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# Macedonian Version of Ryff's Psychological Well-Being Scale

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## Abstract

We have developed a shorter Macedonian version of Ryff's six-dimensional Psychological Well-Being (PWB) Scale. The original 84-item scale was reduced to 42 items in the Pilot Study ($N = 106$). In the Main Study ($N = 531$), the scale's structure, reliability, and validity were analyzed. Using confirmatory factor analysis (CFA), the correlated six-factor model yielded the best goodness-of-fit indices and partially met the required criteria. Measurement invariance was tested between the Macedonian and Polish samples indicating partial evidence. All subscales demonstrated satisfactory internal consistencies and time stability. Validity was confirmed by significant correlations with self-esteem, resilience coping, and life satisfaction. The present studies have provided a 42-item version of the PWB scale and offer further opportunities for researching well-being across different cultural contexts.

*Keywords:* psychological well-being, confirmatory factor analysis, reliability, validity, time stability

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## Introduction

Since the beginning of intellectual thought, philosophers have debated what constitutes the 'good life' and how it can be attained. Eudaimonism is a philosophical approach to living a good life that emphasizes the importance of living a life of deep thought and virtue in the quest of excellence and realization of our potential. Closely connected to eudaimonia is the concept of well-being. It is complex and multi-faceted and can be briefly described as optimal psychological functioning and human experience (Niemiec, 2023). Another concept that closely aligns with eudaimonism is hedonism. It postulates that the good life is identical to the pleasant life. Having a good life means feeling good and depends on how much pleasure life offers (Brülde, 2014). In the hedonic approach, the most widely used model is that of Diener (1984), who developed the concept of subjective well-being.

In the past decades, many tools have been developed to measure eudaimonic well-being. According to one classification (Proctor & Tweed, 2016), the measures can be organized into several categories: a) measures oriented toward motives, b) measures oriented toward behaviors, c) measures oriented toward outcomes, d) measures of the virtue component of eudaimonia, and e) measures combining more than one level, such as The Psychological Well-Being Scale by Ryff (1989a, 1989b). Nowadays, the Ryff scale is considered one of the most widely used, having been translated into 40 languages with more than 1200 generated publications (Ryff, 2021).

The concept of Psychological Well-Being (PWB) was introduced in the scientific literature in the late 1980s (Ryff, 1989a, 1989b, 2014). Ryff argued that previous attempts insufficiently explored the key question of what it means to be psychologically well and that there was little debate as to whether they captured the core aspects of human well-being (Ryff & Keyes, 1995). Because of this, she offered a new, multidimensional conceptualization that brought together previous views of eudaimonic well-being in a more unified outline.

The PWB model incorporated several theories from developmental and personality psychology (see Ryff, 1989a, 1989b; Ryff & Keyes, 1995). The convergence of these multiple frameworks served as a basis for describing individual differences in six facets of well-being:

- autonomy – ability to function free from the influence and control of others, to regulate emotions and behavior from within,
- environmental mastery – ability to create environments suitable to one´s healthy conditions,
- positive relations with others – ability to develop and maintain warm, affectionate, and trusting interpersonal relationships,
- personal growth – ability to realize one's potential, continuing to develop oneself as a person and underlining the importance of new challenges in different moments of life,

- purpose in life – belief that one's life is purposeful and meaningful, and
- self-acceptance – ability for self-actualization, optimal functioning, and maturity, including the awareness of personal limitations.

The initial PWB questionnaire consisted of 120 items, with 20 items per subscale (Ryff, 1989b). The internal consistency coefficients of the subscales ranged from .86 to .93 and the test-retest reliability over a six-week period ranged from .81 to .88. Moderate and high intercorrelations of PWB subscales highlighted the issue of its multidimensionality (*r* ranged between .32 and .76). The highest correlations were observed between self-acceptance and environmental mastery (.76), self-acceptance and purpose in life (.72), purpose in life and personal growth (.72), and purpose in life and environmental mastery (.66). Another overview (Springer & Hauser, 2006) found that correlations between self-acceptance, personal growth, environmental mastery and purpose in life were even over .95. In our main study, these four scales showed the highest correlations with each other, as well (see Study 2).

These initial findings raised some debate about the nature of the factorial structure of the inventory. Several studies using exploratory factor analysis (Triadó et al., 2007; Villar et al., 2010) suggested that the number of factors extracted was higher than six, while a study by Akin (2008) replicated the PWB six-factor structure. Studies using confirmatory factor analysis yielded mixed results. Some supported the theory-guided six-factor structure (Akin, 2008; Ryff & Singer, 2006; van Dierendonck et al., 2008), while others revealed the six-factor model only after excluding items from the analyses (Kitamura et al., 2004) or provided no support for the six-factor model (Abbott et al., 2006; Nava et al., 2018; Springer & Hauser, 2006).

To reduce respondent burden, the entire scale (120 items) has subsequently been reduced to 84 items (14 items per subscale) (Schmutte & Ryff, 1997). This 84-item version has undergone further reduction in the number of items and the issue of scale length has received extensive attention.

Worldwide, there are many variations ranging from scales with 54 items to scales with as few as 18 items (e.g., Lee et al., 2019; Nava et al., 2018; Ryff & Keyes, 1995; Shryock & Meeks, 2018). The administration of brief and economical scales is very popular and widespread in various areas of psychology. An acceptable trade-off between increase in economy and potential decrease in reliability and validity should be explored with respect to the nature of the construct being measured and the intended applications of the scale (cf., Heene et al., 2014; Kruyen et al., 2013). In our study, we decided to reduce the scale to a minimum of 7 items per subscale (in total 42). The rationale behind this decision was based on a summary report from Ryff (2014). Here, she called upon a seven-item per subscale version (42 items in total) employed in a longitudinal follow-up (Morozink et al., 2010). According to Ryff, this scale has achieved balance between respondent burden and adequate depth of measurement that ensures a credible assessment of the six facets. Studies that have

used the 42-item version yielded various results. One study (Abbott et al., 2009) reported that the six subscales adequately measure average levels of well-being but have low precision of measurement at high levels. Another study (Abbott et al., 2006) suggested that the addition of two factors to reflect positive and negative item content improved model fit and that a revised model with a single second-order factor provided the most parsimonious solution. CFA with data from a sample of Italian adolescents (Sirigatti et al., 2009) supported a second-order factor and correlated first-order factor model. In a more recent study (Sasaki et al., 2020), the 42-item scale was explored in a Japanese context. Cronbach's α ranged from .70 to .78, with the exception of the Purpose in life subscale (α = .57). The results of CFA based on the original, hypothesized six-factor model demonstrated poor model fit. Furthermore, an exploration of the scale revealed interesting findings, i.e., the mode of scale administration (self-report, e-mail, telephone call) as well as different statistical approaches to data analyses can also account for discrepancies in the results (Springer & Hauser, 2006). All mentioned studies with non-English speaking participants used the existing English 42-item version, translated into the target language.

