



Cross-Cultural Adaptation, Reliability, and Validity of a Turkish Version of the Work Rehabilitation Questionnaire (WORQ-Turkish)

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Abstract

Purpose The Work Rehabilitation Questionnaire (WORQ) is an instrument based on the International Classification of Functioning Vocational rehabilitation core set. The aim of this study was to analyze the validity, reliability and cross-cultural adaptation of the WORQ to Turkish and evaluate its psychometric properties. **Methods** The cross-cultural adaptation and translation procedures were conducted following Beaton's guidelines. The test-re-test reliability was examined by Spearman Brown Coefficient (split half analysis), internal consistency was examined by Cronbach's alpha. Criterion related validity of the WORQ was determined by Beck Depression Inventory using Pearson correlation coefficient and known group differences regarding age, gender, work and educational levels using one-way ANOVA and t test. Construct validity was examined by confirmatory factor analysis using AMOS. **Results** Two hundred and fifty-seven participants with disabilities were included to the study from seven different provinces of Turkey. The WORQ-Turkish showed excellent internal consistency (0.906), good test-retest reliability (0.811), and good construct validity (good model fit indices). Criterion related validity analysis showed medium correlations between WORQ and Beck Depression Inventory ($p < 0.001$), however there were no statistical significant differences regarding known group parameters ($p > 0.05$). **Conclusions** In this study, the cross-cultural adaptation, and validity and reliability of WORQ-Turkish self-reported version were examined and the results indicated that WORQ-Turkish was a valid and reliable scale for analyzing vocational rehabilitation process of people with disabilities.

Keywords Validation studies · People with disabilities · Work · Psychometrics

Introduction

Vocational rehabilitation is a multi-professional, evidence-based approach implemented in different environments, services, and activities. It is designed to help disadvantaged people, whose occupational functioning is restricted temporarily or permanently due to health-related disorders, resume

their work participation [1, 2]. Vocational-rehabilitation interventions, provided by practitioners in many disciplines, include medical, psychological, social, and occupational activities that aim to restore or improve physical, mental, or social functioning. Vocational-rehabilitation stakeholders (health professionals, employers, return-to-work specialists, and social-insurance providers) use different terminologies, frameworks, and approaches. A common framework is needed to clarify the return-to-work process, set shared goals, and establish good co-operation and communication [3].

The International Classification of Functioning, Disability, and Health (ICF), published by the World Health Organization (WHO) in 2001, provides a comprehensive bio-psychosocial framework for understanding the relationship between health and health-related conditions. ICF Core Sets, abbreviated lists of ICF categories, describe the areas most relevant to functioning with specific health conditions in particular settings. They make it easy and practical

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to apply the ICF. The ICF Core Set for Vocational Rehabilitation was developed in 2010 and used in rehabilitation research and clinical settings to investigate multiple factors related to vocational rehabilitation and returning to work. The comprehensive version of the Core Set for Vocational Rehabilitation included 90 ICF categories, while the brief version included 13 ICF categories. The brief Core Set was a subset of the full version, containing categories considered essential for assessing conditions [4, 5].

It is essential to select and use appropriate measurement tools to comprehensively assess the vocational functioning of individuals, as this will ensure effective vocational-rehabilitation interventions. While the ICF Core Sets provide guidance on which areas to assess during the vocational-rehabilitation process, a measurement tool is needed to measure these areas. Given the complex and multifaceted nature of vocational rehabilitation, an instrument based on the biopsychosocial model could enhance ICF implementation during vocational rehabilitation. The Work Rehabilitation Questionnaire (WORQ) was developed to meet this need, based on the brief ICF Core Set for Vocational Rehabilitation [6, 7].

The WORQ was designed to be either interviewer-administered or self-reported. In both versions, the questions are easy for interviewers and patients to understand; they can be used in any vocational-rehabilitation scenario. To date, cross-cultural adaptations of the WORQ have been carried out in various languages, including German, French, Brazilian-Portuguese, Russian, Taiwanese, and Dutch. The content/construct validity, internal consistency, and test–retest reliability of the questionnaire have been examined in return-to-work programs designed for populations with various health conditions [7–10]. The WORQ provides a broad and meaningful overview of the functioning of people with disabilities. It supports therapeutic decision-making, management, and effective action-planning to ensure that disabled people are properly included in the labor market. This ICF-based questionnaire facilitates inter-professional communication and can be applied at any stage of the return-to-work process [7, 8].

