio > 1.96 or < -1.96). The items of each subscale are identified with the respective initial letter of the subscale.

Confirmatory Factorial Analysis

Table 2 shows the fit indices for the three alternative models: a first-order five-factor model with the five PERMA correlated factors explaining their respective items; a second-order model with the five first-order PERMA factors explained by a second-order factor, representing general well-being; and a single-factor model with a general well-being factor loading all PERMA items. The first-order five-factor model demonstrated the better adjustment to the data with reasonable fit indices. Figure 1 shows the five-factor model, as in the original version of the instrument (Butler & Kern, 2016). Based on the results of 2000 bootstrap sample analysis, the model was not confirmed ($p = 0.000$).

Reliability of PERMA Factors

The reliability coefficients of the five subscales were satisfactory, except for engagement. It was the factor with weak reliability and internal consistence (α, λ-6, CR < 0.70). The other factors, positive emotion, relationship, meaning, and accomplishment were reliable, as shown in Table 3.

Convergent and Discriminant Validity According to the First-Order Five-Factor Model

The average extracted variance values (AVE) and the maximum shared variance (MSV) are presented in Table 3. Engagement was the factor with lack of validity (AVE < 0.50). Also, it was not verified the discriminant validity between PERMA factors (MSV < AVE).

Table 1 Descriptive statistics of the Portuguese version of The PERMA Profiler ($N = 1258$)

Sub-scales/ Items	Min–Max	Mean	SD	Sk	Ku	Kolmogorov–Smirnov test	Shapiro–Wilk test	Critical ratio
						p	*p*	
P	02–10	7.35	1.48	−0.775	0.420	0.000	0.000	
P1	01–10	7.25	1.65	−0.767	0.309	0.000	0.000	2.197
P2	01–10	7.30	1.72	−0.603	0.155	0.000	0.000	1.082
P3	0–10	7.50	1.71	−0.823	0.620	0.000	0.000	4.437
E	2.67–10	7.59	1.29	−0.643	0.473	0.000	0.000	
E1	0–10	7.63	1.60	−0.879	1.269	0.000	0.000	9.121
E2	01–10	7.61	1.60	−0.836	0.829	0.000	0.000	5.943
E3	0–10	7.54	1.97	−10.088	10.251	0.000	0.000	8.990
R	01–10	7.57	1.67	−0.909	0.556	0.000	0.000	
R1	0–10	7.20	2.15	−0.898	0.432	0.000	0.000	3.082
R2	0–10	7.91	2.04	−1.164	0.969	0.000	0.000	6.958
R3	0–10	7.62	1.81	−0.939	0.790	0.000	0.000	5.664
M	01–10	7.60	1.55	−0.849	0.830	0.000	0.000	
M1	0–10	7.78	1.712	−0.835	0.758	0.000	0.000	5.432
M2	01–10	7.47	1.84	−0.826	0.610	0.000	0.000	4.370
M3	0–10	7.57	1.78	−0.895	10.058	0.000	0.000	7.596
A	1.67–10	7.30	1.37	−0.551	−0.137	0.000	0.000	
A1	0–10	6.68	1.86	−0.427	−0.186	0.000	0.000	−1.377
A2	01–10	6.72	1.805	−0.577	−0.035	0.000	0.000	−0.287
A3	02–10	8.52	1.39	−1.134	1.506	0.000	0.000	10.827
H	0.67–10	7.09	0.46	−0.734	0.417	0.000	0.000	
H1	0–10	7.46	1.622	−0.837	0.883	0.000	0.000	
H2	0–10	6.46	2.087	−0.570	0.000	0.000	0.000	
H3	01–10	7.38	1.84	−0.893	0.701	0.000	0.000	
N	0–10	4.62	1.76	0.117	−0.352	0.000	0.000	
N1	0–10	5.81	2.38	−0.258	−0.778	0.000	0.000	
N2	0–10	4.13	2.07	0.333	−0.580	0.000	0.000	
N3	0–10	3.93	2.17	0.472	−0.510	0.000	0.000	
Lon	0–10	4.25	2.88	0.153	1.256	0.000	0.000	
Hap	02–10	7.48	1.89	0.799	0.129	0.000	0.000	