Regarding gender, limited research has been conducted. Empirical evidence reveals a lack of gender disparities in most subscales (Ryff, 1989b; Ryff & Keyes, 1995). Concerning gender invariance measurement, no studies have yet examined this aspect of the 42-item version of the scale.

PWB has been used extensively in many areas of research. For example, older women who exhibited higher levels of environmental mastery, autonomy, and personal growth before a move showed better emotional responses after the move, particularly if the transition was difficult (Smider et al., 1996). Research found that more extraverted teenage females had a higher level of well-being on all dimensions in midlife. Teenage neuroticism, in contrast, predicted lower well-being on all dimensions (Abbott et al., 2008). In patients with rheumatoid arthritis, low environmental mastery is useful for identifying vulnerability to developing depression (Mangeli et al., 2002). Relevant to our study is the research of PWB and self-esteem, resilience, and life satisfaction. Self-esteem was included in this study because of its closeness to the dimension of self-acceptance, which is defined as a central feature of mental health and positive psychological functioning (Ryff, 1989b). Resilience was included after considering its conceptual closeness to PWB i.e., the search for ways to alter difficult situations, belief in control over one´s reactions, and belief in personal growth by dealing with difficult situations (Sinclair & Wallston, 2004). Life satisfaction is the core constituent of Diener´s (1984) model of subjective well-being. A study with middle and late adolescents as well as other populations showed positive relationships between PWB and resilience (De Caroli & Sagone, 2016; Sinclair & Wallston, 2004). Association with life satisfaction ranged from highest ($r$ = .73) with self-acceptance to lowest ($r$ = .26) with autonomy (Ryff, 1989b).

The PWB Scale has been translated into 40 languages, including several Slavic versions (Ryff, 2014, 2021; personal communication, July 9, 2019). Research on well-being in the Republic of North Macedonia has been sporadic. Blaževska-Stoilkovska et al. (2018) explored the subjective well-being (SWB) and life role salience among Macedonian employees. In his research, Spasovski (2012) examined the SWB in relation to basic psychological needs, intrinsic and extrinsic life goals, and collectivism. Shterjovska and Achkovska-Leshkovska (2013) examined Macedonian undergraduate students' time perspective and meaning in life. Grkovska (2019) examined SWB in the context of N. Macedonia's transitional economy, providing only a theoretical overview of this concept and its determinants. None of these studies mentioned or used Ryff's approach to well-being as a model or measure.

## Study 1

The aim of Study 1 was to determine the psychometric characteristics of the 84-item scale before selecting the most appropriate items for the 42-item scale. Although an English 42-item version of the scale (Morozink et al., 2010) and some translations into other languages (see previous paragraph) already exist, we wanted to explore the complete scale in Macedonian language and make further decisions based on the parameters of the whole scale.

### Method

#### *Sample*

The study recruited 106 participants (67% females), aged 20–75 ($M$ = 36.42, $SD$ = 9.25). All participants lived in the Republic of North Macedonia and spoke Macedonian fluently. Sample size was determined based on the following suggestions: Kline's rule of thumb which states that 100 subjects are sufficient if the structure is (relatively) clear, or to have two subjects per variable (Kline, 1994), and a proposal given by Arrindel and van der Ende (1985) who suggested 20 subjects per factor.

#### *Instrument*

The PWB Scale consists of six dimensions – autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance - each containing 14 items. Respondents rate the statements on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). About half of the responses are reverse-scored. Responses are aggregated for each of the six categories. Higher scores on each scale indicate greater well-being.

### *Procedures*

The first author (a native speaker of Macedonian) completed the preliminary translation from English into Macedonian. Two Macedonian psychology professors gave further comments and a Macedonian university professor of English made corrections to this version. This draft was sent to a bilingual psychotherapist for back-translation. After minor refinements, the scale was sent to a Macedonian language proofreader. The final version was verified by a linguist**,** Dojchinovski Ilija (first author) and Jovanovska-Stojanovska Mirjana (coauthor) who are native speakers of Macedonian.

The translation and adaptation process involved some specifics. The scale contains items where the present perfect tense was used. The Macedonian language does not have an equivalent form of this tense, and after analyzing the original item content we came up with different solutions to present the items in their new socio-linguistic background. For example, the item "Maintaining close relationships has been difficult and frustrating for me" was translated using present tense; for the item "I have the sense that I have developed a lot as a person over time" past indefinite tense was used; the item "I find it satisfying to think about what I have accomplished in life" was translated using have-perfect; for the item "With time, I have gained a lot of insight about life that has made me a stronger, more capable person" we used past definite perfective tense.

The questionnaire was administered online and disseminated using snowball techniques through different social media and communication apps. Before giving informed consent, participants were informed that the study was about well-being measures. Participation was voluntary, and they could withdraw at any time. They did not receive any compensation for their participation.

## Results and Discussion

Statistical analysis was performed using AMOS SPSS 26 and JASP 0.14.1. There were no missing values in the data. Assuming the six-factor solution and aiming to capture the core of each dimension, we chose items for the final version based on two main criteria: highest corrected item-total correlations and highest factor loadings on the corresponding dimensions. Their contribution to reliability, skewness, kurtosis, and content were additional criteria. In almost all items where skewness and kurtosis deviated significantly, it could be assumed from their content that this might be related to the characteristics of the sample which might be potentially skewed towards participants from the social sciences, for whom the aspect of personal well-being and growth is particularly salient. The most evident examples are the following two items that belong to the Personal Growth scale: item 39 ("In my view, people of every age are able to continue growing and developing") and item 45 ("With time, I have gained a lot of insight about life that has made me a

stronger, more capable person"). However, the deviations of the skewness of these items did not affect the skewness values of the aggregated scores of each scale. For more details about the descriptive parameters of the items, see Table A1 (Appendix, data also available at OSF repository).

