Current Psychology
https://doi.org/10.1007/s12144-021-01587-w

Flourishing in the Brazilian context: Evidence of the validity of the PERMA-profiler scale

PERMA-Profiler Brazil

Thainá Ferraz de Carvalho[1] · Sibele Dias de Aquino[1] · Jean Carlos Natividade[1,2]

Accepted: 5 March 2021

Abstract
PERMA is an acronym that designates the five well-being pillars of the authentic happiness theory. These factors refer to Positive Emotion, Engagement, Relationship, Meaning, and Accomplishment. The higher the levels in the dimensions of PERMA, the more an individual will flourish. Recently, an instrument has been developed to measure these factors. This instrument has been adapted for different cultures and has proved to be a reliable measure for well-being. This study aimed to adapt and search for validity evidence of the PERMA-Profiler scale for the Brazilian context. After translation and back-translation procedures, the instrument was applied to 1327 Brazilian adults. Confirmatory factor analysis revealed that the model of five intercorrelated factors is that the best data fit. As theoretically expected, we found positive correlations between PERMA and subjective well-being, psychological well-being, gratitude, optimism, self-esteem, and happiness. The adapted version of the scale showed satisfactory validity evidence based on content, internal structure, and relationships with other variables, making the scale reliable for use in Brazil.

Keywords Well-being · Test validity · PERMA-profiler · Flourishing

Happiness is a critical component of a healthy life (Diener, Scollon, & Lucas, 2003). Scientific studies on happiness became more feasible with the emergence of the concept of well-being since the term "happiness" is frequently used in everyday life, making it less scientifically appropriate (Diener et al., 2018). Many theories have been developed in an attempt to understand what contributes to a happy life, and these efforts have led to the development of different definitions, models, and measures of well-being (Cooke et al., 2016). These studies were based on two philosophical perspectives: the hedonic and the eudaimonic (Lent, 2004; Ryan & Deci, 2001). The hedonic perspective understands happiness in terms of obtaining pleasure and preventing pain, perceiving it as a subjective experience, and the individual's assessment of good and bad and pleasant or unpleasant events (Diener, 1984). In contrast, the eudaimonic view establishes a diverse set of experiences and mechanisms (for example, personal goals and values) through which people achieve psychological growth and seek purpose in their lives (Lent, 2004).

One of the hedonic models that has stood out in the literature is known as Subjective Well-being (SWB), a trinitarian model consisting of the following dimensions: satisfaction with life, positive affect, and negative affect (Diener, 1984; Diener et al., 1985). This model is interested in how people feel and how they cognitively assess their lives (Diener, 1984). One of the most prominent eudaimonic models is Psychological Well-being (PWB) (Ryff, 1989). It suggests that six elements determine well-being, including self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff & Keyes, 1995). Although it is possible to observe divergences regarding the nature of well-being, there is consensus among researchers about the multidimensionality of the construct (Diener et al., 2018; Roscoe, 2009; Ryff & Keyes, 1995).

All authors agree with this submission.

This manuscript is not published, nor is it under considerations for publication elsewhere.

✉ Jean Carlos Natividade
jeannatividade@gmail.com

[1] Department of Psychology, Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brazil

[2] Laboratório de Pesquisa em Psicologia Social, PUC-Rio, Rua Marquês de São Vicente, 225, Gávea, Rio de Janeiro, RJ 22451-900, Brazil

Published online: 11 March 2021

The PERMA Model and the Five Pillars of Well-Being

In an attempt to understand which main elements make up happiness, Seligman (2002) developed a theory called "Authentic Happiness". In this model, happiness is composed of three components: Positive Emotion, Engagement, and Meaning. According to this theory, if people had high levels in those three dimensions, their satisfaction with life would also tend to be high (Seligman, 2002). In the theory of Authentic Happiness, happiness was operationalized by satisfaction with life (Seligman, 2011). Later, realizing some limitations in his theory, Seligman (2011) added two new dimensions to his model, giving rise to a new multidimensional theory of well-being called PERMA. The elements added to the new model were Relationship (positive) and Accomplishment. According to this model, well-being is composed of five measurable dimensions that form the acronym PERMA.

Positive emotion (P) refers to any sensation of pleasure, enthusiasm, ecstasy, comfort, or other similar sensation associated with past, present, or future events (Seligman, 2002, 2011). One way of estimating flourishing is through individuals' positive experiences since positive affective states are an essential element of well-being (Fredrickson, 2006). Khodarahimi (2013) concludes that the higher the levels of flourishing experienced, the most frequently positive emotions. Fredrickson (2001) highlights not only the importance of positive emotions in the lives of individuals due to their protective effect in the face of life's adversities, resulting from the increase in psychological and even physical resources that they provide, but also highlights their predictive capacity of flourishing. Positive emotions are not only indicators of flourishing but also "produce" it (Fredrickson, 2001). The nullifying effect of positive emotions suggests that people can improve their well-being and health through the frequent experience of positive emotions at certain times in order to be able to deal with negative emotions (Fredrickson, 2000).

Engagement (E) refers to a behavior of surrender, or intense involvement, causing the individual to lose track of time and of himself during an activity (Seligman, 2011). This type of engagement, also known as flow, corresponds to the feeling of effortless action experienced in good times (Seligman, 2011). Relationship (R) includes feelings of integration within society or a community, feelings of being cared for by loved ones, and finding satisfaction with one's social network (Seligman, 2011). Meaning (M) refers to a sense of direction in life, the feeling that life is valuable, and the awareness that there is a purpose in everything you do; this includes believing in connection with something greater than yourself (Seligman, 2011; Steger, 2012). Meaning in life has been defined as a purpose that generates motivation and passion (Steger, 2012). Finally, Accomplishment (A) concerns a feeling of satisfaction with the goals that have already been achieved and the capability to be motivated to fulfill or achieve personal goals (Seligman, 2011). This dimension refers to the feeling of momentary fulfillment and the feeling of living a "fulfilling life", in its expanded form (Seligman, 2011).

According to Seligman (2011), these five well-being indicators give rise to human flourishing; that is, the higher the levels in each of PERMA dimensions, the more an individual will flourish. Human flourishing represents a state in which people experience positive emotions and experience psychological and social development that simultaneously suggests kindness, generosity, growth, and resilience (Fredrickson & Losada, 2005). To flourish means to live within an optimal range of human functioning in multiple domains (Butler & Kern, 2016; Seligman, 2011). PERMA integrates hedonic components (the experience of positive emotional states and a desire for fulfillment) and eudaimonic components (the presence of meaning and potential development) into a single model, while most of the previous models include only one or the other (for example, subjective well-being and psychological well-being) (Seligman, 2011).

As it is a relatively new theory, few instruments are designed to measure well-being according to the PERMA theory. However, some instruments assess the five domains of PERMA with only one or two items per dimension, such as the Brief Inventory of Thriving (Su et al., 2014), which includes PERMA elements without proposing a way to measure them explicitly. Another instrument, developed by Huppert and So (2013), includes emotional stability, optimism, resilience, self-esteem, and vitality, in addition to the five PERMA domains, with single items representing each domain.

