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REVIEW ARTICLE

Assessing Your Strengths – Hungarian Validation of the 24-Item Values in Action Inventory of Strengths on a Large Sample

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Introduction: Several studies have shown the inconsistent factorial structures of the Values in Action Inventory of Strengths between cultures.
Aims: This paper describes an adapted Hungarian version of the 24-item Values in Action Inventory of Strengths for adults.
Methods: Participants in three online self-report questionnaire-based cross-sectional studies (Σn = 10,911) filled in the 24-item Values in Action Inventory of Strengths, the Global Well-being Scale, Huppert's and Diener's Flourishing Scales, and the Positivity Scale.
Results: The exploratory factor analyses provided evidence for four factors: Wisdom and Knowledge; Humanity; Temperance; and Spirituality and Transcendence. The scales showed excellent internal consistency values in each study. The confirmatory factor analyses of the subsamples also showed a good fit. Low discriminant but excellent content validity was proved. Participants rated themselves highest on Humanity and lowest on Temperance. Women reported significantly higher values on both the Humanity and the Spirituality and Transcendence virtue scales than did men. The Wisdom and Knowledge virtue showed a positive correlation with education level. Among those living alone, Humanity was significantly lower, while the level of Humanity among married people stood significantly higher than in any other group.
Conclusion: Our results suggest that the Hungarian version of the 24-item Values in Action Inventory of Strengths for adults serves as a suitable measure for assessing character strengths and virtues.

Keywords: character strengths, virtues, mental health, positive psychology, positive psychology assessment measure

Introduction

Our study presents the psychometric properties regarding the Hungarian version of the 24-item Values in Action Inventory of Strengths (VIA-H), which is a new, short measure of character strengths (Furnham & Lester, 2012). We also describe the interrelationship among character strengths, virtues, mental health, and demographic indicators.

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Positive psychology has been defined as the science of happiness and human strengths (Seligman & Csíkszentmihályi, 2000). The goal of this new psychological trend in the twenty-first century is to promote human flourishing at individual, community, and institutional levels (Seligman, 2002, 2011). It aims to contribute toward sustainable positive functioning by encouraging the use of personal strengths, developing individual strategies that preserve happiness, and improving positive institutions. One of the most significant results produced by the movement involves the creation of the taxonomy of virtues and character strengths (Dahlsgaard et al., 2005; Peterson & Seligman, 2004).

The Values in Action Inventory of Strengths (VIA-IS; Peterson & Seligman, 2004) classifies positive character traits and virtues according to a hierarchical system. Virtues are abstract cultural principles that, regardless of time, location, or culture, are indicators of a "well-lived life." The six overarching virtues endorsed by almost every culture worldwide are Wisdom and Knowledge, Courage, Humanity, Justice, Temperance, and Spirituality and Transcendence (Peterson & Seligman, 2004). Virtue must also be demonstrated in a person's behavior for them to be considered truly virtuous. Behavioral manifestations of these six virtues are referred to as character strengths, which can be measured as psychological variables. Peterson and Seligman (2004) identified 24 character strengths in total. One character strength example is integrity, which includes the positive character traits of honesty, authenticity, and trustworthiness.

The importance of studying character strengths lies in their positive relationship to physical (Ai et al., 2022; Weziak-Bialowolska et al., 2021), emotional (Azañedo et al., 2021; Wagner et al., 2020; Weziak-Bialowolska et al., 2021), social (Azañedo et al., 2021; Wagner et al., 2020; Weziak-Bialowolska et al., 2021) and spiritual (Ai et al., 2022; Jacobs et al., 2021) aspects of well-being. The character strengths of curiosity, enthusiasm, love, gratitude, and optimism consistently reveal strong correlations with subjective well-being (Wagner et al., 2021). In addition, integrity, persistence, kindness, social intelligence, self-control, and humor have a strong positive correlation with general psychological well-being (Hausler et al., 2017). By acting and thinking according to our character strengths, we can therefore contribute to our own well-being and that of our peers (Wagner et al., 2020; Weziak-Bialowolska et al., 2021). The authors of a longitudinal study for these linkages reported that character strengths remain stable over a longer period, meaning that the correlations between strengths and aspects of well-being are not merely cross-sectional phenomena (Gander et al., 2020).

Furthermore, research and meta-analyses have shown a positive correlation between strengths and satisfaction with life (Baumann et al., 2020; Blasco-Belled et al., 2018; Hassaniraad et al., 2021; Schutte & Malouff, 2019; Lee et al., 2021). Empirical results have also demonstrated the general relevance of character strengths not simply in terms of well-being and life satisfaction but also in terms of flourishing (Cherif et al., 2020; Hausler et al., 2017; Green, 2022; Wagner et al., 2020; Wagner et al., 2021; Weziak-Bialowolska et al., 2021) and other desirable consequences, experienced in different areas of life (e.g., the workplace: Harzer & Ruch, 2014; Heintz & Ruch, 2019; and education: Lounsbury et al., 2009; Wagner & Ruch, 2015). Finally, studies have shown that character strengths are predictors of resilience (Blanchard et al., 2021; Martínez-Martí & Ruch, 2017; Shoshani & Slone, 2016) and contribute to the reduction of psychological vulnerability by mediating resilience (Demirci et al., 2021). In sum, the possession of strengths and virtues leads to positive mental health and high (subjective) quality of life.

To our knowledge, 14 cross-cultural adaptations of the original Values in Action Inventory of Strengths exist in the empirical literature (Peterson & Seligman, 2004). Several abbreviated versions of the original 240-item questionnaire (containing 24, 48, 72, 96, 120, and 192 items) have also been developed (see, e.g., Furnham & Lester, 2012; McGrath, 2019; Neto et al., 2014; Peterson & Seligman, 2004). However, the results of questionnaire measuring character strengths and virtues by factor analyses indicated solutions with varying numbers of factors (virtues) that deviate from the classification proposed in the original VIA model (Peterson & Seligman, 2004); this model defined six virtues and certain character strengths associated with them. Results highlight potential inconsistencies that merit attention. According to these studies, solutions with three factors (Brdar & Kashdan, 2010; Duan & Bu, 2017; Shryack et al., 2010), four factors (Macdonald et al., 2008; McGrath, 2015; McGrath & Walker, 2016; Park & Peterson, 2006; Shryack et al., 2010), five factors (Azañedo et al., 2021; McGrath, 2015; Park & Peterson, 2006; Peterson et al., 2008; Ruch et al., 2010), six factors (Furnham & Lester, 2012; Leontopoulou & Triliva, 2012; Ng et al., 2017; Ruch & Proyer, 2015; Ruch et al., 2010), and seven factors (Furnham & Lester, 2012) are equally possible.