P positive emotion — *P1, P2, P3*; *E* engagement — *E1, E2, E3*; *R* relationship — *R1, R2, R3*; *M* meaning — *M1, M2, M3*; *A* accomplishment — *A1, A2, A3*; *N* negative emotion — *N1, N2, N3*; *H* physical health — *H1, H2, H3*; *Lon* loneliness and *Hap* happy

Pearson's Coefficient Correlations Between PERMA Profiler Dimensions and Flourishing Scale

The Person's coefficient correlations between The PERMA Profiler dimensions and Flourishing Scale (FS) scores are exhibited in Table 4. All five PERMA

Table 2 Fit indices in confirmatory factor analysis for a first-order and a second-order PERMA Profiler models

Model ($N=1258$)	χ^2	df	χ^2/df	TLI	CFI	GFI	CI 90% RMSEA	RMSEA	SRMR	AIC	BIC	Bollen-Stine bootstrap
First-order five-factor	614.216	80	7.678	0.933	0.949	0.939	0.068–0.078	0.073	0.0373	694.216	695.247	$p=0.000$
2nd order	803.59	85	9.454	0.915	0.931	0.919	0.087	0.082	0.0460	873.59	874.492	$p=0.000$
Single-Factor	1468.164	90	16.313	0.847	0.869	0.842	0.105–0.115	0.11	0.0588	1528.164	1528.937	$p=0.000$