The intercorrelations of total scores on all six subscales of the full PWB ranged from $r = .40$ (autonomy and positive relations) to $r = .74$ (purpose in life and self-acceptance) and were similar to previous studies. We calculated the rank order correlation between the two sets of intercorrelations in our study and in Ryff´s (1989b) study obtaining a result of $r(13) = .76$, $p = .001$. Results also indicated an overlap between well-being components on a theoretical and operational level (Ryff & Singer, 2006; Springer et al., 2006). Regarding reliability, all scales showed satisfactory values ranging from $\alpha = .69$ to $\alpha = .87$ (see Table A2 in the Appendix, data also available at OSF repository).

The correlation of age with each of the six subscales was not statistically significant, while the independent samples *t*-test showed no significant gender-specific differences for any of the six subscales.

Concerning the extent to which our newly developed scale resembles the original English 42-item scale, we conducted further analysis and derived the following overview: there was an overlap of 5 items in the autonomy subscale; in the environmental mastery subscale, 2 items; in the personal growth subscale, 4 items; in the positive relations with others subscale, 3 items; in purpose in life subscale, 3 items and in the self-acceptance subscale, 4 items. In total, half of the items overlapped with the original English version.

## Study 2

The aim of Study 2 was to explore model fit, validity, and time stability of the scale. For that purpose, we examined four models using confirmatory factor analysis and performed a cross-cultural comparison of model fits with a Polish sample. Convergent validity was explored as correlations with scales for measuring self-esteem, resilience coping, and life satisfaction. Time stability was calculated over an interval of four months.

### Method

#### *Sample*

For the exploration of model fit and psychometric properties, 531 participants were recruited (66.7% females), aged 18–79 ($M = 37.14$, $SD = 10.58$). They completed the 42-item PWB scale resulting from Study 1 with all instructions kept consistent. With respect to the highest educational degree, 3 participants (0.6%) had completed elementary school (8 years), 102 (19.2%) had completed secondary

school (12 years), and 426 (80.2%) had completed higher education (> 12 years). Regarding their work status, 102 participants (19.2%) were unemployed, 419 (78.9%) were employed and 10 (1.9%) were retired. Regarding marital status, 125 participants (23.5%) were single, 87 (16.4%) were in a relationship, 285 (54.7%) were married, 27 (5.1%) were divorced, and 7 (1.3%) were widows or widowers.

For the exploration of time stability, 44 participants were included (33 females), aged 18–60 years ($M$ = 37.84, $SD$ = 9.77). The interval between the two measurement points (test-retest) was four months. At the beginning, participants registered for the study by providing their e-mail addresses. A total of 137 addresses were collected. In the first measurement, 105 responses were received (response rate 77.78%). In the second measurement, 75 responses were received (response rate 54.74%). The final pairs of the two measurement points were obtained by matching the self-generated codes of the subjects provided in both rounds (32.12% of the initially registered 137 e-mails). Considering the dropout rate and sample demographics, we further evaluated the generalizability of our findings. We conducted an independent samples *t*-test between the final sample and the rest of the first assessment on age and all six subscales' scores. Results concerning all variables did not yield significant differences between the groups. The gender ratio difference between the groups was also not significant. All participants lived in the Republic of North Macedonia and spoke Macedonian fluently.

### *Instruments*

To explore the validity of PWBS, we calculated correlations with the scales presented below. These scales were translated from English into Macedonian using backward translation (cf., Methods Section of Study 1).

The 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), was used to assess general self-esteem. Answers were given on a 4-point scale (1 = *strongly disagree* to 4 = *strongly agree*), with higher scores indicating higher self-esteem. In the current study, Cronbach's alpha was .88.

The Brief Resilience Coping Scale (BRCS; Sinclair & Wallston, 2004) was used to assess the tendency to effectively use coping strategies in flexible and committed ways to actively solve problems. The scale consists of 4 items using a 5-point answer format (1 = *does not describe me at all* to 5 = *describes me very well*). Higher scores indicate more effective use of coping strategies. In the current study, Cronbach's alpha was .78.

The Single-Item Life Satisfaction Scale (SILSC; Cheung & Lucas, 2014) was used to assess global satisfaction with life ("In general, how satisfied are you with your life"). Answers were given on a 4-point scale (1 = *very dissatisfied* to 4 = *very satisfied*).

## Results and Discussion

### *Reliability Analysis*

As presented in Table 1, all subscales showed satisfactory reliability values, ranging from .68 to .84. Two scales showed skewness values equal to or over 1 (*purpose in life* and *personal growth*). The analysis of the correlations between the dimensions of psychological well-being confirmed their inter-correlations with values ranging from $r = .28$ (*autonomy* and *positive relations*) to $r = .77$ (*purpose in life* and *self-acceptance*). In terms of age, there was a significant negative correlation with the personal growth subscale and a significant positive correlation with the purpose in life subscale. Regarding gender, there was a significant correlation with the environmental mastery subscale. An independent samples *t*-test revealed that males ($M = 32.60$, $SD = 6.00$) scored lower than females ($M = 33.96$, $SD = 5.87$); $t(529) = 2.49$, $p = .013$; Cohen's $d = .229$.

**Table 1**

*Pearson Correlation of PWS Subscales, Age, Gender, Mean, Standard Deviation, Skewness, Kurtosis, and Cronbach´s Alpha*

| | *M*[a] (*SD*) | Skew. | Kurt. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Autonomy | 31.61 (6.00) | -0.33 | -0.42 | *.68* | .38** | .40** | .28** | .37** | .48** |
| 2. Environmental mastery | 33.51 (5.94) | -0.81 | 0.45 | | *.74* | .55** | .46** | .65** | .68** |
| 3. Personal growth | 36.66 (5.08) | -1.18 | 1.20 | | | *.72* | .37** | .65** | .62** |
| 4. Positive relations | 29.34 (8.01) | -0.36 | -0.67 | | | | *.79* | .40** | .51** |
| 5. Purpose in life | 34.13 (6.66) | -1.00 | 0.59 | | | | | *.81* | .77** |
| 6. Self-acceptance | 32.52 (7.63) | -0.91 | 0.34 | | | | | | *.84* |
| Age (years) | 37.14 (10.58) | | | .02 | .09* | -.12** | .07 | .12** | .07 |
| Gender (male/female) | | | | .07 | -.11* | .01 | .01 | .04 | .02 |

*Note.* Skew. = skewness; Kurt. = kurtosis. [a] Score range 7–42. Cronbach's α is depicted in italics along the diagonal.
*$p < .05$. **$p < .01$.