In Turkey, vocational-rehabilitation services, as reflected in national health policies and strategic plans, have become increasingly important [11]. The first vocational-rehabilitation center in Turkey was established to provide technical-support services to increase the employability of people with disabilities and facilitate their participation in the labor market. In such broad and open field, reliable and valid assessment tools are needed to organize knowledge and understanding; in particular, a biopsychosocial model-based questionnaire could make a useful contribution to research, education, and interventions. There is a gap in the Turkish vocational-rehabilitation literature, which has no instrument to evaluate the functioning of employees with disabilities or

other conditions. To fill this gap, the present study implements and evaluates the translation, cultural adaptation, validity, and reliability of the Turkish version of the WORQ.

Methods

This study was carried out in two parts in order to assess: (1) the cross-cultural adaptation and (2) the psychometric properties of the Turkish version of WORQ (WORQ-Turkish). The Non-Conventional Interventions Ethical Board approved the study and all participants signed informed-consent forms.

Part I: Translation and Cross-cultural Adaptation

This study followed the guidelines for translation and cross-cultural adaptation studies described by Beaton et al. [12]. First, the English version of WORQ was translated into Turkish by three authors independently. After this initial translation process, the authors agreed on the best Turkish version and sent it to an English translator, who produced a back-translation. An expert panel meeting of all authors was held to consider the final version of WORQ-Turkish. The authors discussed and considered potential changes to the translated introduction and items.

Part II: Psychometric Evaluation of the WORQ-Turkish

Participants

Participants were assessed in seven different provinces of Turkey, representing seven geographical districts within the country (Ankara, Antalya, Denizli, Gaziantep, İstanbul, Malatya and Samsun). Volunteer colleagues from these provinces helped to obtain the data. Participants who met the following inclusion criteria were included in the study:

- Between 18 and 65 years old
- Diagnosed with a chronic disability
- Having received 40% or higher on a disability report, in accordance with the Turkey Disability Act
- Having received a score higher than 23 on the Mini Mental State Test
- Able to follow verbal and/or written instructions
- Having volunteered to participate in the study

All participants were given full information about the study, and all signed informed written consent forms.

Instruments

The participants were asked to complete a socio-demographic form, WORQ-Turkish, and the Beck Depression Scale. The socio-demographic form included items related to place of residence, type of disability, gender, age (mean years and intervals), marital status, education, monthly income, employment history, work status, working shifts, and reasons for not working.

The Work Rehabilitation Questionnaire (WORQ)

The Work Rehabilitation Questionnaire (WORQ) is a self-reported-outcome questionnaire that evaluates work-related functioning in vocational rehabilitation and work. The WORQ, which consists of two parts, is based on the International Classification of Functioning, Disability, and Health (ICF) Core Set for VR. The first part of the WORQ contains 17 socio-demographic and work-related items related to age, gender, profession, work status, educational attainment, current vocational-rehabilitation status, and financial support from families, supervisors, and the labor system. The second part includes 42 items, ranked by the examinee on a scale of 0 to 100, with 100 representing major problems related to functioning. Two items on visual functioning were excluded from the scoring. The 30 items in WORQ Part II were divided into 4 domains derived from an explanatory factor analysis: emotion, cognition, dexterity, and mobility [13, 14]. The remaining 10 items were excluded from the sub-domains because they were relevant to the needs of participants with various health conditions, but not work functioning [10]. A psychometric evaluation of WORQ-Turkish Part II was conducted in this study.

Beck Depression Inventory

The Beck Depression Inventory (BDI), developed by Beck in 1961, consists of 21 items related to depressive symptoms, including pessimism, feeling of failure, lack of satisfaction, feelings of guilt, restlessness, fatigue, decreased appetite, instability, sleep disturbance, and social withdrawal. Each item is rated using a four-degree self-assessment procedure that determines behavior specific to depression [15]. The Turkish validity and reliability of the BDI were confirmed by Hisli et al. [16].

Statistical Analysis

A descriptive analysis was carried out to describe the participants' demographic data and questionnaire results. Numeric values (WORQ-Turkish Part II, BDI) were represented as means and standard deviations; categorical data

(WORQ-Turkish Part I and sociodemographic data) were represented as frequencies.

Reliability

The *internal consistency* of WORQ-Turkish was examined using Cronbach's alpha scores, item–item, and item–total correlations. Cronbach's alpha coefficients above 0.70 are considered moderate, while those above 0.85 are considered good, and those above 0.9 excellent [17].