Optimism, a positive characteristic associated with well-being, can be defined by generalized positive expectations that people maintain about future events (Carver et al., 2010). This variable has an important role in adapting to stressful conditions (Souri & Hasanirad, 2011). Relationships between optimism and well-being have been found in longitudinal studies (Wrosch & Scheier, 2003). In the research by Huppert and So (2013), optimism positively correlates with positive emotion, engagement, positive relationship, meaning, and engagement, with the same dimensions as PERMA (Huppert & So, 2013). Self-esteem is a favorable or unfavorable attitude that a person has towards himself, an individual's assessment regarding himself (Rosenberg, 1965). It is generally considered the evaluative component of the self-concept, a broader representation of the self that includes cognitive and behavioral aspects, and evaluative or affective aspects (Blascovich & Tomaka, 1991). Self-esteem is an essential aspect of emotional health and plays a fundamental role in well-being, being strongly related to positive affects and satisfaction with life (Diener, 1984; Padhy et al., 2011).

Another variable that stands out in studies on well-being is gratitude. Emmons (2004) defines gratitude as a pleasant

feeling of joy directed towards something external, a person or nature, for example, in response to something that has been received, be it a gift given by someone or a moment of happiness, like a sunset. In Peterson and Seligman's (2004) classification, gratitude was considered a strength of character belonging to the so-called "transcendental virtues", with critical benefits for the individual and society. In addition to being characterized as a moral virtue and an emotion, gratitude can also be defined as an attitude, a habit, a personality trait, and a coping response (Emmons & McCullough, 2003). In the study by Butler and Kern (2016), gratitude showed positive correlations with all PERMA dimensions.

The PERMA-Profiler

Given the need for an instrument that would specifically measure the PERMA model, Butler and Kern (2016) developed a multidimensional measure of flourishing: the PERMA-Profiler. In addition to proposing a way to assess each of the five dimensions of PERMA separately, this instrument also offers a general well-being score. For the preparation of the instrument's items, an initial database with more than 700 items was developed (see Butler, 2011). After some selection and analyses, the number of items was reduced to three for each domain, adding up to a total of 15 items, which presented adequate psychometric properties. Besides these items that make up the five pillars of well-being, eight items were added to the PERMA-Profiler to measure other factors, which include one item that evaluates general well-being; three items for evaluating the negative emotions of sadness, anger, and anxiety; one item evaluating loneliness; and three items evaluating the self-perception of physical health, giving rise to a final instrument of 23 items. The items for evaluating negative emotions and loneliness interrupt the response tendencies, and the single item about loneliness is a strong predictor of many negative outcomes in life (Butler & Kern, 2016).

This instrument showed satisfactory adjustments to the five-factor structure of the PERMA model (Butler & Kern, 2016), among other evidence of validity. A confirmatory factor analysis revealed that the intercorrelated five-factor model fits the data. The PERMA factors were moderately correlated with gratitude and physical health and inversely correlated with negative emotions and loneliness. In addition, the instrument showed satisfactory internal consistency and test-retest reliability indexes (Positive Emotion $\alpha = .88$; Engagement $\alpha = .72$; Relationship $\alpha = .82$; Meaning $\alpha = .90$; Accomplishment $\alpha =$. 79, and general PERMA $\alpha = .94$). The PERMA-Profiler aims to measure well-being economically and reliably, with psychometric properties that indicate its capacity to be used by researchers and professionals who intend to assess general well-being and its multiple domains independently.

Despite its recent publication, the PERMA-Profiler has already been translated in several countries: Germany (Wammerl et al., 2019), Australia (Iasiello et al., 2017), Colombia (Hernández-Vergel et al., 2018), Korea (Choi et al., 2019), Ecuador (Lima-Castro et al., 2017), Greece (Pezirkianidis et al., 2019), Hong Kong (Lai et al., 2018), Indonesia (Hidayat et al., 2018), Italy (Giangrasso, 2018), Japan (Watanabe et al., 2018) and Turkey (Demirci et al., 2017). The studies on the adaptation of the PERMA-Profiler carried out in Greece and Germany have also tested different structural models to compare them and verify which one would have better adjustment indexes (Pezirkianidis et al., 2019; Wammerl et al., 2019).

In Greece, two models were tested. The first was a five-factor model that included three items for each factor, and the second was a model with a second-order factor where the five PERMA factors load on a higher-order latent factor (Pezirkianidis et al., 2019). In the German study, four competing models were tested: the original model with the five intercorrelated factors and no general factor of well-being, a single-factor model, a second-order factor model, and a bifactor model (Wammerl et al., 2019). In both studies, the results showed better adjustment indexes for the first-order model with the five factors, according to the original study by Butler and Kern (2016).

Psychological instruments must be developed with excellence, as they help improve new theories and better understand the constructs. The theory of flourishing proposed by Seligman (2011) is still considered recent, and, to date, in Brazil, there are no instruments with evidence of validity that propose to evaluate the PERMA model of well-being. The first order five-factor model adopted in most versions of PERMA-Profiler supports the PERMA hypothesis as a multidimensional construct. The fact that a scale has a structure capable of measuring five different dimensions related to well-being in a short form quickly facilitates its use in scientific research. Studies involving well-being can pave the way for new contributions and, consequently, change science courses, enabling humans to understand their potentialities and not just from their weaknesses.

Present Study

This study aimed to adapt the PERMA-Profiler scale for the Brazilian context and seek its evidence of validity. To this end, procedures were performed to translate the instrument and to search for evidence of validity based on content, internal structure, and relationships with other variables. This study also sought to discuss the relationships between the dimensions of well-being in the PERMA model and other variables commonly studied by Positive Psychology.

Method

Participants

The participants in this study were 1327 Brazilian adults, with a mean age of 36.1 years ($SD = 13.1$), 69.3% of whom were women, and the other 30.7% were men. The sample included people from all States of the Federation, with 69.7% of respondents being from the Southeast region; 17.7% from the South region; 4.1% from the Northeast region; 3.0% from the Midwest region; and 2.4% from the Northern region of Brazil, in addition to 3.1% of respondents who lived abroad. Of the total number of participants, 1.5% were high school dropouts, 5.4% were high school graduates, 24.6% had not completed college, 13.9% had a bachelor's degree, 11.2% had not completed their postgraduate education, and 43.5% held a graduate degree or higher. Of the total sample, 45.0% of the individuals reported practicing meditation at present, and 64.1% of respondents reported practicing physical exercise at present.

Instruments

An online questionnaire was made and available on the internet, which presented, on the first page, a free and informed consent form. Upon agreeing to take part in the research, the participants were directed to the questionnaire that contained sociodemographic questions (gender, age, education, marital status, occupation) and questions about the practice of physical exercise and meditation. There was also a question about the level of happiness, formulated as follows: "If you could assess your level of happiness, how would it be?". The participants' response was presented on a continuous bar with two ends, the extreme left being "not happy at all" and the extreme right being "extremely happy".

In addition to these questions, there were scales that assessed subjective well-being, psychological well-being, self-esteem. The scales of gratitude and optimism were inserted at the end of the main questionnaire, in an optional extra section for filling-in. The questionnaire was configured to disallow missing answers to the scales' items and contained control questions in various parts of the questionnaire to monitor the participants' responses (e.g., "This is only a control question, please mark number five.").