A Hungarian version of adult strengths measures has not yet been developed. The purpose of our study was therefore to examine the reliability and validity of a 24-item strengths measure developed by Furnham and Lester (2012) on a Hungarian adult sample. An additional goal consisted in providing further evidence for the positive correlation of character strengths and virtues with markers of mental health (prosperity, well-being, positivity, and

psychological immune system). The study also explored the relationship between virtues and sociodemographic indicators among the Hungarian adult population.

Methods

Sample

Three online self-report questionnaire–based cross-sectional studies (Σn = 10,911) were conducted to confirm the factor structure of the VIA-H (Σn = 10,911). Data collection was carried out in the framework of the 2019, 2020, and 2021 research stages of the Happiness Map of Hungary program using convenience sampling.

In all three cases, the same 123-item questionnaire package, which can be filled out on an online platform created specifically for this purpose, was used for data collection. The link was shared via email, as well as on social media platforms (Facebook, LinkedIn) that are frequently visited by adults with diverse demographic characteristics (age, occupation) and varied interests.

Since online data collection was used, the sample cannot be considered representative of the Hungarian population. Participation in the study was voluntary and anonymous; the participants gave their informed consent and did not receive compensation of any kind. The first wave of data collection took place in January-March 2019, the second in January-March 2020, and the third in January-March 2021. The Research Ethics Committee at the Faculty of Education and Psychology of Eötvös Loránd University granted ethical approval for the study (permission numbers: 2015/284, 2017/285, and 2019/61).

Study I consisted of 4,614 Hungarian adults (988 men and 3,626 women) (see Appendices Table A). Although the sample consisted predominantly of women (78.6%), it included a sufficiently large number of men (988) to make it heterogeneous enough to draw valid conclusions regarding the VIA-H. The mean age was 42.91 years (*SD* = 16.02). The sample was also balanced in terms of settlement type and in each profession category. More than 94% of the respondents had graduated from high school. With respect to marital status, 73.7% of the sample were living in a relationship (40.3% of whom were married). More than half the sample (60.6%) had children. Half the respondents (54.5%) were employees, although the sample also included a significant proportion of pensioners (14.8%). Most of the participants (67.4%) considered their financial situation to be average, although a significant proportion also existed who considered themselves to be well-off (21.7%). A small proportion of respondents described themselves as poor (1.9%) or rich (1.2%).

Study II comprised 3,029 Hungarian adults (842 men and 2,187 women) (see Appendices Table A). Although most of the respondents (72.2%) were women, there were sufficient men (842) for the results to be generalizable. The average age came to 49.69 years (*SD* = 14.73). The sample was also balanced according to settlement type, and the number of respondents exceeded 400 in each profession category. More than 97.9% of the respondents had graduated from high school. With respect to marital status, 77.4% were living in a relationship (52.6% of whom were married). Most of the respondents (72.8%) had children. More than half (53.9%) were employees, although there was also a significant proportion of pensioners (25.9%). Most respondents (67.7%) considered their financial situation to be average, although a notable proportion (17.0%) declared themselves to be well-off. A small proportion of respondents declared themselves to be poor (2.6%) or rich (1.1%).

Study III consisted of 3,268 adult Hungarians (681 men and 2,587 women) (see Appendices Table A). Most of the respondents (79.2%) were women, although the number of men (556) in the sample stood large enough for valid conclusions to be drawn. The average age of the sample came to 48.64 years (*SD* = 16.12). The sample was balanced according to settlement type and profession category. Nearly all the respondents (96.8%) had graduated from high school. With respect to marital status, 79.1% of the sample were living in a relationship (55.5% of whom were married). More than half the respondents had children (73.2% of the sample) and were employed (55.9% of the sample), although there were also a significant proportion of pensioners (23.6%). Most respondents (70.9%) considered their financial situation to be average, although a notable proportion (17.4%) declared themselves to be well-off. A small proportion of respondents declared themselves to be poor (2.3%) or rich (0.7%).

Respondents who provided complete and valid responses exclusively made up the three samples.

Measures

The same questionnaires were used for data collection in all three cases. Fourteen of the questions referred to sociodemographic data (gender, age, place of residence, etc., see Appendices Table A). The surveys included the measures described below.

Values in Action Inventory for Hungary (VIA-H)

A short 24-item strengths measure (Furnham & Lester, 2012) measures six universal virtues and 24 related character strength based on the classification devised by Peterson and Seligman (2004). The abbreviated Hungarian name of the measuring device is VIA-H (and not VIA-IS-H), because it is a translation of Furnham and Lester's (2012) measurement, which is not derived directly from the VIA-IS measurement tool developed by Peterson and Seligman. The shortened, 24-item version was translated into Hungarian using the standard translation/back translation procedure (Brislin, 1986). Two independent translators carried out the rendition from English to Hungarian, after which a language expert with a degree in English created a version by combining the two translations back into the original language. The shortened Hungarian questionnaire measures the 24 character strengths on a six-point Likert scale (1 = not typical at all to 6 = completely typical), with one positive item prototypically representing each strength.

Global Well-being Scale

The Global Well-being Scale (GWS, Oláh, 2019; Oláh et al., 2020) is a measuring tool that operationalizes the holistic bio-psychosocial-spiritual model of well-being that employs the Emotional, Psychological, Social, and Spiritual subscales. It emphasizes that complete well-being requires functioning well in all aspects of one's human nature while feeling comfortable with oneself. The questionnaire contains 17 items, which the respondent rates on a six-point Likert-type scale (1 = not typical at all to 6 = completely typical). A higher score on the subscales indicates a higher degree of global well-being. The theory of global well-being was confirmed using confirmatory factor analysis (CFA) on a Hungarian sample by Oláh, Vargha, Csengődi, Bagdi, and Diósi in 2020 (12,378 men and women, average age: 44.4 [*SD* = 14.5] years; SRMR = .038; RMSEA (CI90) = .064 (.063–.066); CFI = .949; TLI = .936). High Cronbach's α values (Oláh, 2016) confirmed the internal reliability of the subscales. The structural validity and internal reliability of the GWS on the 2019–2022 pooled sample of the Happiness Map of Hungary program (Σn = 11,914) were confirmed by the results of the CFA (SRMR = .034; RMSEA (CI90) = .064 (.063-.066); CFI = .953; TLI = .942) and internal consistency indicators (see Table 1).