The *test–retest reliability* was examined using a split-half analysis [18] and presented using the Spearman-Brown coefficient. The Spearman-Brown Split-Half Reliability Coefficient is a method that splits all data into two subsets to perform a test–retest reliability measure; it is based on the half-test correlation between items.

Validity

The construct validity of WORQ-Turkish was assessed through a Confirmatory Factor Analysis (CFA) using AMOS software. In addition, model-fit indices were examined with TLI (0.90–1.00), RMSEA (1.00–0), CFI (0.90–1), and Chi-Square/df ratios (0–5) for CFA [19].

The *criterion-related validity* of the scale was examined using the Pearson Correlation between WORQ-Turkish and BDI. Known group differences were investigated using an independent samples t test and a one-way ANOVA.

Results

Part 1: The Cross-Cultural Adaptation of WORQ-Turkish

A panel of eight experts (see the Methods section) suggested one minor change to the final version of WORQ-Turkish, in accordance with Turkish language rules. The suggestion was to add “geçtiğimiz hafta” (meaning “last week”) to the questionnaire introduction to remind respondents of the timeframe of interest. Other items in both parts of WORQ-Turkish were accepted as presented in the first translation.

Part II: Psychometric Evaluation of WORQ-Turkish

In the initial assessments (Fig. 1), 726 participants were included. However, due to unmet inclusion criteria and missing WORQ data, 257 participants (170 males, 87 females) ultimately completed the study; their mean age was 35.42 ± 9.4 years. Kline maintains that a sample size between 100 and 200 is needed to carry out a confirmatory factor analysis [20]. Our study, with 257 participants, met

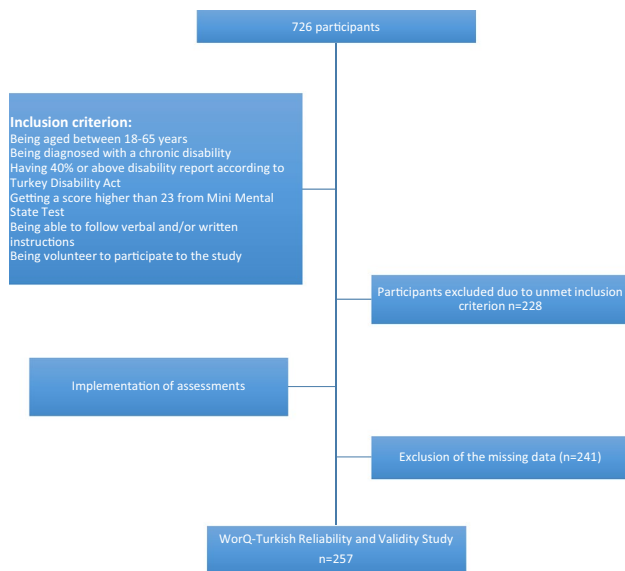


Fig. 1 Participant allocation

this criterion. The participants' demographic information is presented in Table 1.

Reliability

The Cronbach's alpha scores for the emotion, cognition, dexterity, and mobility sections of WORQ-Turkish and the total score were examined to determine the internal reliability of the scale. A reliability analysis showed that WORQ-Turkish had excellent reliability for all items (Cronbach's alpha = 0.906), and good reliability for all other factors: 0.85 for the emotion domain; 0.82 for the cognition domain; 0.81 for the dexterity domain; and 0.88 for the mobility domain (Table 2).

The test–retest consistency was examined using a Spearman split-half analysis. The WORQ-Turkish total and sub-domains showed good test–retest reliability (Spearman-Brown Coefficient = 0.811 for total WORQ; 0.785 for the emotion domain; 0.749 for the cognition domain; 0.800 for the dexterity domain; and 0.884 for the mobility domain) (Table 2).

Validity

Construct Validity

A confirmatory factor analysis was carried out to determine the validity of WORQ-Turkish. In this study, both factor structures were examined using CFA; however, only the 4-factor structure had model fit (Model Fit Indices: Cmin/df: 2.080, GFI: 0.834, CFI: 0.885, AGFI: 0.800, IFI: 0.886, TLI: 0.870, RMSEA: 0.065).

Criterion Related Validity

WORQ-Turkish was found to have a statistically significant correlation with BDI ($p < 0.001$ for all domains and total WORQ—see Table 3). Known group differences for WORQ-Turkish were examined using t-tests and a one-way ANOVA, involving the age, gender, income, work status (work duration), and educational status of the participants. No statistically significant differences were found in these variables ($p > 0.05$).