### *Confirmatory Factor Analysis*

Based on prior evidence and theory concerning the PWB model, we examined four models (Table 2). The reason we chose these four models was driven by the

theoretical concept itself and the number of studies that examined them, which enabled us to make comparisons. There are many model fit indices mentioned throughout the literature. We chose the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR) and $\chi^2/df$ as they are the most frequently recommended and used indices. The CFI compares the fit of a target model to the fit of an independent, or null, model and is not very sensitive to sample size. The RMSEA is a parsimony-adjusted index. The SRMR represents the square-root of the difference between the residuals of the sample covariance matrix and those of the hypothesized model. The CFI (as relative fit measure) did not reach the cut-off value of at least .90 in any of the tested models. At the same time, RMSEA and SRMR (as absolute fit indices) demonstrated acceptable results (< .08) in the first three models and the $\chi^2/df$ ratio was under 3 in the first two tested models (Hu & Bentler, 1998; Schumacker & Lomax, 2004).

**Table 2**

*CFA Goodness-of-Fit Indexes of the Four Models*

| Models | $\chi^2$ | *df* | $\Delta\chi^2$ | $\Delta df$ | $\chi^2/df$ | CFI | RMSEA | RMSEA 90% CI | SRMR | AIC |
|---|---|---|---|---|---|---|---|---|---|---|
| Six-factor model[1] | 2391.4*** | 804 | - | - | 2.980 | .795 | .061 | [.058 - .064] | .067 | 71903.55 |
| Second-order factor model | 2430.3*** | 813 | 38.8*** | 9 | 2.995 | .791 | .061 | [.059 - .064] | .068 | 71924.54 |
| One-factor model | 3310.2*** | 819 | 918.8*** | 15 | 4.050 | .679 | .076 | [.073 - .078] | .075 | 72794.12 |
| Six-factor model[2] | 3954.6*** | 819 | 1563.2*** | 15 | 4.838 | .596 | .085 | [.082 - .088] | .220 | 73439.71 |

*Note.* [1] factors correlated; [2] factors uncorrelated. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; AIC = Akaike information criterion.
***$p < .001$.

Results in Table A3 (Appendix) showed that each of the six factors was defined by items from the corresponding scale (see data at OSF repository). Two items within autonomy, as well as one item within personal growth and one item within positive relations had factor loadings lower than .40. However, their elimination from the model did not yield significant improvement in the fit indices. Further elimination of items from subscales is risky as it brings further restrictions to their content validity. After applying two main criteria for item selection (i.e., corrected item total correlations and factor loadings), an imbalanced scoring key appeared. The inclusion of negatively worded statements requires careful selection of an appropriate negative descriptor that can be correctly reversed to its intended counterpart. The positive relations with others scale was the most affected. Research (Chyung et al., 2018) suggests that scales with negatively worded items have lower means which was the

case in our study i.e., the lowest compared to the other subscales. At the same time, the skewness and kurtosis stayed within the normal range (see Table 1). Its correlation with the rest of the subscales was low to moderate, and the reliability coefficient was in the middle compared to the other subscales (see Table 1). When looking at the results from the validity study (Table 4), this subscale had the lowest correlations compared to the other subscales. When we analyzed the reverse-coded items linguistically, only two of them had direct negation. The rest of them do not have a negation word. However, they are reverse-coded since they measure a characteristic that is opposite to the well-being dimension the subscale tends to measure.

The CFA suggested that the correlated six-factor model had the best goodness-of-fit parameters, although the model could not be fully confirmed and should be treated as fair (neither bad nor good). This suggests that the items of each dimension tended to load on their corresponding factor and the six factors were correlated with each other. Testing the second-order factor model yielded only slightly poorer fit values, but the chi-square difference test proved to be significant and indicated a better fit of the first (correlated six-factor) model. Results for the one-factor model showed poorer model fit indicating that PWB does not represent a one-dimensional construct. The poorest fit indices were obtained for the uncorrelated six-factor model which implies that the six dimensions are correlated phenomena and should not be viewed as independent constructs. CFA results obtained in this study were similar to those of several other studies (Akin, 2008; Ryff & Singer, 2006) which also failed to achieve a full replication of the six-dimensional model. But, as van Laar and Braeken (2021) noted: "The evaluation of model fit remains a crucial yet controversial topic in the application of structural equation models" (p.1). Due to these issues, instead of golden rules of thumb (i.e., rigid cutoff scores), Niemand and Mai (2018) called for more flexible approaches that take into consideration the sample size, factor loadings, number of latent variables and indicators, as well as data (non-)normality. Lai and Green (2016) opened the debate about the estimation of model fit when CFI and RMSEA disagree as is the case in our model. They argued that these two indices can disagree for several reasons. First, they evaluate the magnitude of the model's fit function value from different perspectives. Second, the cutoff values for these indices are arbitrary. Third, the meaning of "good" fit and its relationship with fit indices are not well understood. In our study, we followed the conventional strategy of model fit evaluation and cutoff interpretation criteria in order to make our results more comparable.

To address the cross-cultural dimension of the concept within a broader Slavic language context, we tested the measurement invariance with a Polish sample (Karaś & Cieciuch, 2017). The Polish sample consisted of 847 participants (age range = 17–54 yrs., $M_{age}$ = 24.42, σ = 7.13, women = 60.5%). From the Polish 84-item scale, we extracted those 42 items that were also part of the Macedonian version. We conducted multiple-group CFA i.e., configural and metric invariance. Because the

second level of invariance is nested within the previous model, they were compared using the change in fit indices. A change in CFI (ΔCFI) less than .01 and a change in RMSEA (ΔRMSEA) less than .015 suggests no meaningful decrease in model fit and supports measurement invariance (Chen, 2007; Putnick & Bornstein, 2016). Our results (Table 3) showed partial evidence for configural invariance across the two groups (CFI = .738, RMSEA = .045). We also found partial evidence for metric invariance (ΔCFI > .01, ΔRMSEA < .015).

**Table 3**

*Measurement Invariance of the PWB Scale by Macedonian and Polish Sample*

| Level | $\chi^2$ | *df* | $\Delta\chi^2$ | Δ*df* | CFI | ΔCFI | RMSEA | RMSEA 90% CI | ΔRMSEA | BIC |
|---|---|---|---|---|---|---|---|---|---|---|
| Configural | 6666.2 | 1608 | - | - | .739 | - | .048 | [.047 - .049] | - | 6433.32 |
| Metric | 7159.6 | 1644 | 493.4 | 36 | .715 | .024 | .049 | [.048 - .050] | .001 | 6584.33 |
| Scalar | 10200.2 | 1686 | 3040.6 | 42 | .560 | .155 | .061 | [.059 - .062] | .012 | 10637.1 |

*Note.* Macedonian: *N* = 531; Polish: *N* = 850. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; BIC = Bayesian information criterion.