Diener's Flourishing Scale

The eight-item Diener's Flourishing Scale (Diener et al., 2010) operationalizes an improved version of Diener's subjective well-being concept, in which – in addition to life satisfaction and the dominance of positive emotions – the need for competence, optimism, contribution to the well-being of others, life purpose, self-esteem, and positive relationships is highlighted. Items (e.g., "I have a purposeful and meaningful life") are evaluated on a seven-point Likert-type scale (1 = not typical at all to 7 = completely typical). A higher score on the scale indicates positive mental health. The internal reliability of the unidimensional Diener's Flourishing Scale was supported by the internal consistency indicators (Σn = 11,914) obtained from the 2019-2022 pooled sample of the Happiness Map of Hungary program (Σn = 11,914) (see Table 1).

Huppert's Flourishing Scale

Huppert's Flourishing Scale (Huppert & So, 2013) measures the indicators of positive mental health and flourishing: emotional stability, commitment, meaning, optimism, positive emotions, positive relationships, resilience, self-esteem, and vitality. From the nine-item questionnaire, seven items are graded on a five-point Likert-type scale (endpoints: 1 = not typical at all, 5 = completely typical), and two items ("I was full of energy last week" and "I felt calm and peaceful last week") are graded on a four-point Likert-type scale (endpoints: 1 = not typical at all, 4 = completely typical). A higher score on the questionnaire indicates positive mental health. The internal

Table 1. Cronbach's α and McDonald's ω Values Showing the Internal Consistency regarding the Scales of the Questionnaires used in Studies I, II, III and in the pooled sample

Scale, Subscale		Cronbach's α				McDonald's ω			
		Study I (*n* = 4,614)	Study II (*n* = 3,029)	Study III (*n* = 3,268)	Pooled sample	Study I (*n* = 4,614)	Study II (*n* = 3,029)	Study III (*n* = 3,268)	Pooled sample
Global Well-being Scale	Emotional well-being	.90	.92	.92	.913	.91	.93	.92	.91
	Psychological well-being	.85	.88	.87	.867	.85	.88	.87	.87
	Social well-being	.88	.88	.89	.883	.88	.89	.89	.88
	Spiritual well-being	.89	.89	.90	.891	.89	.89	.90	.89
Diener's Flourishing Scale		.93	.93	.94	.931	.93	.93	.94	.93
Huppert's Flourishing Scale		.87	.87	.87	.808	.85	.86	.85	.85
Positivity Scale		.90	.87	.87	.869	.90	.86	.86	.90

reliability of the unidimensional Huppert's Flourishing Scale was supported by the 2019-2022 pooled sample of the Happiness Map of Hungary program (Σ*n* = 11,914) (see Table 1).

Positivity Scale

The eight-item Positivity Scale (P Scale, Caprara et al., 2012) measures the disposition to view life and experiences positively. Respondents evaluate the items (e.g., "I look at my future with enthusiasm and hope") on a five-point Likert scale. In several studies (Oláh et al., 2018, 2019, 2020), the Positivity Scale has already been applied to a Hungarian sample. The publication of the Hungarian version adapted to a large sample and with excellent reliability indicators is under preparation.

The above scales all showed excellent internal reliability: Cronbach's α and McDonald's ω values above .74 were obtained in Studies I, II, and III (Table 1).