PERMA-Profiler Brazil This measure is the version of the original PERMA-Profiler by Butler and Kern (2016) adapted for Brazil in this study. This initial instrument was developed to measure Seligman's flourishing model (Seligman, 2011), considering five dimensions: Positive Emotion, (P), Engagement (E), Relationships (R), Meaning (M), and Accomplishment (A). The instrument consists of 23 items, three items for each PERMA domain, three items for physical health, three items for negative emotions, one for loneliness, and one item for assessing happiness in general. Each item is answered using an 11-point scale, anchored in diversified extremes (e.g., never – always; terrible – excellent, and nothing – completely), depending on the item to which they refer. The closer to 11 the response averages are, the higher the levels of well-being. Butler and Kern still propose a calculation of global well-being, including the five factors (PERMA) and the item for global happiness. Examples of items are as follows: "How often do you feel that you are making progress in achieving your goals?"; "To what extent do you get help and support from others when you need it?"

Satisfaction with Life Scale (Hutz et al., 2014) The Satisfaction with Life Scale is the adapted version for Brazil of the original scale by Diener et al. (1985). This unifactorial instrument assesses global cognitive aspects of subjective well-being. It consists of five items in the form of statements to be answered on a seven-point agreement scale.

Psychological Well-Being (Machado et al., 2013) This measure is the adapted version for Brazil of Ryff and Essex's (1992) instrument, which assesses the individual's ability to face life's challenges from a psychological functioning perspective. The scale consists of 36 items, divided into six factors: positive relations with others, autonomy, environmental mastery, personal growth, purpose in life, and self-acceptance. Each item is answered using a six-point scale, with 1 = totally disagree, and 6 = totally agree.

Positive and Negative Affect Schedule (PANAS - Zanon & Hutz, 2014) PANAS is an adaptation of the Watson and Clark (1994) scale to the Brazilian context. This two-factor scale assesses the frequency and intensity with which individuals experience positive and negative emotions. Each factor, Positive Affect, and Negative Affect, consists of ten adjectives, totaling 20 items. The items are answered on a five-point scale, 1 = very little, and 5 = extremely, indicating how often individuals believe they have experienced these affects recently.

Rosenberg Self-Esteem Scale (Hutz & Zanon, 2011) This measure is an adaptation of the Rosenberg scale (Rosenberg, 1965) for Brazil. This unifactorial scale assesses global self-esteem through 10 items in the form of statements, which participants must consider and state how much they agree with them. The items are answered on a five-point agreement scale, where 1 = not at all, and 5 = extremely.

Gratitude Questionnaire (GQ-6 Brazil - Natividade et al., 2019) This measure is an adaptation of the original Gratitude

Questionnaire - GQ-6 (McCullough et al., 2002) to the Brazilian context. The single-factor scale measures a general disposition to feel gratitude. The scale consists of six items in the form of statements where participants indicate how much they agree with them, on a seven-point scale.

Revised Life Orientation Test (LOT-R - Bastianello & Pacico, 2014) This measure is an adaptation of the scale of Scheier et al. (1994) to Brazil. This one-factor scale assesses dispositional optimism, marked by widespread positive expectations about future events. The ten items are answered on a five-point agreement scale, 1 = strongly disagree, and 5 = strongly agree.

Procedures

Translation The original version was translated from English into Portuguese, independently, by four translators proficient in English and Portuguese. Two of them were researchers in the area of Psychology and well-being. The translations were compared and synthesized by a fifth researcher experienced in adapting instruments, who also compared the translations with the original English version. The final version was presented to a small group (pilot study, with five people) with sociodemographic characteristics similar to the study's target audience (i.e., university students) to verify the understandability of the items and instructions. After this stage and minor editorial corrections, the research questionnaire was prepared with the final version of PERMA-Profiler Brazil.

Data Collection Participants were recruited by e-mail and by posts on social networks. The invitations explained the survey and provided the link to access the questionnaire. On the first page of the questionnaire, a Free and Informed Consent form was available, complying with all guidelines and regulatory standards for research involving human beings in Brazil. The project followed all research standards with human beings after being approved by the ethics committee of the Federal Hospital of Ipanema, an organization linked to Plataforma Brazil, under protocol number CAAE: 12466419.5.0000.5646.

Analyses Initially, the data were cleaned to exclude wrong answers to the control questions. Throughout the questionnaire, control phrases were included, which made it possible to exclude respondents who did not mark the correct answer. All participants who made a mistake on a control question were excluded from the final analyses.

Then, confirmatory factor analyses were performed in order to search for evidence of validity based on the structure of the instrument. Four models were tested, according to the literature and similar to previous studies (e.g., Pezirkianidis et al., 2019): Model 1 – five PERMA correlated factors explaining their respective items; Model 2 – five first-order PERMA factors explaining their respective items and one second-order factor explaining the five PERMA factors and representing general well-being; Model 3 – five first-order factors from PERMA explaining their respective items and one second-order factor explaining the five factors from PERMA and the item for general happiness; Model 4 – a general well-being factor loading all PERMA items. The fit of the data to the models was verified based on the cut-off values suggested by Hu and Bentler (1999) including chi-squared and degrees of freedom, Robust Tucker-Lewis Index (TLI), Robust Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Robust Root Mean Square Error of Approximation (RMSEA), Akaike Information Criterion (AIC), and Sample-Size Adjusted Bayesian Information Criterion. (BIC). For these analyses, we started with the data covariance matrix, opting for the Robust Maximum Likelihood (MLR) estimator, using the Lavaan package, version 0.6–3 (Rosseel, 2012), and the software R, version 3.5.3 (R Core Team, 2019).

In search of evidence of validity based on relationships with other variables, Pearson's correlation coefficients between the PERMA factors and the factors of subjective well-being, psychological well-being, gratitude, optimism, self-esteem, and level of happiness were calculated. Group differences were also tested between those practicing and not practicing meditation, and between those practicing and not practicing sports/physical exercise.

Results

Evidence of Validity Based on Internal Structure

To test the structural adequacy of the instrument, confirmatory factor analyses were performed. Four alternative models were tested, the indexes can be seen in Table 1. The multivariate normality of the data was not found, Mardia's test, $p < .05$. Because of this and to be in accordance with previous studies that tested PERMA models, we used a robust estimator (MLR) in the confirmatory factor analyses (see Gana & Broc, 2019).

The Model 1, see Fig. 1, in which the items are explained by five factors of PERMA, as in the original version by Butler and Kern (2016), fit the data better. Among the indexes we can highlighted the CFI = 0.97; TLI = 0.96; RMSEA = 0.06 (CI90% = 0.054–0.067). The factorial loads of the items for this Model 1 ranged from .29 to .91, and the correlation between latent factors ranged from .57 (Relationship – Accomplishment) to .88 (Engagement – Meaning). These results can be seen in Table 2.

