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A Few Psychometric Properties of Horizontal and Vertical Individualism and Collectivism Scale in Two Countries: A Pilot Study in Lithuania and Turkey

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Abstract. Culture is an important contextual factor affecting human attitudes and behavior. Reliable and valid instruments are needed to measure this complex phenomenon. The psychometric properties of the Horizontal and Vertical Individualism and Collectivism Scale (Triandis & Gelfand, 1998) were tested in two countries – Lithuania ($n = 110$) and Turkey ($n = 80$). Internal reliability and factorial validity were investigated. The results revealed adequate internal reliability for group analysis and confirmed the factorial structure for a four-factor model. Limitations and recommendations for future research are discussed.

Keywords: individualism, collectivism, factorial validity, reliability, confirmatory factor analysis.

Keletas horizontalaus ir vertikalaus individualizmo ir kolektyvizmo skalės psichometrinių charakteristikų dviejose šalyse – Lietuvoje ir Turkijoje

Santrauka. Kultūra yra svarbus kontekstinis veiksnys, galintis padėti paaiškinti žmogaus nuostatas ir elgesį. Norint tinkamai išmatuoti šį sudėtingą reiškinį, reikalingi patikimi ir validūs matavimo įrankiai. Horizontalaus ir vertikalaus individualizmo ir kolektyvizmo skalės psichometrinės charakteristikos (Triandis & Gelfand, 1998) buvo vertinamos dviejose šalyse – Lietuvoje ($n = 110$) ir Turkijoje ($n = 80$). Buvo tikrinamas skalės vidinis patikimumas ir faktorinė struktūra. Rezultatai atskleidė grupinei analizei tinkamą vidinį skalės patikimumą ir patvirtino keturių faktorių struktūrą. Straipsnyje aptariami tyrimo ribotumai ir rekomendacijos ateities tyrimams.

Pagrindiniai žodžiai: individualizmas, kolektyvizmas, konstrukto validumas, patikimumas, patvirtinamoji faktorinė analizė.

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Introduction

Cross-cultural psychology has become a popular field of research in the last decade. Globalization, higher numbers of international organizations, higher rates of emigration and immigration, changes in the job market, etc., have already resulted in necessity to better understand cultures and their impact on human attitudes and behavior, and to provide recommendations how to interact with people from different cultures.

Values are considered as a key component in differentiating and describing cultures (Maleki & de Jong, 2014). The first typology for cultures was developed in the 1970s by Geert Hofstede who identified four main cultural values: individualism-collectivism, uncertainty avoidance, power distance, and masculinity-femininity (Hofstede, 2011). Later on, two more cultural values were added – long- vs. short-term orientation, and indulgence vs. restraint (Hofstede, 2011). Although all values are important in describing cultures, the cultural dimension of individualism-collectivism is the most popular and the most researched one (Soler-Anguiano et al., 2023; Steel et al., 2018). Individualism refers to the tendency to act and work alone, thinking about personal goals and goods, seeking autonomy, while maintaining relatively weak social connections with others (Minkov & Hofstede, 2011; Minkov et al., 2017). Meanwhile, collectivism denotes tendency to create and maintain close social connections, especially with family and friends, when people tend to collaborate, seek wellbeing for others, and maintain equality among others (Minkov & Hofstede, 2011; Minkov et al., 2017).

However, according to Triandis (1996), individualism-collectivism is never the same in two different countries as attitudes towards interpersonal relationships may vary. More specifically, it has been presented that additional dimensions are required to understand individualism-collectivism: specifically, vertical and horizontal dimensions (Triandis & Gelfand, 1998). Vertical individualism is characterized by the will to acquire status through competition with others, while horizontal individualism represents the desire to be unique and self-reliant. Meanwhile, vertical collectivism refers to the shared integrity of the group, and even though people should be equal, authority within in-group is accepted, while horizontal collectivism is characterized by seeing all people within in-group as equal and similar to each other, without the need for authority.

Considering the need to better understand cultures, researchers require reliable and valid instruments. Triandis and Gelfand (1998) refined the scale to measure vertical and horizontal individualism and collectivism developed by Singelis et al. (1995) which showed good convergent and divergent validity. In this pilot study, two psychometric characteristics of the horizontal and vertical individualism and collectivism scale (Triandis & Gelfand, 1998) will be investigated: *internal reliability* and *factorial validity*. Both psychometric properties will be tested in the samples of residents of Lithuania and Turkey.

Method

Participants and procedure

It total, 190 participants from Lithuania (n = 110) and Turkey (n = 80) participated in an online study. The majority of the participants were women (see Table 1 for more details).

Table 1

Sociodemographic characteristics of the sample

Variable	Lithuania sample	Turkey sample	Total sample
Size	110	80	190
Women (%)	90 (81.8)	41 (51.2)	131 (68.9)
Mean age (SD)	21.20 (1.52)	23.44 (3.93)	22.14 (3.00)
Higher education (%)	31 (28.1)	73 (91.3)	104 (54.7)
Employed (%)	54 (49.1)	36 (45)	90 (47.4)

The participants were provided with the Lithuanian version of the questionnaire for Lithuanians, and the Turkish version for the participants in Turkey. The main *Horizontal and Vertical Individualism and Collectivism Scale* was translated by using a double translation procedure (the original version of the scale is in English). Both translations were reviewed by native speakers from Turkey and Lithuania. The data were gathered by using an online survey. Invitation to participate was shared in various groups in the social media platform *Facebook* and via student organizations which were working with international students in their universities. No compensation/remuneration was given for participation in the study.