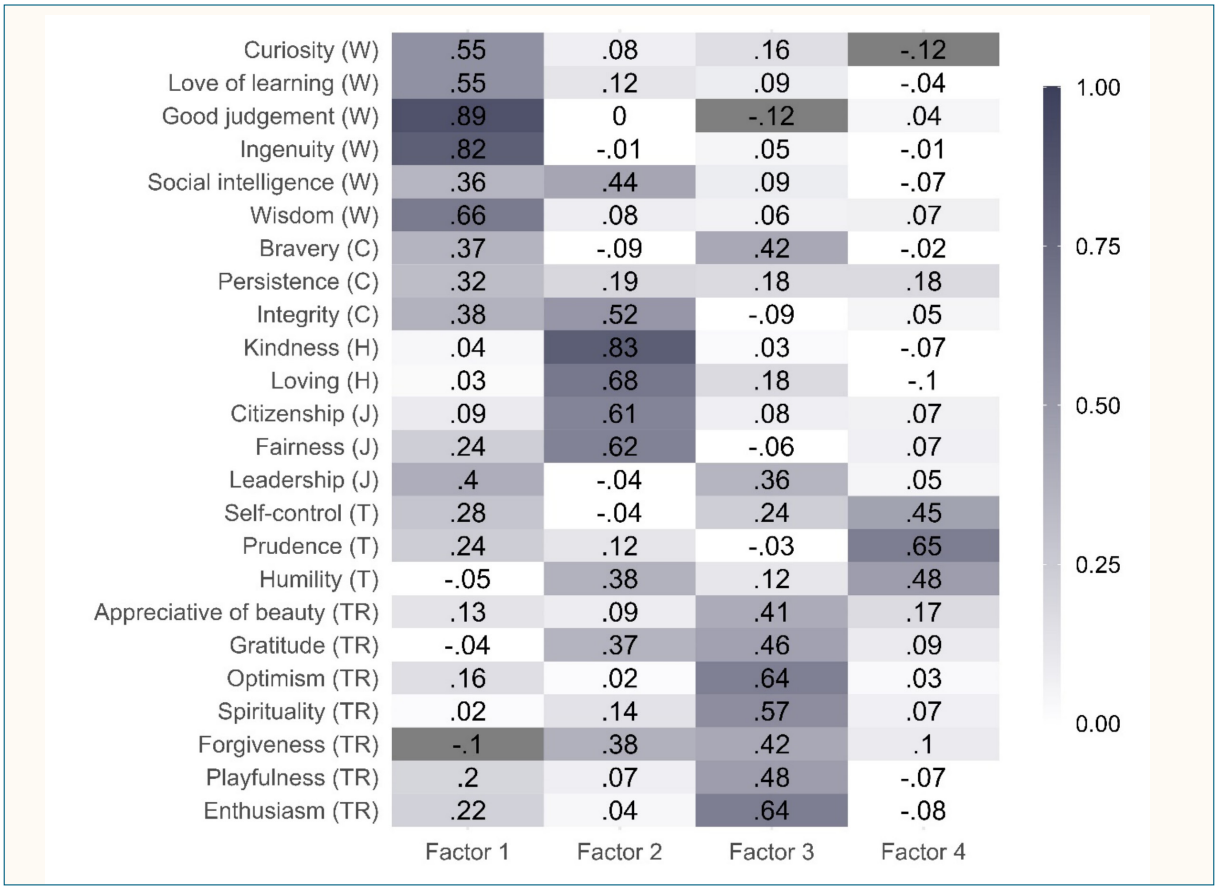
Statistical Analysis

Statistical analyses were performed using Mplus (Muthén & Muthén, 1998-2011), ROPstat (Vargha, 2016), and ROP-R (Vargha & Bánsági, 2023) statistical software. To analyze the internal structural validity of the 24-item VIA-H, we calculated the items' intercorrelations and then conducted an exploratory factor analysis. For further analyses, we created four mean scales based on the 20 items that clearly belonged to each of the four factors and checked the internal consistency of the scales indicated by Cronbach's α and McDonald's ω values. To verify the four-scale solution, we conducted confirmatory factor analyses on Samples I, II, and III and the Pooled Sample. We tested the external and content validity of the VIA-H by examining the four virtue scales' level of correlation with other often used mental health measures. To analyze discriminant validity, we used multiple linear regression models on the pooled sample. The dependent variables of these models were the four scales of the VIA-H, and the independent variables were the other three scales of the VIA-H in all instances. In the last step of our study, we examined differences along the four scales of the VIA-H among several sociodemographic groups in the pooled sample.

Results

To validate the VIA-IS, we tested structural validity as well as external and content validity, and examined the relationship with sociodemographic indicators.

Figure 1. Factor Loadings of the Original 24 VIA-H Items: Pooled Sample



Note. We based the factor analysis on robust maximum likelihood estimation with geomin rotation. Our interpretation of the factors is based on the weight above 0.40, along which the factors differ significantly ($p < .001$). Analyses were run on the pooled sample (n = 10,911) of the three original subsamples. Parentheses indicate the virtues to which the given item belongs in the original measurement tool: W = Wisdom and Knowledge; C = Courage; H = Humanity; J = Justice; T = Temperance; TR = Spirituality and Transcendence.

Structural Validity of the VIA-H

To analyze the internal structural validity of the 24-item VIA-H, we calculated the items' intercorrelations and then conducted an exploratory factor analysis (EFA) to compare our results to the original validity analysis performed by Furnham and Lester (2012). The majority of items (94.0%) had weak to moderate positive intercorrelation (0.30-0.50).

The results of our EFA are presented in Figure 1 in the form of a heatmap. As most items had a non-normal distribution ($p < .001$), we used the Principal Axis factor extraction method with Promax rotation to allow a correlation between individual factors (Hattori et al., 2017). According to multiple fit statistics (see Table 3), our results indicate a four-factor model as the best fit, with a 61.7% cumulative variance explained. The eigenvalues of the first four principal components were: 10.82, 1.68, 1.21, 1.09, and the explained variances after the Promax rotation: 4.03, 3.62, 3.29, and 2.09, respectively. In our interpretation, we assigned a given item to a factor if the loading stood above 0.40. Therefore, our analysis indicates that the items Temperance, Spirituality and Transcendence, as well as Wisdom and Knowledge (with one exception) load to distinct factors. For these, we retained the original nomenclature. Our new, fourth factor, however, which we called Humanity, we created from overlapping items and contains values belonging to the virtues Humanity and Justice and character strength integrity (which in theory belongs under Courage).

On a six-point scale, we observed the highest mean values for fairness [*M(SD)* = 5.12(0.96)], integrity [*M(SD)* = 5.11(0.97)], kindness [*M(SD)* = 5.09(1.01)], loving [*M(SD)* = 5.02(1.10)], and citizenship [*M(SD)* = 4.95(1.11)]. On the other hand, self-control [*M(SD)* = 4.18(1.22)], spirituality (*M(SD)* = 4.40(1.40)], humility [*M(SD)* = 4.42(1.21)], gratitude (*M(SD)* = 4.53(1.16)], and optimism [*M(SD)* = 4.52(1.36)] were rated lowest.

Table 2. Cronbach's α and McDonald's ω Values Showing the Internal Consistency regarding the Scales of the Questionnaires used in Studies I, II, III and in the Pooled Sample

Scale (number of items)	Study I (*n* = 4,614)		Study II (*n* = 3,029)		Study III (*n* = 3,268)		Pooled sample (*n* = 10,911)	
	Cronbach's α	McDonald's ω	Cronbach's α	McDonald's ω	Cronbach's α	McDonald's ω	Cronbach's α	McDonald's ω
Wisdom and Knowledge (5)	.86	.86	.88	.88	.87	.87	.87	.87
Humanity (5)	.86	.87	.88	.89	.88	.88	.88	.88
Temperance (3)	.74	.74	.76	.76	.77	.78	.76	.76
Spirituality and Transcendence (7)	.86	.87	.87	.87	.88	.88	.87	.87

Table 3. Main Model Fit Indices in the Exploratory Factor Analysis and Confirmatory Factor Analysis of the Four-Factor Model of the VIA-H on Studies I, II, and III as well as the Pooled Sample

Model (sample)	RMSEA	RMSEA CI0.90	pClose	CFI	TLI	SRMR
EFA – Pooled Sample (*n* = 10,911)	.059	.058-.060	< .001	.924	.888	.029
CFA – Study I (*n* = 4,614)	.050	.049-.052	.347	.935	.922	.043
CFA – Study II (*n* = 3,029)	.049	.047-.052	.692	.939	.927	.043
CFA – Study III (*n* = 3,268)	.049	.046-.051	.847	.945	.934	.042
CFA – Pooled Sample (*n* = 10,911)	.051	.050-.052	.135	.940	.928	.042

For further analyses, we created four mean scales (with values ranging from 1 to 6) based on the 20 items that clearly belonged to each of the four factors. In Table 2, the measures of internal consistency regarding these new scales (Cronbach's α and McDonald's ω) exhibit adequate consistency for all three subsamples and the pooled sample. Humanity received the highest self-rated scores [*M(SD)* = 5.10(0.85)], followed by Wisdom and Knowledge [*M(SD)* = 4.62(0.85)], Spirituality and Transcendence [*M(SD)* = 4.61(0.93)], and Temperance [*M(SD)* = 4.40(0.97)].