Table 1 Fitting Indexes of the Models Tested

	χ^2	df	χ^2/gl	TLI	CFI	GFI	CI 90% RMSEA	RMSEA	AIC	BIC
Model 1	354.9	80	4.436	0.96	0.97	0.953	0.054–0.067	0.060	74,856.7	74,937.2
Model 2	488.7	85	5.749	0.94	0.95	0.935	0.065–0.077	0.071	75,033.2	75,103.7
Model 3	633.1	99	6.395	0.94	0.95	0.915	0.070–0.081	0.076	78,712.1	78,786.6
Model 4	1393.8	90	15.487	0.82	0.85	0.818	0.118–0.130	0.124	76,310.3	76,370.7

Model 1 – Five PERMA-Profiler correlated factors explaining their respective items. Model 2 – Five first order PERMA-Profiler factors explaining their respective items, and a second order general well-being factor explaining the five factors. Model 3 – Five first order PERMA-Profiler factors explaining their respective items, and a second order factor explaining the five PERMA factors and the general happiness item. Model 4 – A single factor explaining all PERMA-Profiler items. χ^2 – chi-square; *df* – degrees of freedom; TLI – Robust Tucker–Lewis Index; CFI – Robust Comparative Fit Index; GFI - Goodness of Fit Index; RMSEA – Robust Root Mean Square Error of Approximation; CI 90% RMSEA – Confidence interval of 90%; AIC – Akaike Information Criterion; BIC – Sample-Size Adjusted Bayesian Information Criterion

Evidence of Validity Based on Relationships with Other Variables

In search of evidence of validity based on relationships with other variables, we tested the correlations between PERMA, subjective well-being (SWB), psychological well-being (PWB), optimism, gratitude, self-esteem, loneliness, physical health, negative emotions, and the global level of happiness. Table 3 shows the Pearson correlation coefficients that were found. The significant positive relationships between the Meaning (M) dimension and Satisfaction with Life (SWB), $r(1276) = .64$, and between the Positive Emotion (P) dimension and Positive Affect (PANAS), $r(1276) = .75$, stand out, as well as the positive relationship between the Accomplishment dimension (A) and the Purpose in Life (PWB) dimension, $r(1175) = .74$.

Using Student's *t*-tests, the instrument's capacity to discriminate between groups of people according to characteristics and habits that were theoretically related to PERMA was also tested. It was found that the instrument was able to differentiate between people who practice meditation and people who do not and between people who practice physical exercise from those who do not, as shown in Tables 4 and 5. Finally, it was found that women ($M = 7.57$; $SD = 1.60$) had higher levels of Engagement than men ($M = 7.36$; $SD = 1.47$), $t\ (1324) = -2.23$; $p < .05$; $d = 0.13$. The gender difference was also significant in the Relationship dimension, in which women ($M = 7.50$; $SD = 1.83$) had higher levels than men ($M = 7.23$; $SD = 1.89$), $t\ (1324) = -2.48$; $p < .05$; $d = 0.15$.

Precision Indicators

The calculated Cronbach's alpha coefficients showed satisfactory internal consistency for all factors, ranging from .90 to .76, except for the Engagement factor, in which the alpha was

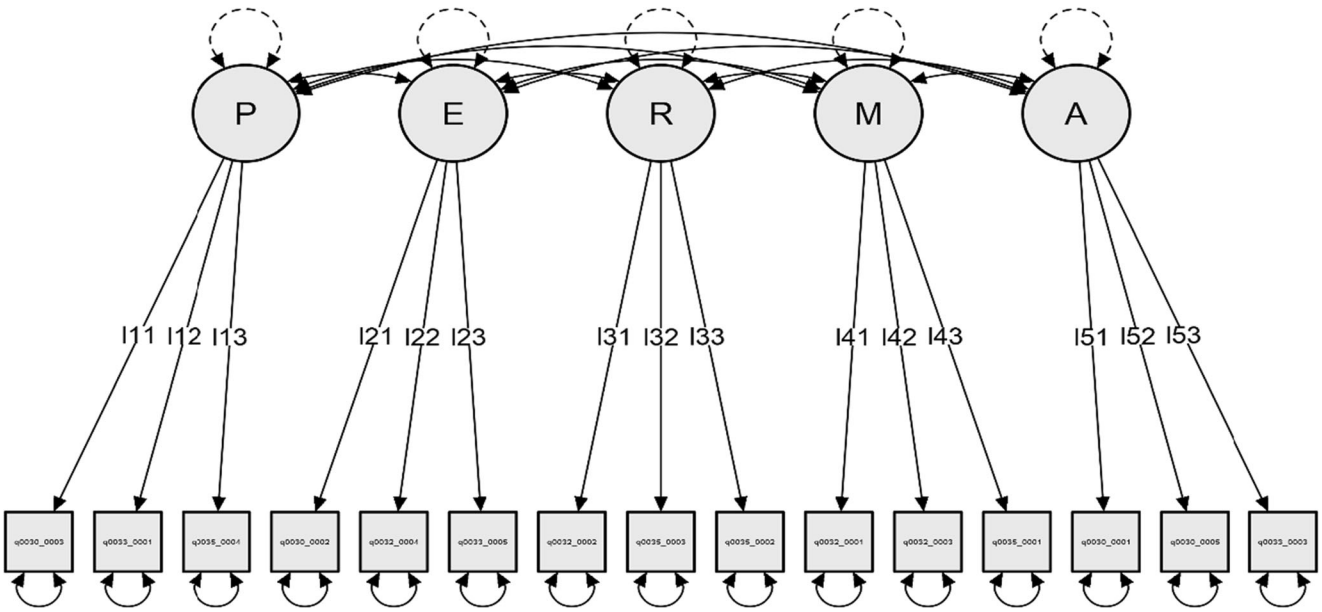

Fig. 1 The PERMA Profiler's Brazil five-factor model (Model 1). P = Positive Emotion; E = Engagement; R = Relationship; M = Meaning; A = Accomplishment

Table 2 Factorial Loads of the Model 1 – Five Intercorrelated Factors, and Correlation among Factors

Item	*P*	*E*	*R*	*M*	*A*
P1	.87				
P2	.82				
P3	.91				
E1		.58			
E2		.85			
E3		.29			
R1			.52		
R2			.81		
R3			.84		
M1				.88	
M2				.85	
M3				.71	
A1					.90
A2					.87
A3					.53
P	–				
E	.87	–			
R	.80	.64	–		
M	.82	.88	.69	–	
A	.73	.79	.57	.83	–

P = Positive Emotion factor; E = Engagement factor; R = Relationship factor; M = Meaning factor; A = Accomplishment factor

.59. The Guttman and McDonald reliability indexes were also calculated for all PERMA dimensions and showed the following results: Positive emotion - Guttman $\lambda 6 = .86$ and McDonald $\Omega = .90$, Engagement - $\lambda 6 = .52$ and $\Omega =$. 62, Relationship - $\lambda 6 = .71$ and $\Omega = .78$, Meaning - $\lambda 6 = .80$ and $\Omega = .86$, and Accomplishment - $\lambda 6 = .76$ and $\Omega = .81$. The general PERMA factor (15 PERMA items plus the general happiness item) presented $\lambda 6 = .94$ and $\Omega = .94$. The inter-item correlations can be seen in Table 6.

Discussion

The aim of this study was to adapt the PERMA-Profiler flourishing scale (Butler & Kern, 2016) for the Brazilian context. This model was developed in order to test Seligman's model of well-being (Seligman, 2011), as well as to search for evidence of the validity of this instrument. After translating the instrument, its psychometric properties were tested, resulting in a version with satisfactory evidence of validity for Brazil.

Four competing models were used to test the instrument's structure. The first-order five-factor model showed a better fit than the others. Also, the first-order five-factor model offered a better combination between the statistical adjustment of the structure and the theoretical interpretability (Butler & Kern, 2016). Model 4, with a single factor, presented the least adequate adjustment indexes. This model excludes PERMA factors and specifies all items as being explained by a single factor of well-being. The fact that this model was the least suitable for the sample corroborates the multidimensional theory of PERMA. The items also presented adequate factor loads in their respective factors. The strong correlations found between the PERMA factors suggest the interdependent nature of the domains and show that a multidimensional model is the best fit for studying these distinct domains.