Instruments

The *Horizontal and Vertical Individualism and Collectivism Scale* (Triandis & Gelfand, 1998) is a 16-item scale developed to measure horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism. Each of the four dimensions comprises four items. Each item is measured from ‘1’ (never or definitely NO) to ‘9’ (always or definitely YES).

Data analysis

The data were analyzed by using the *Statistical Package for the Social Sciences* (SPSS) version *29.0*, *R* (R Core Team, 2023), *RStudio* (RStudio Team, 2023), and the *lavaan* (v. 0.6-16, Rosseel, 2012) and *semTools* (v. 0.5-6, Jorgensen et al., 2022) packages.

Results

Table 2 presents the means, standard deviations, and inter-correlations between the subscales of the main instrument.

Table 2

Mean scores, internal reliability, standard deviations, and inter-correlations

	Variable	Mean (SD)	α	1.	2.	3.	4.	Mean (SD)	α	
Turkey	1. Horizontal individualism	7.07 (1.10)	.67		.34*	-.05	-.04	6.83 (1.28)	.75	Lithuania
	2. Vertical individualism	6.10 (1.47)	.68	.29*		-.09	.08	6.03 (1.36)	.60	
	3. Horizontal collectivism	7.11 (1.15)	.64	.12	-.02		.38*	7.12 (1.33)	.77	
	4. Vertical collectivism	6.21 (1.57)	.67	.08	-.01	.32*		6.27 (1.52)	.71	

Note. * $p < .05$

The internal reliability in Lithuania for horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism was found to equal, respectively, to .75, .60, .77, and .71. Meanwhile, the internal reliability in Turkey for horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism is respectively .67, .68, .64, and .67. All internal reliability scores support that the scale can be used for group testing.

In both samples of the Lithuanian and Turkish participants, there were only two significant correlations between horizontal individualism and vertical individualism, and between horizontal collectivism and vertical collectivism. The mean comparison of the individualism and collectivism dimensions revealed that there were no statistically significant differences between the attitudes of the Lithuanian and Turkish participants.

Table 3 presents the results of the confirmatory factor analysis for the structure of the instrument.

The baseline models separately in the Lithuanian and Turkish samples revealed that a four-factor structure was the most suitable option; however, it was still not ideal for both samples (see Table 3). All the items were loaded significantly ($p < .05$) in the Lithuanian sample, while one item was not significant ($p = .11$) in the Turkish sample. The modified model, with additional two covariances between the residuals of items, showed a better model fit. Modifications were chosen based on the provided modification indices. Two covariances were included only between items from the same factors, thereby suggesting a higher inter-correlation between the items. Also, covariances were significant in

Table 3

Model and invariance fit statistics, model comparison

Model	χ^2	df	p	CFI	TLI	RMSEA	$\Delta\chi^2$	Δ df	ΔCFI	ΔTLI	ΔRMSEA
One factor											
Baseline (Lithuanian sample)	342.78	77	< .001	.34	.23	.18	-	-	-	-	-
Baseline (Turkey sample)	236.64	77	< .001	.34	.22	.16	-	-	-	-	-
Configural invariance	579.42	154	< .001	.34	.22	.17	-	-	-	-	-
Metric invariance	600.91	167	< .001	.33	.27	.17	21.488	13	-.013	.046	-.005
Scalar invariance	616.61	180	< .001	.33	.32	.16	15.703	13	-.004	.048	-.005
Two factors											
Baseline (Lithuanian sample)	319.76	103	< .001	.60	.54	.14	-	-	-	-	-
Baseline (Turkey sample)	240.59	103	< .001	.51	.43	.13	-	-	-	-	-
Configural invariance	560.34	206	< .001	.57	.50	.14	-	-	-	-	-
Metric invariance	582.91	220	< .001	.56	.52	.13	22.570	14	-.010	.021	-.003
Scalar invariance	603.77	234	< .001	.55	.54	.13	20.857	14	-.008	.020	-.003
Four factors											
Baseline (Lithuanian sample)	269.43	98	< .001	.68	.61	.13	-	-	-	-	-
Baseline (Turkey sample)	188.51	98	< .001	.68	.61	.11	-	-	-	-	-
Configural invariance	457.94	196	< .001	.68	.61	.12	-	-	-	-	-
Metric invariance	470.05	208	< .001	.68	.63	.12	12.107	12	.000	.022	-.003
Scalar invariance	491.92	220	< .001	.67	.64	.11	21.875	12	-.012	.007	-.001
Four factors (modified)											
Baseline (Lithuanian sample)	171.81	96	< .001	.86	.83	.09	-	-	-	-	-
Baseline (Turkey sample)	155.14	96	< .001	.79	.74	.09	-	-	-	-	-
Configural invariance	326.94	192	< .001	.84	.80	.09	-	-	-	-	-
Metric invariance	344.89	204	< .001	.83	.80	.09	17.948	12	-.007	.003	.000
Scalar invariance	363.72	216	< .001	.82	.80	.09	18.833	12	-.008	.002	.000

Note. TLI – Tucker Lewis index; CFI – comparative fit index; RMSEA – root mean square error of approximation; the modified model included four additional covariances between item residuals.

both samples. The modified baseline model showed a better fit in the Lithuanian sample, compared to the Turkish sample.