We also tested the measurement invariance using gender via multiple-group CFA. Our results showed partial evidence for configural invariance across gender (CFI = .767, RMSEA = .047). We also found evidence for metric invariance (ΔCFI < .01, ΔRMSEA < .01). For details see Table A4 (Appendix, data also available at OSF repository).

### *Validity*

As depicted in Table 4, all six PWB subscales correlated significantly with the Rosenberg Self-Esteem Scale (*r* = .42–.82), the highest being with self-acceptance. This is in line with theoretical considerations by Ryff (1989b) postulating the closeness of self-esteem particularly to the dimension of self-acceptance, which is regarded as a central feature of mental health and positive psychological functioning. All PWB subscales correlated with the Brief Resilience Coping Scale (*r* = .24–.52), particularly with purpose in life. Other studies also supported the correlation between resilience and PWB (Li & Hasson, 2020; Sagone & Caroli, 2014). The Single-Item Life Satisfaction Scale demonstrated a significant correlation with all PWB subscales (*r* = .23–.52), the highest being with self-acceptance.

**Table 4**

*Pearson Correlation of PWB Dimensions and RSES, BRCS, and SILS*

| | Autonomy | Environmental mastery | Personal growth | Positive relations | Purpose in life | Self-acceptance |
|---|---|---|---|---|---|---|
| RSES | .42*** | .63*** | .50*** | .44*** | .72*** | .82*** |
| BRCS | .29*** | .42*** | .44*** | .24*** | .52*** | .48*** |
| SILS | .23*** | .44*** | .35*** | .25*** | .46*** | .52*** |

*Note.* RSES = Rosenberg Self-Esteem scale; BRCS = Brief Resilience Coping scale; SILS = Single Item Life Satisfaction.
***$p < .001$.

### *Time Stability*

The temporal stability was calculated at a four-month interval using Pearson correlation coefficients. Results obtained for the test and retest were also compared using a paired-samples *t*-test. Correlations ranged from .66 for autonomy to .85 for purpose in life and self-acceptance. The results indicated that there were no significant differences between the scores obtained at the first and the second measurement point for any of the PWB subscales. For more details, see Table A5 (Appendix, data also available at OSF repository).

Looking at the stability coefficients in this study, slightly lower results were obtained for some of the scales, compared to other reports (Akin, 2008; Cenkseven, 2004, as cited in Akin, 2008). A potential reason for this discrepancy could be the restricted variance and the small sample size. Another reason could be the longer time distance between the first and the second measurement. Shmutte and Ryff (1997) noted that the stability of well-being falls somewhere between affect and personality. Although robust, well-being is less stable over time compared to personality traits and can vary throughout life, primarily depending on the impact of social and personality factors.

## General Discussion

The study of PWB receives particular attention in many societies. In the past three decades, individuals in North Macedonia have been exposed to various challenges, which may have affected their well-being in multiple ways. This dynamic psychosocial milieu was our incentive to apply the PWB scale in this context and assess its psychometric properties. The factorial structure, internal consistency, and time stability of this shorter Macedonian version of the PWB Scale yielded results that were similar to other studies. CFA of the theory-driven correlated six-factor model showed goodness-of-fit indices that were fair, based on some rule-of-thumb cutoff criteria, and partially confirmed the six-dimensional concept. Our approach to

model fit calculation and evaluation was conventional in order to obtain comparability with other studies. Still, newer approaches with more flexible criteria interpretations arose in literature where the conclusions about the goodness-of-fit of the model are individualized (see Niemand & Mai, 2018). The inter-correlations of the subscales were also significant and especially high between purpose in life, personal growth, environmental mastery, and self-acceptance. All these findings corresponded to other analyses conducted subsequently (Springer & Hauser, 2006). They suggest a potential overlap of these dimensions of PWB at both theoretical and operational level. Considering that the scale has been administered in various sociolinguistic contexts, its cross-cultural applicability emerges as an important issue. Therefore, its administration in another language and cultural background should only be undertaken if prior psychometric data are available. Given that many studies cast doubt on the six-dimensional model, the theoretical frame should be reconsidered and reexamined in the new context. Based on their detailed analyses, Springer and Hauser (2006) even propose a possible revision of the theoretical concept, suggesting that four of the subscales (self-acceptance, personal growth, environmental mastery, and purpose in life) could be consolidated into one facet after a careful examination of the items. The correlations of the six dimensions of the PWBS with other constructs provided information about congruent validity with self-esteem, resilience coping, and life satisfaction. Comparative analysis of the validation results from a recent Japanese study (Sasaki et al., 2021) using the 42-item version, brought forth some interesting observations. Namely, the correlation of PWB subscales with self-esteem showed ranges from $r$ = .43 to .71 (Japanese) and from $r$ = .42 to .82 (Macedonian). In both studies, self-acceptance had the highest correlation with self-esteem. The correlation of the subscales with life satisfaction in both validation studies showed surprisingly similar results where $r$ ranged from .23 to .56 (Japanese) and from .23 to .52 (Macedonian). In both studies, autonomy correlated the lowest and self-acceptance correlated the highest with life satisfaction. Another recent study with university students (Au et al., 2023) found comparable results on the correlation of the PWB subscales and resilience. Although resilience was measured in this study using a different instrument, i.e., Resilience Scale (Wagnild & Young, 1993), autonomy had the lowest correlation with resilience in the student sample ($r$ = .07). It also had nearly the lowest correlation ($r$ = .29) in our sample (the lowest was with positive relations with others, $r$ = .24). Once again, self-acceptance had the highest correlation with resilience in both validation studies, with a very similar correlation of $r$ = .54 in the student sample and $r$ = .52 in our sample.

Concerning the time stability, the results revealed that PWB showed satisfactory stability during the four-month interval.