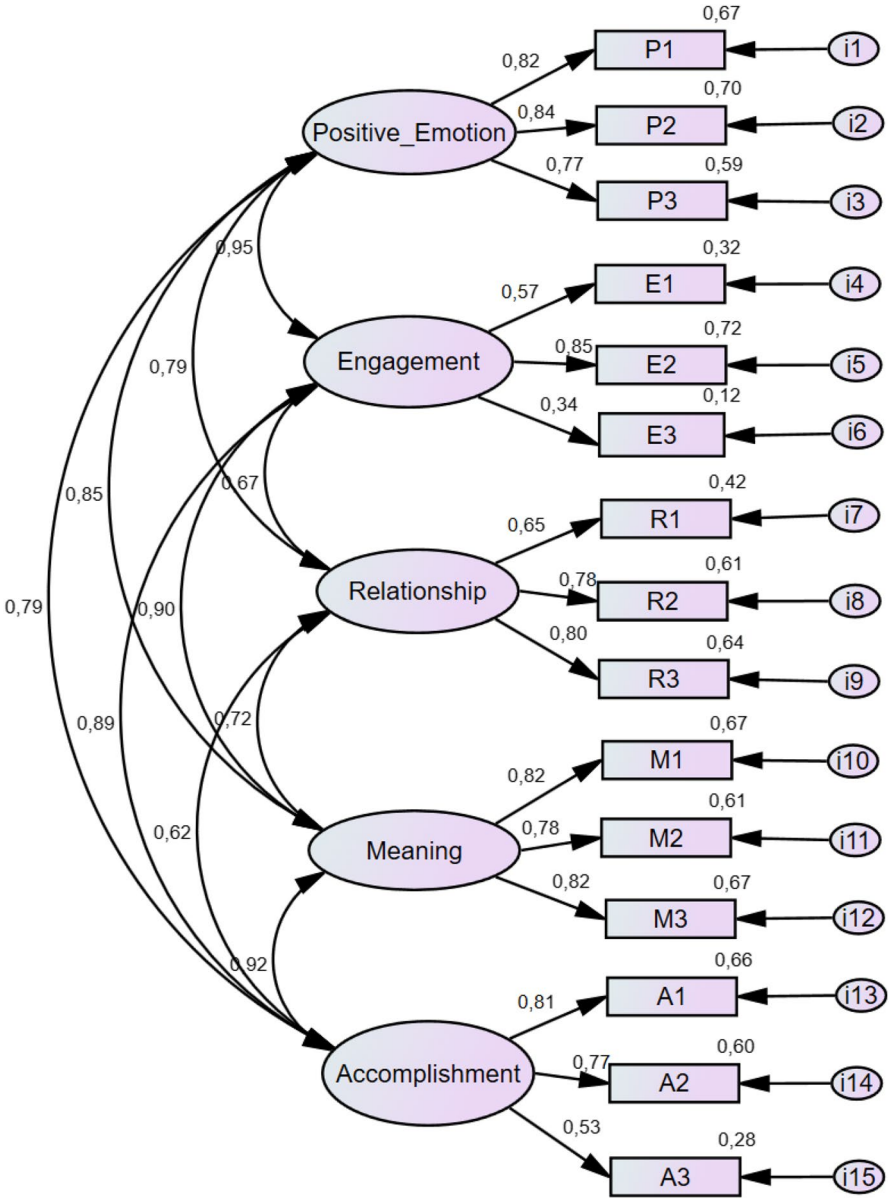

Fig. 1 First-order five-factor model

dimensions are significant, positive and strong or very strong correlated with each other. There are significant correlations between PERMA factors and negative emotion (N) and physical health (H). The five PERMA factors are significant, positive and very strong or strong correlated with FS scores. Negative emotion is the only factor with significant and negative correlations with PERMA Profiler

Table 3 Validity and reliability indices for The Perma Profiler factors

	α	λ-6	CR	AVE	MSV	MaxR
Positive emotions	0.849	0.792	0.850	0.655	0.895	0.854
Engagement	0.619	0.517	0.626	0.385	0.895	0.760
Relationship	0.784	0.711	0.790	0.558	0.623	0.804
Meaning	0.847	0.788	0.848	0.651	0.850	0.849
Accomplishment	0.734	0.689	0.756	0.515	0.850	0.794

Table 4 The Person's coefficient correlations between PERMA Profiler dimensions, and Flourishing Scale

	FS	P	E	R	M	A	H	N
P	0.824**							
E	0.676**	0.760**						
R	0.726**	0.773**	0.598**					
M	0.751**	0.778**	0.720**	0.617**				
A	0.690**	0.715**	0.700**	0.600**	0.872**			
H	0.501**	0.565**	0.463**	0.476**	0.424**	0.406**		
N	−0.477**	−0.512**	−0.348**	−0.399**	−0.355**	−0.337**	−0.349**	

P positive emotion, *E* engagement, *R* relationship, *M* meaning, *A* accomplishment, *N* negative emotion, *H* physical health, *Lon* loneliness and *Hap* happy; *FS* Flourishing Scale.

**$p < 0.001$

dimensions and with FS. Physical health factor is significant, positive and moderate or strong correlated with PERMA dimensions and FS. All these results could be indicative of concurrent validity.

Discussion and Conclusion

This study tested the psychometric properties of the Portuguese version of The PERMA Profiler. Psychometric results show an acceptable fit for the first-order five-factor model. Although, this model have been not confirmed by bootstrap analyses. The factor's items of the five-factor model presented adequate factor loads, except item 3 of engagement dimension. The standardized factor weight of engagement's item 3 was less than 0.50 (PERMA 21: "How often do you lose track of time while doing something you enjoy?"). The meaning of this item reflects, at the same time, two flow dimensions (Csikszentmihalyi, 1990): Autotelic experience (intrinsic enjoyment) and time transformation (distortion of time) that corresponds to two facets of absorption.

Engagement concept (Schaufeli et al., 2002) is a multidimensional factor composed by vigor, dedication, and absorption. This last dimension is similar to flow that is characterized by a pleasurable state of deep and focused concentration, in which the mind and body function in an integrated way without any sense of time

passing. Despite this scientific understanding of the dimension of absorption, qualitative interviews about how Portuguese people understand and experience this dimension could bring a better understanding of this item, enabling a better semantic construction.