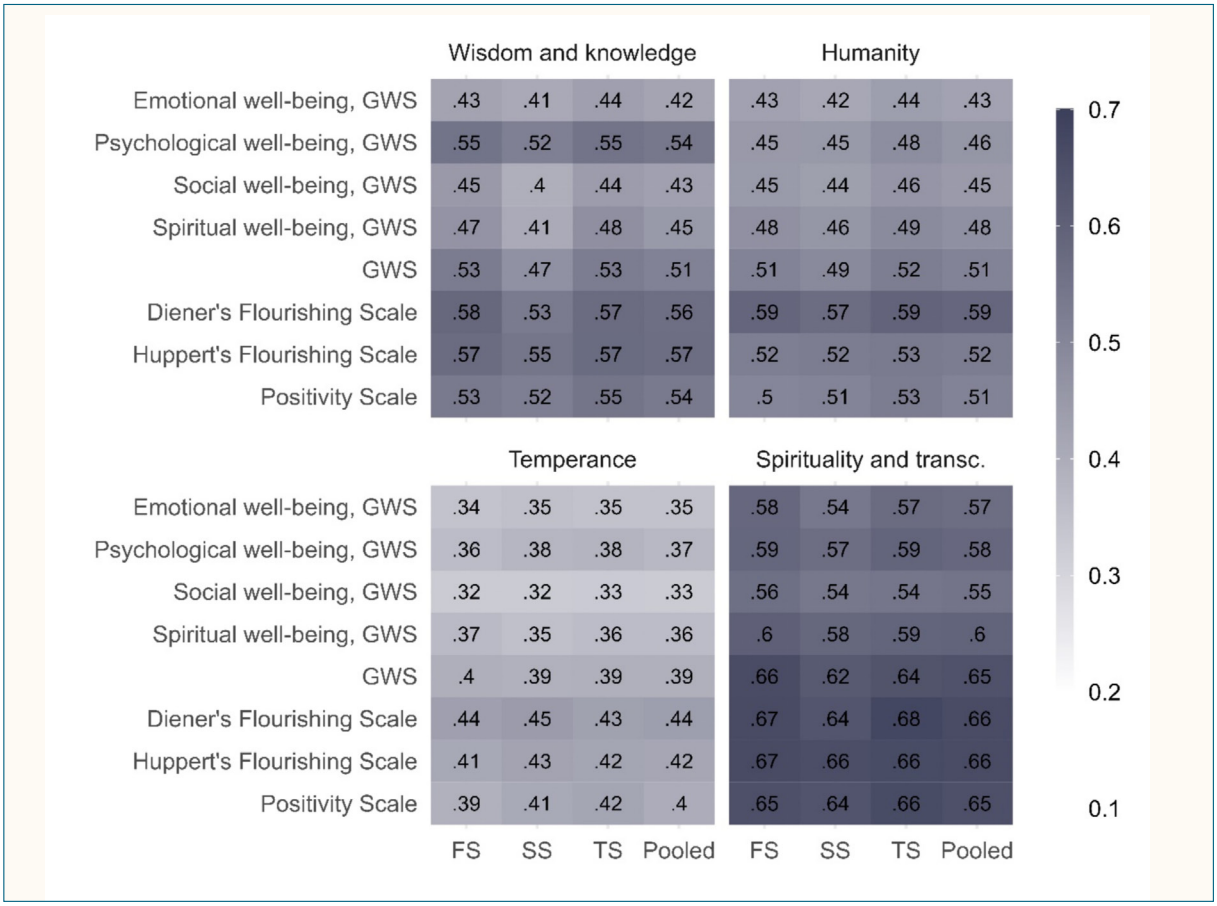
To verify the new four-scale solution based on the 20 items selected according to the EFA as presented above, we conducted a CFA using the maximum likelihood mean variance method to account for the items' non-normal distribution. Because of their high modification index, we included the residual covariance of four items from the Wisdom and Knowledge questions, three from the Spirituality and Transcendence questions, and one from the Temperance questions. We also allowed an item from the Courage questions that loads to the new Humanity factor, to also load to the Wisdom and Knowledge factor. Table 3 shows the fit statistics for the CFAs on the separate and pooled samples. Based on all the available indicators, the fit of the CFA models is adequate (RMSEA < .06, pClose > .05, CFI and TLI close to .95). In short, the CFA verifies the four-factor, 20-item VIA-H solution.

External and Content Validity of the VIA-H

Next, we looked at the validity of our new 20-item VIA-H scales by examining their level of correlation with other often used mental health measures. As the scales of the VIA-H are not normally distributed, we calculated Spearman's rank correlation coefficients. Our results are summarized in Figure 2 in the form of a heatmap.

Firstly, the content of the scale measuring Wisdom and Knowledge correlates strongly with Diener's and Huppert's Flourishing Scales. Secondly, the Humanity scale revealed strong correlations with Diener's Flourishing Scale (which measures positive emotions, optimism, contribution to other people's well-being, self-respect, and positivity), Huppert's Flourishing Scale, the Positivity Scale, and the overall measure for the GWS. Other correlations were of medium strength. Thirdly, medium-level correlations were found between Temperance and the two flourishing scales, the Positivity Scale, and the GWS. Fourthly, the Spirituality and Transcendence scale also correlates well with the GWS, the flourishing scales, and the Positivity Scale. Taken together, these results confirm the validity of the VIA-H's four virtue scales.