Although the PERMA-Profiler provides a global score for well-being, Butler and Kern (2016) suggest that the multidimensional structure of the measure should be maintained instead of condensing the answers into a single score. That suggestion is in line with our results, which demonstrated that the factorial solution with the best fit was found in the five intercorrelated PERMA factors (Model 1). The solution with a general factor, although it presented satisfactory indicators, was not the best. According to Butler and Kern, a single score presupposes a one-dimensional measure, when, in fact, the PERMA-Profiler was specifically designed to be multidimensional. In addition, while it may seem advantageous to have a global well-being score, significant variations between domains are ultimately hidden. For exemple, if a person has a particularly low score in Accomplishment, for example, specific interventions can be used to improve that dimension (Kern et al., 2015).

The Brazilian version of the scale showed satisfactory reliability, with adequate internal consistency indexes, despite the reduced number of items per dimension. Except for the Engagement dimension, the reliability coefficients obtained were above the threshold of .70. Although unsatisfactory, this result of the dimension Engagement did not compromise the goal of this study, and this exception corroborates findings from other adaptations of the PERMA-Profiler and from the instrument's original study (e.g., Butler & Kern, 2016; Demirci et al., 2017; Giangrasso, 2018; Pezirkianidis et al., 2019; Wammerl et al., 2019). This result possibly indicates that the three items that measure this factor do not correlate well with each other and focus on facets of the engagement experience, which are not homogeneous, but distinctly different, combined with the shortened PERMA-Profiler structure that contained only three items per domain (Wammerl et al., 2019).

The psychometric problems that the engagement factor faces may also be due to the nature of the construct itself. Engagement seems to involve behavioral, cognitive, and emotional dimensions that can make consistent measurement in a succinct measure difficult. Engagement is a term used in different contexts, such as work, school, and society. However, the scale items do not measure what is involved in any specific context, but generally in people's lives. We suggested to

Table 3 Correlations between PERMA-Profile and Other Investigated Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. (P) Positive Emotion[a]	(.90)																					
2. (E) Engagement[a]	.60**	(.59)																				
3. (R) Relatioship[a]	.65**	.43**	(.76)																			
4. (M) Meaning[a]	.73**	.60**	.57**	(.85)																		
5. (A) Accomplishment[a]	.67**	.57**	.47**	.74**	(.80)																	
6. Satisfaction with Life - SWB[b]	.66**	.44**	.58**	.64**	.62**	(.89)																
7. Positive Affect - SWB[b]	.75**	.59**	.55**	.70**	.67**	.62**	(.89)															
8. Negative Affect - SWB[b]	−.60**	−.38**	−.46**	−.52**	−.46**	−.50**	−.49**	(.90)														
9. Positive Relations - PWB[c]	.49**	.35**	.51**	.40**	.36**	.40**	.46**	−.38**	(.78)													
10. Autonomy - PWB[c]	.33**	.28**	.14**	.35**	.33**	.25**	.33**	−.37**	.27**	(.73)												
11. Environmental Mastery - PWB[c]	.55**	.41**	.38**	.60**	.68**	.58**	.58**	−.54**	.36**	.40**	(.83)											
12. Personal Growth - PWB[c]	.52**	.47**	.35**	.51**	.49**	.47**	.53**	−.38**	.39**	.30**	.42**	(.75)										
13. Purpose in Life - PWB[c]	.68**	.56**	.47**	.78**	.74**	.68**	.73**	−.53**	.44**	.39**	.68**	.63**	(.86)									
14. Self-Acceptance - PWB[c]	.75**	.50**	.54**	.74**	.71**	.74**	.71**	−.62**	.49**	.44**	.67**	.60**	.82**	(.89)								
15. Gratitude[d]	.58**	.42**	.53**	.53**	.49**	.54**	.52**	−.30**	.47**	.26**	.39**	.50**	.57**	.58**	(.80)							
16. Optimism[d]	.65**	.45**	.47**	.57**	.53**	.53**	.58**	−.53**	.42**	.38**	.50**	.47**	.65**	.70**	.57**	(.81)						
17. Self-esteem[e]	.70**	.51**	.50**	.72**	.68**	.64**	.69**	−.64**	.46**	.47**	.65**	.54**	.76**	.85**	.53**	.71**	(.90)					
18. Happiness level [f]	.75**	.47**	.62**	.62**	.54**	.63**	.65**	−.52**	.37**	.21**	.48**	.45**	.59**	.66**	.47**	.53**	.60**	–				
19. Loneliness[a]	−.43**	−.24**	−.44**	−.33**	−.29**	−.36**	−.36**	.40**	−.36**	−.21**	−.31**	−.21**	−.33**	−.39**	−.29**	−.34**	−.39**	−.38**	–			
20. Physical Health PERMA[a]	.49**	.33**	.40**	.48**	.45**	.43**	.42**	−.41**	.26**	.25**	.46**	.29**	.43**	.48**	.32**	.34**	.51**	.40**	−.23**	(.89)		
21. Negative Emotions PERMA[a]	−.50**	−.26**	−.32**	−.38**	−.32**	−.37**	−.40**	.71**	−.35**	−.37**	−.43**	−.29**	−.40**	−.49**	−.28**	−.43**	−.52**	−.43**	.43**	−.36**	(.66)	
22. PERMA-16[a]	.89**	.75**	.77**	.89**	.83**	.73**	.79**	−.60**	−.51**	.34**	.64**	.57**	.80**	.80**	.62**	.65**	.76**	.74**	−.43**	.53**	−.44**	(.93)

[a]: $n = 1327$, [b]: $n = 1276$, [c]: $n = 1175$, [d]: $n = 671$, [e]: $n = 1219$, [f]: $n = 1321$. SWB = Subjective well-being. PWB = Psychological well-being. Alpha coefficients found in this study are in parentheses on the main diagonal. PERMA-16 General factor with three items for each dimension and one item of general happiness

**$p < .01$

Table 4 Mean Differences in PERMA Dimensions between Those Who Practice Meditation and Those Who Do Not

	Practice mediation $n=597$		Do not practice meditation $n=730$		Statistics
	M	*SD*	*M*	*SD*	
(P) Positive Emotion	7.54	1.58	6.87	1.91	$t(1324.8)=6.93$, $p<.001$, $d=0.38$
(E) Engagement	7.73	1.49	7.32	1.60	$t(1325)=4.83$, $p<.001$, $d=0.27$
(R) Relationship	7.59	1.73	7.28	1.94	$t(1314.9)=3.13$, $p<.05$, $d=0.17$
(M) Meaning	7.86	1.73	7.13	2.11	$t(13{,}255.0)=6.93$, $p<.001$, $d=0.38$
(A) Accomplishment	7.44	1.68	6.89	1.84	$t(1309.7) = 5.68$, $p<.001$, $d=0.31$
PERMA-16	7.64	1.36	7.10	1.55	$t(1318.7) = 6.67$, $p<.001$, $d=0.37$

include more items to assess this factor in improved versions of the instrument.

Evidence of validity based on the relationship with other variables was examined by correlation analyses between PERMA, subjective well-being (SWB - satisfaction with life, positive and negative affects), psychological well-being (positive relations with others, autonomy, environmental mastery, personal growth, purpose in life, and self-acceptance), gratitude, self-esteem, and optimism. The Meaning dimension of PERMA was strongly related to Satisfaction with Life, both of which include the feeling that life advances according to a purpose that is worth investing in and that life moves in the desired direction. Likewise, Positive Emotion and Positive Affect were strongly correlated, confirming that contentment, joy, and a sense of positivity are included in both models of well-being.