Limitations of the current study may be settled with respect to the following aspects. First, data collection began six months after the beginning of the corona pandemic. It is plausible to assume that this affected the responses to this scale, although it is difficult to say to what extent and in what direction. Future

administration of the questionnaire under more stable circumstances may bring new insight into this issue. Second, the samples in all three studies were collected using the snowball method, which offers limited control over the sampling procedure and cannot guarantee the representativeness of the sample. Future studies using representative samples for the Macedonian population could provide additional relevant information about the factorial structure of PWBS. Another limitation of the present study concerns the fact that the sample in the first study did not meet the Kline's (1994) rule of thumb, which suggests 20 participants per factor. However, since we selected items with satisfactory contribution to Cronbach alpha coefficients and item-total correlations, we assumed that selected items would provide even higher values of these parameters with an increasing sample size, as suggested by Piedmont (2014). Future studies could certainly benefit from a larger sample size, so that more confident decisions can be drawn. This implies the necessity of implementing more sophisticated approaches that were developed recently. Such an approach is the ant colony optimization (ACO), a metaheuristic item selection algorithm that is suitable for development of short scales for cross-cultural surveys (see Olaru & Danner, 2021). Third, in this study, only self-reported measures were used. Future studies should include other measures, such as peer ratings, in order to provide more precise data on the PWB. Fourth, in determining the time stability of the construct within a four-month distance, there was a dropout of participants and in the matching process, only 44 participants remained. This issue should be addressed in future designs so that the dropout rate is kept to a minimum. Fifth, due to ethical considerations, participants were informed that the study was about well-being prior to giving informed consent. This might have led to selective participation of participants, for whom well-being was not a sensitive topic or who were especially interested in aspects of well-being. Sixth, the abbreviated Macedonian scale was compared with data from a Polish sample. Although considered as a broader Slavic linguistic context, comparison of this shortened version with the original scale within a representative Macedonian sample would be an optimal solution in a future study.

Keeping in mind that there is limited information available on the psychological well-being of Macedonian citizens in general, we hope that this study will contribute in several directions. First, the PWB scale has been explored psychometrically for the first time with a large Macedonian sample and a shorter version has been proposed. This will enable scientific exploration of eudaimonic well-being and its facets in a broader context. From a practical standpoint, it is a shorter, valid, and reliable instrument that allows for a reduction of time costs related to data collection. Second, PWB is closely related to many other areas of daily life that contribute to our psychological and physical health. This adapted instrument offers an opportunity to conduct interdisciplinary research and draw important conclusions about the quality of life of the Macedonian population. Third, we hope that this study will inspire further exploration and use of the scale with other populations such as children, adolescents, elderly people, and other special cohorts. Fourth, this study

offers further opportunities to research well-being across the Slavic language family and to compare these results with data from different cultural contexts.

## Open Science Framework (OSF)

The data, and supplemental material are available in the Open Science Framework: https://osf.io/3sk6n/?view_only=25c6c78b46c64aa789428aca70b1e3bd

Open Data: We confirm that there is sufficient information for an independent researcher to reproduce all reported results (Dojchinovski et al., 2024).

Open Materials: We confirm that there is sufficient information for an independent researcher to reproduce all reported methodology (Dojchinovski et al., 2024).

## Authorship

This research article was written in the context of the first author's dissertation process. All authors contributed to the writing process, drafted, and critically revised the work. All authors contributed to and have approved the final manuscript.

## Publication Ethics

The Institutional Review Board of International Psychoanalytic University Berlin approved the research.

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## Makedonska verzija Ryffove skale psihološkoga blagostanja

Sažetak

Razvili smo kraću makedonsku verziju Ryffove šestodimenzijske skale psihološkoga blagostanja (PWB). U pilot-istraživanju *(N* = 106) izvorna je ljestvica od 84 čestice smanjena na 42 čestice. U glavnome su istraživanju (*N* = 531) analizirane struktura, pouzdanost i valjanost ljestvice. Korištenjem konfirmatorne faktorske analize (CFA) korelirani šestofaktorski model dao je najbolje indekse pristajanja i djelomično zadovoljio tražene kriterije. Parcijalna invarijantnost mjerenja utvrđena je usporedbom makedonskoga i poljskog uzorka. Sve su podljestvice pokazale zadovoljavajuću unutarnju konzistentnost i vremensku stabilnost. Valjanost je potvrđena značajnim korelacijama sa samopoštovanjem, otpornošću i zadovoljstvom životom. Ovim je istraživanjem dobivena inačica ljestvice PWB od 42 tvrdnje kojom se proširuju mogućnosti istraživanja dobrobiti u različitim kulturalnim okruženjima.

*Ključne riječi:* psihološko blagostanje, konfirmatorna faktorska analiza, pouzdanost, valjanost, vremenska stabilnost

Primljeno: 21. 11. 2023.