Figure 2. Correlations of the Virtues Scales of the 20-Item VIA-H with Other Scales and Subscales (Spearman's Rank Correlations)



Notes. All the presented correlation coefficients are statistically significant ($p < .001$). FS = first sample (n = 4,614); SS = second sample (n = 3,029); TS = third sample (n = 3,268); Pooled = Pooled sample (n = 10,911).

Discriminant Validity of the VIA-H

Lastly, to analyze discriminant validity, we used multiple linear regression models on the pooled sample. The dependent variables of these models were the four scales of the VIA-H, and the independent variables were the other three scales of the VIA-H in all instances. The adjusted R-square values (demonstrating the proportion of explained variance) were .459, .779, .416, and .604, with an average value of .431 for unexplained variance. Altogether, these results show that the unexplained, unique variance of the four major scales of the VIA-H stands fairly low and is probably due to the high levels of correlation between the items that are the building blocks of the VIA-H scales. The lowest level of uniqueness belongs to the Humanity factor, followed by Wisdom and Knowledge, while the highest level belongs to Temperance, with Spirituality and Transcendence being in the middle.

The VIA-H and its Linkage to Sociodemographic Indicators

In the final part of our study, we examined differences along the four scales of the VIA-H among several sociodemographic groups in the pooled sample. We revealed significant differences ($p < .001$ in all cases) between genders (Table 4), most notably between values for the Humanity and Spirituality and Transcendence factors.

Additional differences were found with respect to age group, educational attainment, number of children, occupation, and economic status, although the effect size was often small ($P < |0.20|$, $R^2 < 0.06$, $\omega^2 < 0.01$, $\eta^2 < 0.01$; University of Cambridge, 2023). Two exceptions should be highlighted: first, Wisdom and Knowledge were positively associated with educational attainment ($P = 0.211$, $p < .001$), and Humanity remained relatively low for single persons compared to those who were in a relationship or widowed, with married persons achieving the highest mean value ($p < .001$ according to Games-Howell pairwise comparison, [*M(SD)* = 5.14(0.78)].

Table 4. Results of T-tests with the Four Virtue Scale per Gender

Scales of VIA-H	Men (n = 2,511)		Women (*n* = 8,400)		Comparison of gender
	M	*SD*	*M*	*SD*	
Wisdom and Knowledge	4.752	0.878	4.844	0.837	$t(3,970.8) = -4.627$, $p = .000$, d : −0.108
Humanity	4.813	0.916	5.131	0.809	$t(3,756.0) = -15.641$, $p < .001$, d: 0.378
Temperance	4.269	0.99	4.405	0.964	$t(4,036.5) = -6.095$, $p = .000$, d: −0.141
Spirituality and Transcendence	4.412	0.974	4.682	0.907	$t(3,900.9) = -12.394$, $p < .001$, d: 0.293

Note: d denotes the test statistic of Welch's two-sample robust t-test.

Discussion

In this paper, we have presented the Hungarian version of the 24-item Values in Action Inventory of Strengths for adults (Furnham & Lester, 2012) (VIA-H). The questionnaire's psychometric characteristics were investigated in three adult samples. We also examined the relationship of virtues and character strengths with mental health and sociodemographic indicators.

Similarly to other studies (e.g., McGrath, 2019), the majority of items (94%) had weak to moderate positive intercorrelation (0.30-0.50), verifying the notion that character strengths have a positive correlation among them (Furnham & Lester, 2012; McGrath, 2019).

The structure of the VIA-H was identified using EFA on the pooled sample (see Figure 1 and Table 3) and was also confirmed separately using CFA on the three study samples (see Table 3). According to multiple fit statistics (see Table 3), compared to the classification proposed in the original VIA model (Peterson & Seligman, 2004), which defined six virtues and certain character strengths associated with them, our results indicate a four-factor model as the best fit. Based on the excellent internal consistency indicators (see Table 2), the four-factor structure (see Figure 3) proved stable both in the pooled sample and the individual subsamples. In summary, the results of the EFA differed from the theoretical expectations (Peterson & Seligman, 2004). However, the EFA corroborated other empirical studies (Dahlsgaard, 2005; Macdonald et al., 2008; McGrath, 2015; McGrath & Walker, 2016; Park & Peterson, 2006; Brdar & Kashdan, 2010; Shryack et al., 2010), which, like ours, also revealed a four-factor structure to be the best fit (see Table 3, row 2).

In order to understand and confirm the unique meaning of the VIA-H scales, five tests were used in the correlation analyses performed on the subsamples and the pooled sample. Wisdom and Knowledge were highly correlated with Diener's Flourishing Scale and Huppert's Flourishing Scale, which indicates that possessing the virtue of Wisdom and Knowledge is closely associated with flourishing in terms of mental health. The strong positive correlations obtained via the psychological well-being subscale of the GWS and the Positivity Scale confirm this result. Based on the correlation demonstrated with Diener's Flourishing Scale and the Positivity Scale, possession of the virtue Humanity is accompanied by the experience of positive emotions, an optimistic attitude towards oneself and the world, healthy self-esteem, positive relationships, and contribution to the well-being of other people. Humanity is

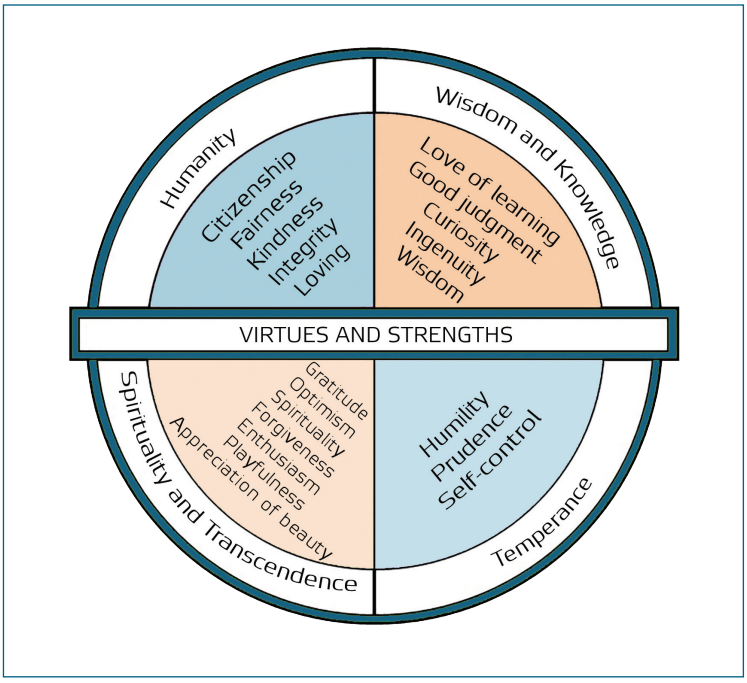


Figure 3. Taxonomy of the Four Virtues and 20 Character Strengths of the Hungarian Adult Sample