The correlations found between the dimensions of PERMA and SWB were positive between the Satisfaction with Life and Positive Affect components and negative between the Negative Affect component of the SWB. Regarding the Psychological Well-Being (PWB) model, all of the PERMA factors, and the general PERMA factor, were positively correlated with each of the six dimensions of the PWB, corroborating results found in other studies (Wammerl et al., 2019). The strong correlation found between the Meaning dimension of PERMA and the Purpose in Life dimension of PWB can be explained by the theoretical proximity between the two constructs. The relationship established between the PERMA model of well-being and other more current models is important evidence that the PERMA-Profiler measures what it proposes.

Self-esteem and optimism are well-studied variables that are known to be associated with high levels of well-being (Hewitt, 2009; Matthews & Cook, 2009; Paradise & Kernis, 2002). However, few studies have proposed to specifically test the relationships between these two variables and PERMA (Nebrida & Dullas, 2018). The results found for optimism and self-esteem proved to be positive, as expected (e.g., Huppert & So, 2013; Wrosch & Scheier, 2003). The correlations between optimism, Meaning, and Accomplishment can be explained by the concept of optimism. People with high levels of purpose and meaning in life may come to cultivate more widespread positive expectations about the future. The same happens with self-esteem – a possible explanation for the correlation found between self-esteem, Positive emotion, Accomplishment, and the general PERMA factor, for example, is that people who have a favorable attitude towards themselves think they are deserving of having good times and reaching

Table 5 Mean Differences in PERMA Dimensions between Those Who Practice Physical Exercise and Those Who Do Not

	Practice physical exercise $n=850$		Do not practice physical exercise $n=477$		Statistics
	M	*SD*	*M*	*SD*	
(P) Positive Emotion	7.38	1.64	6.80	1.99	$t(840.6)=5.35$, $p<.001$, $d=0.32$
(E) Engagement	7.60	1.46	7.32	1.73	$t(855.5)=2.98$, $p<.05$, $d=0.18$
(R) Relationship	7.56	1.73	7.17	2.04	$t(862.3)=3.49$, $p<.001$, $d=0.20$
(M) Meaning	7.68	1.81	7.05	2.18	$t(843.4)=5.43$, $p<.001$, $d=0.32$
(A) Accomplishment	7.37	1.64	6.73	1.97	$t(845.3)=5.99$, $p<.001$, $d=0.35$
PERMA-16	7.52	1.36	7.02	1.66	$t(838.7)=5.64$, $p<.001$, $d=0.33$

Table 6 Inter-Item Correlations among PERMA Profiler's Brazil Five-Factor Model Items

	P1	P2	P3	E1	E2	E3	R1	R2	R3	M1	M2	M3	A1	A2	A3
P1	–														
P2	.73	–													
P3	.80	.73	–												
E1	.42	.44	.38	–											
E2	.64	.65	.67	.47	–										
E3	.18	.21	.20	.26	.27	–									
R1	.35	.28	.39	.18	.34	.16	–								
R2	.57	.48	.64	.31	.44	.13	.38	–							
R3	.55	.50	.64	.24	.46	.14	.47	.68	–						
M1	.60	.63	.66	.46	.66	.21	.33	.50	.50	–					
M2	.58	.60	.64	.45	.63	.23	.32	.49	.46	.76	–				
M3	.48	.52	.57	.38	.53	.14	.26	.45	.43	.62	.59	–			
A1	.57	.58	.57	.46	.58	.17	.24	.44	.40	.65	.62	.57	–		
A2	.55	.55	.56	.45	.57	.17	.27	.42	.41	.63	.57	.53	.78	–	
A3	.36	.44	.38	.43	.42	.07	.15	.30	.24	.44	.43	.40	.44	.44	–

P = Positive Emotion items; E = Engagement items; R = Relationship items; M = Meaning items; A = Accomplishment items

professional achievements, which increases their levels of positive emotions. Therefore, subjects may experience events more positively, because they believe they deserve it (Heinonen et al., 2005).

Gratitude was positively correlated with all PERMA factors, including the general factor. Other studies have also revealed a strong relationship between gratitude and well-being (e.g., Emmons & McCullough, 2003). The correlations found between gratitude and the PERMA dimensions of relationship and meaning can be explained by the relational characteristic of gratitude, or the need to express gratitude to another person or Higher Being (Meaning dimension). In addition, according to the original study, all of the PERMA-Profiler factors showed correlations for the subscales present in the instrument (Butler & Kern, 2016), for example, loneliness and negative emotions – negative correlations and physical health – positive correlation. The negative correlation between loneliness and the dimensions of PERMA was theoretically expected since loneliness is often accompanied by feelings of abandonment and sadness.

A positive correlation was also found between the participants' self-reported level of happiness, according to their answer to a single question, and their scores in all dimensions of PERMA, including the general PERMA factor. As far as we know, these are the first findings regarding the dimensions of PERMA and the self-reported level of happiness of individuals. The more participants considered themselves to be happy, the higher their scores were on all dimensions of PERMA, including the general PERMA factor. This result may indicate that the personal perception that Brazilians entertain about their happiness is in accordance with the presented theoretical model. When thinking about their level of happiness, the participants supposedly access the dimensions proposed by PERMA, which maintains the strong correlation between the question being asked and the scale factors. The results of all the correlations tested in this study followed the expected direction, revealing important evidence of validity for the PERMA-Profiler.

Finally, differences between different groups' levels of well-being were tested. Previous studies have shown that women and men do not differ significantly in levels of well-being, but women are represented at the extremes of the well-being spectrum by experiencing positive and negative emotions more often and with more intensity (Diener & Ryan, 2009). In this study, gender differences were only found in the dimensions of Engagement and Relationship, with women showing higher levels than men. It is not difficult to assume that this may indicate a tendency for women to lose track of time when doing something they enjoy, as well as to express and perceive good feelings and emotions in their personal relationships.

When analyzing groups of people that practice and do not practice meditation and sports, significant differences were found in all dimensions of PERMA. As expected, people who practice meditation and those who practice sports showed higher levels of well-being. Meditation practice may be a personal resource that allows individuals to mitigate their losses and amplify their gains of well-being throughout life. This would justify the effect size found between people who practice and do not practice meditation in the dimensions of Positive Emotions, Meaning, and the general PERMA factor (Allen et al., 2017). The effect size found for the Accomplishment

factor between those who practice and do not practice sports can be understood by considering the goals that were established and achieved during the practice of the sport, as well as considering the possibility of a victory depending on the modality. It is expected that groups with a higher Accomplishment factor tend to advance towards goals and achieve results. This usually leads to a personal feeling of Accomplishment, which is very common in sports. Furthermore, it is known that the practice of sports and physical activities can promote positive experiences, well-being, and health (Gould et al., 2002; Lundqvist, 2011; Tracey & Elcombe, 2004).

Despite the promising results of this study, it is necessary to draw attention to one of its main limitations of having a sample defined by convenience. The sample's education level was predominantly composed of individuals who had completed a postgraduate education, a characteristic that is not representative of the Brazilian population. Other limitations need to be mentioned, such as the absence of a test-retest reliability exam and the engagement subscale's findings. For future studies, besides covering those limitations, we suggest that relationships with opposing concepts, such as depression, and with other positive variables such as hope, resilience, and forgiveness could be investigated; and that the relationship of the PERMA factors could be explored in conjunction with the personality and age characteristics of the participants.