According to the five-factor structure, there were also some problems with discriminant validity, due to strong and very strong correlations between the core constructs of the model (positive emotion, engagement, meaning, relationship, and accomplishment). The original study of The PERMA Profiler (Butler & Kern, 2016) did not evaluate the discriminant validity of the constructs but recommended it in future studies. These results suggest the need for a more rigorous conceptualization of each of the PERMA factors.

Two other alternative models were also tested, a second-order and a single-factor model, and the single-factor showed a no satisfactory fit indexes. The second-order model had an acceptable adjustment, but it was not the best solution. The PERMA Profiler also provides a global well-being score (OWB); however, the second-order model was not confirmed to support this dimension. Besides that the measure was specifically designed by Butler and Kern (2016) to capture the differences between the five PERMA dimensions. This multidimensional characteristic has the advantage to facilitate more tailored interventions.

The reliability of the Portuguese version of The PERMA questionnaire was satisfactory, except for engagement factor, which reliability coefficients were below the threshold 0.70. As expected, engagement was the most problematic construct in the Portuguese version of the instrument, due to poor reliability and validity, as also shown by previous studies (Butler & Kern, 2016; Carvalho et al., 2021; Demirci et al., 2017; Giangrasso, 2018; Pezirkianidis et al., 2019; Wammerl et al., 2019).

Butler and Kern (2016) highlighted the difficulty of measuring engagement, because of its complexity. Despite of the fact that the choice of engagement items had been very careful, based in a bank of items traditionally used to measure this construct, they argued that it includes different dimensions (emotional, cognitive, and behavioral), which are difficult to be measured through a brief scale, with only three items. According to the literature, engagement is a state of emotional involvement that implicates many positive outcomes, but this concept is not precisely defined in the academic field (Shaufeli, 2013).

Furthermore, there is evidence of concurrent validity between The PERMA Profiler and Flourishing Scale, considering the correlation analysis results. The correlations between PERMA dimensions and Flourishing Scale were positive and strong or very strong. Positive emotion and meaning specifically had positive and very strong correlations with Flourishing Scale. These results reinforce the evidence about Flourishing as a psychological condition of feeling good and functioning well in life. Besides, meaning is a eudaimonic construct associated with high levels of life satisfaction, a hedonic construct in turn (Steger, 2012). As expected, engagement, relationship, meaning, accomplishment, and Flourishing Scale had negative and moderate correlations with negative emotion. Positive emotion had a negative and strong correlation with that factor. Lastly, there is a positive and strong correlation between physical health, positive emotion, and Flourishing Scale. The other dimensions, engagement, relationship, meaning and accomplishment, had positive

and moderate correlations with physical health. This factor has a negative and moderate correlation with negative emotion. These results are consistent with studies on the role of well-being in health, showing that a higher healthier psychological condition is associated with a better physical one (Friedman & Kern, 2014). Moreover, Fredrickson (2009) demonstrates, through research about broaden-and-build theory, how positivity contribute to a person´s good functioning, as it facilitates problem solving and promotes resources building.

The main limitation of this study is having a convenience sample, predominantly female. Added to these, the absence of test–retest and the concurrent validity having been tested by a single measure are also a limitation. The choice of Flourishing Scale to test concurrent validity was due to the relevance of the construct for this research. Based on the current literature review, no other study that tested both measures is known. As well, the psychometric problems founded with the engagement dimension point out that future research could to qualitatively explore the meaning of engagement within the Portuguese context. This type of research methodology, according to Delle Fave et al. (2011), should help to better adapt the well-being theory to the real experiences of people.

Other suggestions for future studies are to include additional instruments to test concurrent validity and to test invariance between genders.

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Data Availability Data is available to reviewers upon reasonable request.

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent was obtained from all individual participants included in the study.

Declarations

Competing Interests The authors declare no competing interests.

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