closely related to well-being experienced in the biological, psychological, social, and spiritual areas of life. A moderately strong positive relationship was found between the virtue of Temperance and flourishing, positivity, general well-being, and coping. This indicates that leading a happy and balanced life requires humility, prudence, and self-control. The moderately strong correlations and the fact that the value of this virtue came out lowest compared to the other virtues suggest that living according to the virtue of Temperance does not play a central role in positive mental health in Hungarian society. The high correlations of the Spirituality and Transcendence scale with the GWS, and specifically with the Spirituality subscale, as well as with the two flourishing scales and the Positivity Scale, clearly indicate an important correlation between this virtue and positive mental health. All these results strongly confirm the virtue scales criterion validity of the VIA-H. We also examined the scales' discriminant validity using multivariate linear regression. Despite the relatively strong correlations between the virtues scales of the VIA-H, a significant unique part exists in each of the four separate virtue scales (on average 43.1%) that the other three scales do not cover.

The three most typical character strengths in our Hungarian (pooled) sample were fairness, integrity, and kindness. The respondents reported that temperance, spirituality, and appreciation of beauty were the least characteristic of them. The participants in the study considered Humanity to be their strongest virtue, followed by Wisdom and Knowledge and Spirituality and Transcendence. Temperance was rated as the least typical virtue. In contrast to other results, the virtues of Courage (strengths of courage, steadfastness, and integrity) and Justice (strengths of fairness, leadership, and a sense of duty) did not form an independent factor in the Hungarian sample.

The ambivalent and/or relatively distanced relationship between the sample and these latter three virtues and their related character strengths can be explained by the results of research examining the Hungarian nation's state of mind. Based on these findings, our results might be explained firstly by a low level of belief in a just world (Sallay & Krotos, 2004); secondly, by lacking a sense of perceived control and adaptive stress management (Kopp & Réthelyi, 2004; Kopp & Skrabski, 2009; Szabó et al., 2020); thirdly by learned helplessness (Kopp & Réthelyi, 2004; Piko, 2004); fourthly by an ambivalent and negative attitude towards competition (Fülöp, 2008); and fifthly by self-destructive behavior (Piko, 2004).

Regarding the relationship between the four virtue scales and the sociodemographic indicators, we revealed significant differences ($p < .001$ in all cases) between genders (Table 4) thereby corroborating previous evidence (Brdar et al., 2011; Linley et al., 2007). Women reported appreciably higher values for the Humanity as well as the Spirituality and Transcendence virtues. Single people reported a lower Humanity level and married people a higher Humanity level. Correlations with sociodemographic variables suggest the need for further investigations employing a different methodological approach. One such alternative procedure might be an evaluation of situations that activate the 24 character strengths, or an evaluation of the extent to which individual character strengths fulfill the six functions that are related to the virtues (Ruch et al., 2021).

In sum, the measures' psychometric analysis confirmed the four-factor model and the content validity regarding the Hungarian version of the 24-item Values in Action Inventory of Strengths via the help of three large samples. Importantly, the Hungarian four-factor structure is in line with the results of other studies (see, e.g., Kor et al., 2019). Moreover, based on our results, the present study stands in line with research undertaken in other countries (Singh & Choubisa, 2010; Ruch & Proyer, 2015; Ruch et al., 2021), in which it has been proposed to revise the assignment of the positive character strengths to the virtues due to the inconsistency of the empirical results with the theoretical concepts.

Strenghts and Limitations

The study benefits from a large sample size, which enhances the findings' generalizability and increases confidence in the questionnaire's validity. Although the research did not validate the VIA-IS developed by Seligman and Peterson (2004), but rather Furnham's and Leister's questionnaire (2012), a short scale is available for research in Hungary, which allows for efficient data collection and potential application in various research and practical settings. The practical nature of the instrument is also among the study's benefits.

The present study is not without limitations. The cross-sectional research design does not permit us to draw causal conclusions, although the correlations can inspire future developmental and longitudinal studies. The VIA-H, like all self-report questionnaires, remains to a certain extent liable to the respondents' conscious and unconscious response tendencies. In addition, the VIA-H should be validated using data other than those collected online by means of self-report questionnaires. The reliance on convenience sampling may introduce potential bias and may limit the findings' generalizability. Although all our samples were large and the factor structure of the

VIA-H stayed very firm in both the EFA and CFA, it would be worth confirming this structure by conducting analyses on new, independent samples. The women's representation in the sample limits the generalizability of the questionnaire's findings to a broader population. Future studies should aim for more balanced, more diverse and representative samples in order to enhance the questionnaire's external validity and to ensure the questionnaire's applicability to both men and women.

Conclusion, Implications, and Future Directions

The Hungarian 20-item version of the Values in Action Inventory of Strengths for adults (VIA-H) proved to be a reliable and valid tool for measuring character strengths and virtues. The virtue scales of the VIA-H (Wisdom and Knowledge, Humanity, Temperance, and Spirituality and Transcendence) contain five, five, three, and seven items respectively (see Appendices Table B). The value of each virtue subscale is defined as the average of the items in the scale. The questionnaire measures character strengths and virtues with a short completion time of 10-12 minutes. Another important advantage of the test is that it works as a brief, easy-to-use, and economical measuring tool. As a result, researchers can use it in epidemiological surveys, as well as in the case of large-scale, representative survey programs. The important message to be gleaned from the obtained results is that the possession and appropriate use of character strengths goes hand in hand with the constructs of well-being, happiness, and optimal personality.

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Declaration of interest statement
The authors declare no conflict of interest.