In short, the first-order five-factor model adopted in the Brazilian version of the PERMA-Profiler endorses the PERMA hypothesis as a multidimensional construct. The fact that the scale has a structure capable of measuring five different dimensions related to well-being in a short time facilitates its use in scientific research. The results of the present study indicate that the PERMA-Profiler scale is an instrument with suitable evidence of validity and reliability to be used in the Brazilian context. It can be tested and applied in different contexts, such as those related to organization, education, health, and scientific research.

Data Availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations The publisher will not be held legally responsible should there be any claims for compensation.

The research was submitted to evaluation of a Brazilian ethical committee and considered appropriate.

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

Conflict of Interest We as authors have no conflicts of interest to disclose.

References

Allen, T, D., Henderson, T, G., Mancini, V, S., & French, K, A. (2017). Mindfulness and meditation practice as moderators of the relationship between age and subjective well-being among working adults. *Mindfulness*, 8(4), 1055–1063. https://doi.org/10.1007/s12671-017-0681-6.

Bastianello, M, R., & Pacico, J, C. (2014). Otimismo [Optimism]. In *Avaliação em psicologia positiva* (pp. 95–100). Porto Alegre, RS: Artmed

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of Personality and Social Psychological Attitudes (pp. 115-160), I*. San Diego, CA: Academic Press. https://doi.org/10.1016/B978-0-12-590241-0.50008-3.

Butler, J. (2011). *Measuring facets of human flourishing: Developing the well-being theory questionnaire. (Unpublished master's thesis)*. Philadelphia: University of Pennsylvania.

Butler, J., & Kern, M, L. (2016). The PERMA-profiler: A brief multidimensional measure of flourishing. International Journal of Wellbeing, 6(3), 1–48. https://doi.org/10.5502/ijw.v6i3.526.

Carver, C, S., Scheier, M, F., & Segerstrom, S, C. (2010). Optimism. *Clinical Psychology Review,* 30(7), 879–89.https://doi.org/10.1016/j.cpr.2010.01.006.

Choi, S, P., Suh, C., Yang, J, W., Ye, B, J., Lee, C, K., Son, B, C., & Choi, M. (2019). Korean translation and validation of the workplace positive emotion, engagement, relationships, meaning, and accomplishment PERMA-profiler. *Annals of Occupational and Environmental Medicine*, 31(1).https://doi.org/10.35371/aoem.2019.31.e17.

Cooke, P, J., Melchert, T, P., & Connor, K. (2016). Measuring well-being. The *Counseling Psychologist*, 44(5), 730–757.https://doi.org/10.1177/0011000016633507.

Demirci, İ., Ekşi, H., Dinçer, D., & Kardaş, S. (2017). Beş boyutlu iyi oluş modeli: PERMA Ölçeği Türkçe Formunun geçerlik ve güvenirliği [five-dimensional model of well-being: The validity and reliability of Turkish version of PERMA-profiler]. The Journal of Happiness & Well-Being, 5(1), 60–77

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542.https://doi.org/10.1037/0033-2909.95.3.542, 575

Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. South Africa *Journal of Psychology,* 39(4), 391–406. https://doi.org/10.1177/008124630903900402.

Diener, E., Emmons, R, A., Larsen, R, J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71–75.https://doi.org/10.1207/s15327752jpa4901_13.

Diener, E., Scollon, C. N., & Lucas, R. E. (2003). The evolving concept of subjective well-being: the multifaceted nature of happiness. *Advances in Cell Aging and Gerontology*, 15, 187–219. https://doi.org/10.1016/S1566-3124(03)15007-9.

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour,* 2(4), 253–260. https://doi.org/10.1038/s41562-018-0307-6.

Emmons, R, A. (2004). The psychology of gratitude: An introduction. In R. A. Emmons & M. E. McCullough (Eds.), *Series in Affective Science. The Psychology of Gratitude* (pp. 3–16). Oxford University Press.https://doi.org/10.1093/acprof:oso/9780195150100.003.0001.

Emmons, R, A., & McCullough, M, E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, 84(2), 377–389.https://doi.org/10.1037/0022-3514.84.2.377.

Fredrickson, B, L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment,* 3(1). https://doi.org/10.1037/1522-3736.3.1.31a.

Fredrickson, B, L. (2001). The role of positive emotions in positive psychology. *American Psychologist*, 56, 218–226.https://doi.org/10.1037//0003-066X.56.3.218.

Fredrickson, B, L. (2006). Unpacking positive emotions: Investigating the seeds of human flourishing. *The Journal of Positive Psychology*, 1, 57–59.https://doi.org/10.1080/17439760500510981.

Fredrickson, B, L., & Losada, M, F. (2005). Positive affect and the complex dynamics of human flourishing. *American Psychologist,* 60(7), 678–686. https://doi.org/10.1037/0003-066x.60.7.678.

Gana, K., & Broc, G. (2019). *Structural equation modeling with Lavaan*. London: ISTE Ltd..

Giangrasso, B. (2018). Psychometric properties of the PERMA-profiler as hedonic and eudaimonic well-being measure in an Italian context. *Current Psychology*. 1–10. https://doi.org/10.1007/s12144-018-0040-3, 40

Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology,* 14(3), 172–204. https://doi.org/10.1080/10413200290103482.

Heinonen, K., Räikkönen, K., & Keltikangas-Järvinen, L. (2005). Self-esteem in early and late adolescence predicts dispositional optimism–pessimism in adulthood: A 21-year longitudinal study. *Personality and Individual Differences,* 39(3), 511–521.https://doi.org/10.1016/j.paid.2005.01.026.

Hernández-Vergel, V., Prada-Núñez, R., & Hernández-Suárez, C, A. (2018). Adaptación del perfil PERMA de bienestar subjetivo para adultos mayores institucionalizados colombianos [Adaptation of the PERMA profile of subjective well-being for Colombian institutionalized older adults]. *Revista Ciencia y Cuidado,* 15(1), 83-97.https://doi.org/10.22463/17949831.1235.

Hewitt, J. P. (2009). Self-Esteem. In S. J. Lopez (Ed.), *Encyclopedia of positive psychology* (pp. 880–886). Malden, MA: Wiley-Blackwell.

Hidayat, R., Habibi, A., Saad, M., Rashid, M., Mukminin, A., & Idris, W. (2018). Exploratory and confirmatory factor analysis of PERMA for Indonesian students in mathematics education programmes. *Pedagogika,* 4, 147-165.https://doi.org/10.15823/p.2018.132.9.

Hu, L, T., & Bentler, P, M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.https://doi.org/10.1080/10705519909540118.

Huppert, F, A., & So, T, T, C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research*, 110(3), 837–861.https://doi.org/10.1007/s11205-011-9966-7.

Hutz, C, S., & Zanon, C. (2011). Revisão da adaptação, validação e normatização da Escala de Autoestima de Rosenberg [Review of adaptation, validation and standardization of the Rosenberg Self-Esteem Scale]. *Avaliação Psicológica*, 10(1), 41–49

Hutz, C. S., Zanon, C., & Bardagi, M. (2014). Satisfação de Vida. In C. S. Hutz (Ed.), *Avaliação em Psicologia Positiva* (pp. 43–48). Porto Alegre: Artmed.

Iasiello, M., Bartholomaeus, J., Jarden, A., & Kelly, G. (2017). Measuring PERMA+ in South Australia, the state of well-being: A comparison with national and international norms. *Journal of Positive Psychology and Wellbeing,* 1(2), 53–72

Kern, M, L., Waters, L., Adler, A., & White, M. (2015). A multidimensional approach to measuring well-being in students: Application of the PERMA framework. *The Journal of Positive Psychology,* 10(3), 262–271.https://doi.org/10.1080/17439760.2014.936962.