**Appendix**

**Table A1**

*PWB Items Descriptive Parameters Within the Subscales*

| | Item | *M* | *SD* | $r_{it}$ | factor loading | Skew. | Kurt. | $\alpha_{id}$ |
|---|---|---|---|---|---|---|---|---|
| **Autonomy** | 1 | 4.18 | 1.6 | .32 | .47 | -0.33 | -1.33 | .75 |
| **(α = .75)** | **7** | **4.99** | **1.28** | **.48** | **.61** | **-1.27** | **0.72** | **.73** |
| | 13 | 4.49 | 1.42 | .31 | .43 | -0.84 | -0.25 | .75 |
| | **19** | **4.45** | **1.51** | **.42** | **.52** | **-0.56** | **-0.89** | **.73** |
| | 25 | 5.29 | .89 | .27 | .37 | -1.51 | 2.58 | .75 |
| | **31** | **4.10** | **1.61** | **.45** | **.58** | **-0.38** | **-1.10** | **.73** |
| | 37 | 4.69 | 1.66 | .35 | .48 | -1.21 | 0.18 | .74 |
| | **43** | **4.65** | **1.39** | **.42** | **.56** | **-1.07** | **0.32** | **.73** |
| | **49** | **5.05** | **1.03** | **.43** | **.59** | **-1.17** | **0.96** | **.74** |
| | 55 | 4.31 | 1.58 | .32 | .48 | -0.53 | -0.85 | .74 |
| | **61** | **4.05** | **1.5** | **.45** | **.57** | **-0.13** | **-1.35** | **.73** |
| | 67 | 4.36 | 1.73 | .25 | .35 | -0.81 | -0.72 | .75 |
| | 73 | 3.53 | 1.59 | .36 | .45 | 0.01 | -1.26 | .74 |
| | **79** | **5.08** | **1.04** | **.37** | **.50** | **-1.04** | **0.36** | **.74** |
| **Environmental** | 2 | 4.83 | 1.26 | .25 | .35 | -1.36 | 1.50 | .78 |
| **mastery** | 8 | 3.75 | 1.60 | .43 | .49 | 0.01 | -1.32 | .77 |
| **(α = .78)** | 14 | 4.61 | 1.51 | .27 | .33 | -0.81 | -0.70 | .78 |
| | **20** | **5.11** | **1.12** | **.55** | **.68** | **-1.44** | **1.68** | **.76** |
| | 26 | 3.15 | 1.56 | .22 | - | 0.48 | -0.98 | .79 |
| | 32 | 4.89 | 1.28 | .33 | .47 | -1.25 | 0.95 | .78 |
| | **38** | **4.95** | **1.23** | **.42** | **.56** | **-1.54** | **2.12** | **.77** |
| | 44 | 3.79 | 1.65 | .41 | .51 | -0.07 | -1.28 | .77 |
| | **50** | **4.94** | **1.15** | **.54** | **.67** | **-1.56** | **2.71** | **.76** |
| | **56** | **4.29** | **1.50** | **.47** | **.63** | **-0.53** | **-0.85** | **.77** |
| | **62** | **4.51** | **1.51** | **.48** | **.59** | **-0.80** | **-0.55** | **.76** |
| | **68** | **4.91** | **1.07** | **.44** | **.56** | **-1.17** | **1.46** | **.77** |
| | **74** | **3.95** | **1.74** | **.63** | **.73** | **-0.21** | **-1.45** | **.75** |
| | 80 | 4.64 | 1.33 | .27 | .37 | -1.11 | 0.63 | .78 |
| **Personal** | 3 | 5.38 | 1.31 | .24 | .31 | -2.23 | 4.02 | .68 |
| **growth** | 9 | 5.42 | 1.00 | .31 | .35 | -2.61 | 7.87 | .67 |
| **(α = .69)** | 15 | 4.82 | 1.42 | .22 | .32 | -1.35 | 1.11 | .69 |
| | 21 | 4.17 | 1.51 | .22 | - | -0.61 | -0.69 | .69 |
| | 27 | 5.44 | 1.10 | .16 | - | -2.77 | 8.32 | .69 |
| | **33** | **4.82** | **1.49** | **.42** | **.64** | **-1.14** | **0.07** | **.65** |
| | **39** | **5.68** | **.61** | **.32** | **.49** | **-2.26** | **6.00** | **.68** |
| | **45** | **5.53** | **.85** | **.20** | **.42** | **-2.67** | **9.38** | **.68** |
| | **51** | **5.19** | **1.11** | **.51** | **.73** | **-1.56** | **2.17** | **.65** |
| | 57 | 3.58 | 1.63 | .23 | - | -0.04 | -1.28 | .69 |
| | 63 | 5.77 | .62 | .49 | .68 | -4.90 | 13.09 | .66 |
| | **69** | **5.38** | **.87** | **.51** | **.75** | **-1.62** | **2.64** | **.65** |
| | **75** | **4.71** | **1.54** | **.45** | **.54** | **-1.05** | **-0.10** | **.65** |
| | **81** | **4.89** | **1.47** | **.30** | **.38** | **-1.25** | **0.42** | **.67** |

| | Item | *M* | *SD* | $r_{it}$ | factor loading | Skew. | Kurt. | $\alpha_{id}$ |
|---|---|---|---|---|---|---|---|---|
| **Positive** | 4 | 5.33 | 1.09 | .27 | .33 | -2.43 | 6.53 | .82 |
| **relations with** | **10** | **4.66** | **1.61** | **.53** | **.63** | **-0.87** | **-0.58** | **.80** |
| **others** | **16** | **4.33** | **1.79** | **.53** | **.62** | **-0.59** | **-1.18** | **.80** |
| **(α = .82)** | 22 | 5.13 | 1.30 | .33 | .42 | -1.56 | 1.54 | .82 |
| | 28 | 5.54 | 1.02 | .28 | .35 | -2.69 | 7.05 | .82 |
| | **34** | **4.27** | **1.75** | **.60** | **.71** | **-0.56** | **-1.20** | **.80** |
| | **40** | **4.85** | **1.29** | **.51** | **.63** | **-1.30** | **1.21** | **.81** |
| | **46** | **4.17** | **1.83** | **.51** | **.61** | **-0.51** | **-1.20** | **.81** |
| | 52 | 5.07 | 1.04 | .36 | .44 | -1.26 | 1.65 | .82 |
| | **58** | **4.75** | **1.57** | **.53** | **.64** | **-1.03** | **-0.29** | **.80** |
| | 64 | 4.60 | 1.58 | .50 | .59 | -0.80 | -0.62 | .81 |
| | 70 | 5.37 | .90 | .33 | .44 | -2.01 | 5.80 | .82 |
| | **76** | **4.15** | **1.67** | **.49** | **.58** | **-0.47** | **-1.13** | **.81** |
| | 82 | 5.05 | 1.14 | .44 | .57 | -1.62 | 2.77 | .81 |
| **Purpose in life** | 5 | 4.44 | 1.59 | .48 | .59 | -0.82 | -0.53 | .79 |
| **(α = .81)** | 11 | 4.92 | 1.47 | .19 | - | -1.27 | 0.49 | .81 |
| | 17 | 4.57 | 1.57 | .39 | .46 | -0.85 | -0.45 | .80 |
| | **23** | **4.81** | **1.42** | **.58** | **.66** | **-1.20** | **0.58** | **.78** |
| | 29 | 4.50 | 1.55 | .49 | .59 | -0.73 | -0.67 | .79 |
| | **35** | **4.13** | **1.75** | **.61** | **.72** | **-0.43** | **-1.24** | **.78** |
| | 41 | 4.87 | 1.46 | .50 | .58 | -1.17 | 0.29 | .79 |
| | **47** | **4.70** | **1.38** | **.52** | **.64** | **-1.01** | **0.23** | **.79** |
| | **53** | **4.95** | **1.01** | **.60** | **.74** | **-0.87** | **0.23** | **.79** |
| | 59 | 4.60 | 1.52 | .37 | .49 | -0.95 | -0.33 | .80 |
| | 65 | 4.39 | 1.71 | -.04 | - | -0.69 | -0.88 | .83 |
| | **71** | **5.16** | **1.12** | **.48** | **.61** | **-1.68** | **2.99** | **.79** |
| | **77** | **4.49** | **1.53** | **.53** | **.67** | **-0.91** | **-0.21** | **.79** |
| | **83** | **5.16** | **1.29** | **.52** | **.60** | **-1.56** | **1.43** | **.79** |
| **Self-acceptance** | **6** | **4.71** | **1.40** | **.66** | **.74** | **-1.14** | **0.46** | **.85** |
| **(α = .87)** | **12** | **4.60** | **1.39** | **.56** | **.65** | **-0.92** | **-0.20** | **.86** |
| | 18 | 4.46 | 1.62 | .52 | .61 | -0.65 | -0.99 | .86 |
| | 24 | 3.26 | 1.55 | .53 | .60 | 0.27 | -1.13 | .86 |
| | 30 | 5.12 | .93 | .39 | .46 | -1.83 | 4.79 | .87 |
| | 36 | 4.89 | 1.40 | .35 | .44 | -1.40 | 1.12 | .87 |
| | **42** | **4.58** | **1.6** | **.70** | **.77** | **-0.81** | **-0.67** | **.85** |
| | **48** | **4.92** | **1.13** | **.64** | **.71** | **-1.19** | **0.76** | **.86** |
| | 54 | 4.81 | 1.40 | .52 | .59 | -1.05 | 0.02 | .86 |
| | **60** | **4.09** | **1.79** | **.61** | **.68** | **-0.42** | **-1.31** | **.86** |
| | **66** | **4.51** | **1.64** | **.65** | **.72** | **-0.76** | **-0.73** | **.85** |
| | 72 | 4.62 | 1.36 | .41 | .49 | -1.01 | 0.19 | .87 |
| | 78 | 5.06 | 1.19 | .33 | .40 | -1.65 | 2.44 | .87 |
| | **84** | **4.79** | **1.60** | **.55** | **.63** | **-1.14** | **0.05** | **.86** |