Ethical statement
All participants engaged in the research voluntarily and anonymously.
The participants provided their written informed consent to participate in this study.
Their data are stored in coded materials and databases without personal data.

Data Availability Statement
The data supporting this study's findings are available to the public.
We have policies in place to manage and keep data secure.

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Appendix

Table A. Demographic Characteristics of Participants in Study I (*n* = 4,614), Study II (*n* = 3,029), and Study III (*n* = 3,268)

		Study I	Study II	Study III
Age (years)	18-25	20.1% (*n* = 926)	5.8% (*n* = 177)	10.7% (*n* = 351)
	26-35	14.2% (*n* = 655)	14.9% (*n* = 452)	13.4% (*n* = 439)
	36-50	30.4% (*n* = 1401)	28.4% (*n* = 860)	27.0% (*n* = 883)
	51-65	27.7% (*n* = 1277)	36.1% (*n* = 1093)	31.8% (*n* = 1039)
	66-100	7.7%* (*n* = 355)	15.4% (*n* = 466)	17.0% (*n* = 556)
Number of children	0	39.4% (*n* = 1817)	27.2% (*n* = 823)	26.8% (*n* = 875)
	1	17.6% (*n* = 814)	20.0% (*n* = 606)	18.8% (*n* = 613)
	2	29.7% (*n* = 1370)	36.2% (*n* = 1098)	37.5% (*n* = 1225)
	3+	13.3% (*n* = 612)	16.6% (*n* = 502)	17.0% (*n* = 554)
Settlement type	village	19.0% (*n* = 875)	21.8 % (*n* = 661)	26.5% (*n* = 865)
	small town	17.1% (*n* = 787)	19.3% (*n* = 585)	20.1% (*n* = 658)
	medium and large town	44.7% (*n* = 2064)	41.3% (*n* = 1250)	13.5% (*n* = 440)
	capital	19.2% (*n* = 884)	17.5% (*n* = 530)	9.2% (*n* = 302)
Education	primary	5.4% (*n* = 249)	2.1% (*n* = 63)	3.2% (*n* = 106)
	secondary	40.3% (*n* = 1860)	39.2% (*n* = 1187)	33.8% (*n* = 1105)
	college	29.9% (*n* = 1380)	32.8% (*n* = 993)	36.1% (*n* = 1208)
	university	24.4% (*n* = 1125)	25.9% (*n* = 786)	26.0% (*n* = 849)
Marital status	lives alone	22.4% (*n* = 931)	14.8% (*n* = 402)	14.4% (*n* = 425)
	civil partnership	29.2% (*n* = 1217)	24.8% (*n* = 673)	23.6% (*n* = 696)
	married	44.3% (*n* = 1844)	52.6% (*n* = 1425)	55.5% (*n* = 1640)
	widow	4.2% (*n* = 173)	7.7% (*n* = 210)	6.5% (*n* = 193)
Profession	employee	54.5% (*n* = 2515)	53.9% (*n* = 1633)	55.9% (*n* = 1827)
	retired	14.8% (*n* = 685)	25.9% (*n* = 784)	23.6% (*n* = 772)
	entrepreneur	10.9% (*n* = 501)	8.4% (*n* = 253)	6.5% (*n* = 213)
	unemployed	2.9% (*n* = 135)	3.4% (*n* = 103)	3.3% (*n* = 109)
	other	17.1 % (*n* = 788)	5.7% (*n* = 173)	10.6% (*n* = 347)
Financial status	poor	1.9% (*n* = 88)	2.6% (*n* = 78)	2.3% (*n* = 74)
	below average	7.9 % (*n* = 363)	11.6% (*n* = 350)	8.7% (*n* = 285)
	average	67.4% (*n* = 3108)	67.7% (*n* = 2051)	70.9% (*n* = 2317)
	well-off	21.7% (*n* = 1001)	17.0% (*n* = 516)	17.4% (*n* = 568)
	rich	1.2% (*n* = 54)	1.1% (*n* = 34)	0.7% (*n* = 24)

*66-90 years old in the case of Study I

Table B. Character Strength Test (VIA-H)

Below, you will find different strengths that characterize people. Please indicate to what extent each strength characterizes you on a 6-point scale.

very much unlike me	unlike me	a bit unlike me	a bit like me	like me	very much like me
1	2	3	4	5	6

1. Curiosity: Interested in, intrigued by many things	1	2	3	4	5	6
2. Love of learning: Knowing more, reading, understanding	1	2	3	4	5	6
3. Good judgment: Critical thinking, rationality, open-mindedness	1	2	3	4	5	6
4. Ingenuity: Originality, practical intelligence, street smart	1	2	3	4	5	6
5. Wisdom: Seeing the big picture, having perspective	1	2	3	4	5	6
6. Integrity: Honesty, genuineness, truthfulness	1	2	3	4	5	6
7. Kindness: Generosity, empathy, helpfulness	1	2	3	4	5	6
8. Loving: Able to love & be loved; deep, sustained feelings	1	2	3	4	5	6
9. Citizenship: Teamwork, loyalty, duty to others	1	2	3	4	5	6
10. Fairness: Moral valuing, equality, and equity	1	2	3	4	5	6
11. Self-control: Able to regulate emotions, non-impulsive	1	2	3	4	5	6
12. Prudence: Cautious, far-sighted, deliberative, discreet	1	2	3	4	5	6
13. Humility: Modest, unpretentious, humble	1	2	3	4	5	6
14. Appreciative of beauty: Seeking excellence, experience of awe/wonder	1	2	3	4	5	6
15. Gratitude: Thankful, grateful	1	2	3	4	5	6
16. Optimism: Hopefulness, future-mindedness, positive	1	2	3	4	5	6
17. Spirituality: Faith, philosophy, sense of purpose/calling	1	2	3	4	5	6
18. Forgiveness: Mercy, benevolence, kindness	1	2	3	4	5	6
19. Playfulness: Humor, fun, childlikeness	1	2	3	4	5	6
20. Enthusiasm: Passionate, zestful, infectious, engaged	1	2	3	4	5	6

The scales are calculated by averaging the corresponding items.
Wisdom and Knowledge: items 1-5.
Humanity: items 6-10.
Modesty: items 11-13.
Spirituality and Transcendence: items 14-20.