Khodarahimi, S. (2013). Hope and flourishing in an Iranian adults sample: Their contributions to the positive and negative emotions. *Applied Research Quality of Life*, 8, 361–372.https://doi.org/10.1007/s11482-012-9192-8.

Lai, M, K., Leung, C., Kwok, S, Y, C., Hui, A, N, N., Lo, H, H, M., Leung, J, T, Y., & Tam, C, H, L. (2018). A multidimensional PERMA-H positive education model, general satisfaction of school life, and character strengths use in Hong Kong senior primary school students: Confirmatory factor analysis and path analysis using the APASO-II. *Frontiers in Psychology*, 9. https://doi.org/10.3389/fpsyg.2018.01090.

Lent, R, W. (2004). Toward a unifying theoretical and practical perspective on well-being and psychosocial adjustment. *Journal of Counseling Psychology,* 51(4), 482–509.https://doi.org/10.1037/0022-0167.51.4.482.

Lima-Castro, S., Contreras, E, K, P., Quizphe, C, C., & Vélez, M, C. (2017). Adaptation of the PERMA profile in an Ecuadorian sample. *Eureka,*14(1), 69-83

Lundqvist, C. (2011). Well-being in competitive sports—The feel-good factor? A review of conceptual considerations of well-being. *International Review of Sport and Exercise Psychology,* 4(2), 109–127. https://doi.org/10.1080/1750984x.2011.584067.

Machado, W, D, L., Bandeira, D, R., & Pawlowski, J. (2013). Validação da psychological well-being scale em uma amostra de estudantes universitários [validation of the psychological well-being scale in an undergraduate student's sample]. *Avaliação Psicológica,* 12(2), 263–272

Matthews, E, E., & Cook, P, F. (2009). Relationships among optimism, well-being, self-transcendence, coping, and social support in women during treatment for breast cancer. *Psycho-Oncology: Journal of the Psychological, Social and Behavioral Dimensions of Cancer*, 18(7), 716-726.https://doi.org/10.1002/pon.1461.

McCullough, M, E., Emmons, R, A., & Tsang, J, A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology,* 82(1), 112–127.https://doi.org/10.1037/0022-3514.82.1.112.

Natividade, J, C., Carvalho, N, M., Londero-Santos, A., Carvalho, T, F., Santos, L, S., & Fagundes, L, S. (2019). Gratidão no contexto brasileiro: Mensuração e relações com personalidade e bem-estar [Gratitude in the Brazilian context: Measurement and relationships with personality and well-being]. *Avaliação Psicológica,* 18(4), 400-410.https://doi.org/10.15689/ap.2019.1804.18712.08.

Nebrida, J, D., & Dullas, A. (2018). "I'm perfectly imperfect": Exploring the relationship between PERMA model of well-being with self-esteem among persons with disabilities. *International Journal of Research,* 7(2), 27–44.https://doi.org/10.5861/ijrsp.2018.3005.

Padhy, M., Rana, S., & Mishra, M. (2011). Self esteem and subjective well-being: Correlates of academic achievement of students. *Research Journal of Social Science & Management*, 1(7), 148–156

Paradise, A, W., & Kernis, M, H. (2002). Self-esteem and psychological well-being: Implications of fragile self-esteem. *Journal of Social and Clinical Psychology,* 21(4), 345–361.https://doi.org/10.1521/jscp.21.4.345.22598.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. Washington, DC: American Psychological Association.

Pezirkianidis, C., Stalikas, A., Lakioti, A., & Yotsidi, V. (2019). Validating a multidimensional measure of well-being in Greece: Translation, factor structure, and measurement invariance of the PERMA profiler. *Current Psychology*, 1–18. https://doi.org/10.1007/s12144-019-00236-7.

R Core Team. (2019). *R: A language and environment for statistical computing*. Vienna: R Foundation for Statistical Computing.

Roscoe, L, J. (2009). Wellness: A review of theory and measurement for counselors. *Journal of Counseling & Development*, 87(2), 216–226.https://doi.org/10.1002/j.1556-6678.2009.tb00570.x.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton: Princeton University Press.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software,* 48(2), 1–36. http://www.jstatsoft.org/v48/i02/

Ryan, R, M., & Deci, E, L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52(1), 141–166.https://doi.org/10.1146/annurev.psych.52.1.141.

Ryff, C, D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology,* 57(6), 1069–1081.https://doi.org/10.1037/0022-3514.57.6.1069.

Ryff, C, D., & Essex, M, J. (1992). The interpretation of life experience and well-being: The sample case of relocation. *Psychology and Aging,* 7(4), 507–517.https://doi.org/10.1037/0882-7974.7.4.507.

Ryff, C, D., & Keyes, C, L, M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology,* 69(4), 719–727.https://doi.org/10.1037/0022-3514.69.4.719.

Scheier, M, F., Carver, C, S., & Bridges, M, W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the life orientation test. *Journal of Personality and Social Psychology,* 67(6), 1063–1078. https://doi.org/10.1037/0022-3514.67.6.1063.

Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. London: Nicholas Brealey.

Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. New York: Free Press.

Souri, H., & Hasanirad, T. (2011). Relationship between resilience, optimism and psychological well-being in students of medicine. *Procedia - Social and Behavioral Sciences,* 30, 1541–1544. https://doi.org/10.1016/j.sbspro.2011.10.299.

Steger, M, F. (2012). Making meaning in life. *Psychological Inquiry*, 23(4), 381–385.https://doi.org/10.1080/1047840x.2012.720832.

Su, R., Tay, L., & Diener, E. (2014). The development and validation of the comprehensive inventory of thriving (CIT) and the brief inventory of thriving (BIT). *Applied Psychology: Health and Well-Being*, 6(3), 251–279.https://doi.org/10.1111/aphw.12027.

Tracey, J., & Elcombe, T. (2004). A lifetime of healthy meaningful movement: Have we forgotten the athletes? *Quest,* 56(2), 241–260. https://doi.org/10.1080/00336297.2004.10491825.

Wammerl, M., Jaunig, J., Mairunteregger, T., & Streit, P. (2019). The German version of the PERMA-profiler: Evidence for construct and convergent validity of the PERMA theory of well-being in German speaking countries. *Journal of Well-Being Assessment*, 3(2–3), 75–96. https://doi.org/10.1007/s41543-019-00021-0.

Watanabe, K., Kawakami, N., Shiotani, T., Adachi, H., Matsumoto, K., Imamura, K., & Kern, M. L. (2018). The Japanese workplace PERMA-profiler: A validation study among Japanese workers. *Journal of Occupational Health,* 60(5), 383–393.https://doi.org/10.1539/joh.2018-0050-oa.

Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the positive and negative affect schedule-expanded form*. Iowa City: University of Iowa.

Wrosch, C., & Scheier, M, F. (2003). Personality and quality of life: The importance of optimism and goal adjustment. *Quality of Life Research,* 12(1), 59–72

Zanon, C., & Hutz, C. S. (2014). Escala de afetos positivos e afetos negativos (PANAS) [Positive and negative affects scale (PANAS)]. In C. S. Hutz (Ed.), *Avaliação em psicologia positiva* (pp. 63–67). Porto Alegre: Artmed.