The multi-group confirmatory factor analysis, for invariance analysis, revealed that the model with no constraints had a slightly higher CFI for the four-factor model. Adequate configural variance suggested that the factor structure was equivalent across both tested samples; metric invariance suggested that different groups responded to the items in the same way with no bias; scalar invariance suggested that the scale was able to measure collectivism/individualism in both countries, and, although some differences might exist, they could be due to the group differences and not the 'false' of the instrument (Putnick et al., 2016). A comparison of nested models revealed ambiguous results regarding the impact of model restrictions. While the more restrictive models (with various factor numbers) generally improved the TLI, as indicated by the positive ΔTLI values, these improvements were not always statistically significant (the threshold for statistical changes is set as .01 (see Putnick et al., 2016)). Additionally, metric invariance often resulted in lower CFI values compared to configural invariance, and only one significant change was found between metric and scalar invariance in the four-factor model. However, the ΔRMSEA results suggest that the added constraints had an insignificant impact on the model fit. In general, the results of the pilot study confirmed that the scale was reliable and could be used to make comparisons between two countries, although with certain restrictions.

Discussion

The main goal of the current paper was to test the internal reliability and factorial validity of the Horizontal and Vertical Individualism and Collectivism Scale in the samples of Lithuanian and Turkish populations. Results from a pilot study have been presented. In general, the results confirmed that the scale was reliable in the Lithuanian and Turkish contexts.

The internal reliability was tested by using Cronbach's alfa coefficient. The results confirmed adequate internal reliability in both samples, although slightly lower scores were observed in the Turkish sample. The value of Cronbach's alfa around .70 is similar to the findings of other researchers (e.g., Bobbio & Sarrica, 2009; Germani et al., 2020; Györkös et al., 2013). Although internal reliability was slightly lower in the Turkish sample (.64 – .68), it is still considered as acceptable for research purposes and group testing (Taber, 2018). Nevertheless, further studies are recommended to test the reliability of the scale in other samples, e.g., different age groups and/or countries.

Inter-correlation was found only between horizontal individualism and vertical individualism and between horizontal collectivism and vertical collectivism. The relationship was moderate, and they fit with findings from other studies, e.g., Györkös et al. (2013). These correlations in general reveal that different types of collectivism/individualism are interrelated and confirm the theoretical assumptions. However, there were no statistical relationships between the subscales of individualism and collectivism, while other studies found such relationships in samples of Switzerland and South Africa (Györkös et al., 2013)

or Italy (Bobbio & Sarrica, 2009). Moreover, other studies found that vertical collectivism was not related to horizontal collectivism and horizontal individualism, and that vertical individualism was not related to vertical collectivism in samples of the United States and Mexican citizens (Soler-Anguiano et al., 2023). One possible explanation is that individualism and collectivism are considered as a continuum by suggesting that they should not correlate, or at least that they correlate negatively. Another possible explanation is that, based on other above-presented findings, the relationship between the subscales is weak (*r* around ~.15), which means that a bigger sample size is needed to capture at least a small effect. Considering that other studies found the correlations, further research may be needed with an augmented sample size.

Invariance analysis revealed good model fit when controlling for intercepts, loadings and/or error variances, thereby suggesting that the scale was reliable and valid in both samples, however, there was some ambiguity in the results. Although Lithuania is considered to be more individualistic country compared to Turkey (see *Hofstede Insights* official website https://www.theculturefactor.com/), no differences between the countries were found. The lack of differences may be due to the globalization process or because of the convenient sampling method, and not due to the problems of the scale itself because the results suggested that the four-factor scale structure was suitable in both samples. Additionally, the four-factor model revealed the best fit, especially when adding few covariances for measurement errors. The results correspond to the findings of other studies (e.g., Györkös et al., 2013; Soler-Anguiano et al., 2023), thus supporting the best solution for the four-factor model. In general, the results of the pilot study are promising; they have revealed that the scale can be used for research purposes in Lithuania and Turkey. However, further validation with a bigger and more representative sample is still needed.

The current study is not without limitations. Firstly, the convenient sampling method may result in a more homogeneous sample as our research mostly involved younger participants who have access to the internet and use social media platforms, and who are also more culturally aware. Future studies should devote more attention to gathering representative samples from countries. Secondly, the sample size, although appropriate for the analysis methods that were being used, can be too small to catch a small effect. Finally, no other forms of validity, except for factorial, were tested. Future studies should assess the relationship of vertical and horizontal collectivism and individualism with other cultural values to add evidence for the construct validity of the scale.

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