*Note.* Skew. = skewness; Kurt. = kurtosis. $r_{it}$=item total correlation; $\alpha_{id}$ = reliability if item deleted. Factor loadings lower than .30 are not presented. Selected items for the shorter version are in bold.

**Table A2**

*Pearson Correlations and Cronbach's α of the Six Dimensions of PWBS (84 items)*

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Autonomy | *.75* | .42 | .53 | .40 | .46 | .54 |
| 2. Environmental mastery | | *.78* | .41 | .49 | .64 | .66 |
| 3. Personal growth | | | *.69* | .57 | .54 | .51 |
| 4. Positive relations | | | | *.82* | .61 | 67 |
| 5. Purpose in life | | | | | *.81* | .74 |
| 6. Self-acceptance | | | | | | *.87* |

*Note.* Cronbach's α is depicted in italics along the diagonal.
$p < .001$ for all correlations.

**Table A3**

*Factor Loadings of Items to the Corresponding Dimension*

| Item | Autonomy | Environmental mastery | Personal growth | Positive relations with others | Purpose in life | Self-acceptance |
|---|---|---|---|---|---|---|
| 1 | .32 | .48 | .49 R | .50 R | .64 | .65 |
| 2 | .48 R | .47 | .31 | .70 R | .68 R | .63 |
| 3 | .58 R | .55 | .58 | .75 R | .45 | .76 R |
| 4 | .57 R | .56 | .79 | .55 | .63 | .71 |
| 5 | .42 | .41 R | .61 | .65 R | .55 | .60 R |
| 6 | .67 R | .62 | .55 R | .64 R | .63 | .65 R |
| 7 | .34 | .68 R | .42 R | .37 R | .72 R | .61 R |

*Note.* Item numbers correspond to the order of items printed in bold within each subscale in Table A1. R = reverse scored item.

**Table A4**

*Measurement Invariance of the PWB Scale by Gender*

| Level | $\chi^2$ | *df* | $\Delta\chi^2$ | $\Delta df$ | CFI | ΔCFI | RMSEA | RMSEA 90% CI | ΔRMSEA | BIC |
|---|---|---|---|---|---|---|---|---|---|---|
| Configural | 3496.1 | 1608 | - | - | .767 | - | .047 | [.045 - .049] | - | 4190.82 |
| Metric | 3545.6 | 1644 | 49.5 | 36 | .765 | .002 | .047 | [.045 - .049] | .000 | 4151.61 |
| Scalar | 3657.4 | 1707 | 111.8 | 63 | .759 | .006 | .046 | [.044 - .049] | .001 | 4108.22 |

*Note.* Males: $N = 177$; Females: $N = 354$. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; BIC = Bayesian information criterion.

**Table A5**

*Test-Retest (Pearson) and Paired Samples t-Test for PWB Subscales (N=44)*

| | | *r* | *t* (43) | *p* | Cohen's *d* | Min[a] | Max[a] | *M* | *SD* | Skew. | Kurt. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Autonomy | test | .66 | .573 | .570 | .086 | 18 | 42 | 31.95 | 5.9 | -0.46 | -0.48 |
| | retest | | | | | 20 | 42 | 31.55 | 5.64 | -0.06 | -0.76 |
| Environmental mastery | test | .71 | 1.567 | .124 | .236 | 22 | 42 | 35.02 | 4.64 | -0.72 | 0.50 |
| | retest | | | | | 19 | 42 | 34.09 | 5.49 | -0.65 | -0.10 |
| Personal growth | test | .78 | 1.525 | .135 | .230 | 21 | 42 | 37.66 | 4.79 | -1.53 | 2.57 |
| | retest | | | | | 23 | 42 | 36.89 | 5.30 | -1.19 | 0.75 |
| Positive relations with others | test | .73 | .474 | .638 | .071 | 11 | 42 | 30.66 | 7.76 | -0.72 | -0.27 |
| | retest | | | | | 11 | 42 | 30.25 | 7.81 | -0.35 | -0.69 |
| Purpose in life | test | .85 | .612 | .544 | .092 | 14 | 42 | 34.73 | 5.96 | -1.16 | 2.13 |
| | retest | | | | | 11 | 42 | 34.41 | 6.38 | -1.41 | 2.91 |
| Self-acceptance | test | .85 | .000 | 1.00 | .000 | 17 | 42 | 33.11 | 6.31 | -0.55 | -0.46 |
| | retest | | | | | 13 | 42 | 33.11 | 6.54 | -0.97 | 0.84 |

*Note.* Skew. = skewness; Kurt. = kurtosis. [a] Score range 7–42.