Discussion

This study has described the cross-cultural adaptation, validity, and reliability of the self-reported version of WORQ-Turkish. The results indicate that WORQ-Turkish is a valid and reliable scale for analyzing the vocational-rehabilitation outcomes of people with disabilities. In the cross-cultural adaptation of WORQ-Turkish, only one minor change was made to Part I of the Introduction. We therefore believe that the WORQ was successfully adapted to the Turkish language—and that this scale is suitable for use in the Turkish context.

The present study included participants with different disabilities from seven provinces in Turkey. These provinces represented the eco-geographical structure of Turkey. The economy, population, and social and cultural structures of each district differed from those of the others [21]. The districts were chosen to represent the diversity of Turkey and district-level cultural aspects of that diversity. For example, the southern districts of Turkey have a more conservative lifestyle than other districts. Families are more protective of disabled family members and more likely to discourage them from seeking employment [22].

The psychometric analysis showed that WORQ-Turkish had good-to-excellent reliability and good validity. For all dimensions of WORQ-Turkish, the internal consistency was excellent for the overall questionnaire (Cronbach's alpha > 0.90), and good for the sub-domains (Cronbach's alpha > 0.80 and < 0.90). The Cronbach's alpha score was 0.88 for the original version of the scale [7], 0.96 for the French version [10], and 0.95 for the Dutch version [8]. The internal consistency of WORQ-Turkish was similar to that of other versions of the scale. A split-half analysis using a Spearman-Brown coefficient was carried out to determine the test–retest reliability. The scale was found to have good test–retest reliability. The ICC value was 0.78 for the original version of the WORQ [7], 0.93 for the French version [10], and 0.85 for the Dutch version [8]. Overall, WORQ-Turkish had a Spearman-Brown value of 0.88, indicating that it was valid and reliable. Unlike other studies, the present study

Table 1 Demographic information of the participants

	n	%
Place of residence		
Ankara	33	12.8
Antalya	60	23.3
Denizli	52	20.2
Gaziantep	28	10.9
İstanbul	52	20.2
Malatya	17	6.6
Samsun	15	5.8
Type of disability		
Orthopedic	105	40.85
Visual	38	14.78
Mental	36	14.0
Neurological	48	18.67
Chronic diseases (diabetes, cancer etc.)	30	11.67
Gender		
Female	87	33.9
Male	170	66.1
Age interval		
18–29	80	31.5
30–39	78	30.7
40–50	96	37.8
Marital status		
Married	118	47.0
Single (never married)	119	47.4
Widow	14	5.6
Education		
Illiterate	6	2.3
Primary school	64	24.9
Middle school	46	17.9
High school	90	35.1
Tertiary school	10	3.8
University	32	12.4
Postgraduate	5	1.9
Missing	4	1.4
Income (Turkish Lira)		
0–1500	170	70.0
1501–2500	40	16.5
2501–3500	23	9.5
3501–4500	6	2.5
4500+	4	1.6
Employment		
Never	67	26.7
Less than 5 years	72	28.7
6–10 years	39	15.5
11–15 years	23	9.2
16 years and above	50	19.9
Work status		
Working	118	58.1
N/A	35	17.2
Retired	28	13.8
Student	16	7.9

Table 1 (continued)

	n	%
Free lance	5	2.5
Unpaid work	1	0.5
Work shifts (full time of partial)		
Full time	101	93.5
Part time	5	4.6
Modified or light duty	2	1.9
Reason for not working		
Health problems	54	50.46
Ongoing vocational rehabilitation	9	8.41
Other	44	41.12
	$X \pm SD$	Min–Max
Age (years)	35.4 ± 9.4	18–50
Beck Depression Scale	6.7 ± 8.3	0–48

included various types of disability, demonstrating that the scale could be used for different disabilities.

Two previous studies have examined the factor structure of WORQ Part II, resulting in 4- and 7-factor structures. The 4-factor structure was described by Finger et al., and the 7-factor structure by Vermeulen et al. [8, 14]. We estimated a 4-factor structure analysis for our database, and the structure showed good model fit for CFA; thus, WORQ-Turkish showed average construct validity. We carried out a correlation analysis of WORQ-Turkish and BDI to analyze the convergent validity of the scale. Our analyses indicated low-to-moderate correlations with the BDI total scores. There is a close relationship between work performance and mental state; in particular, depression can affect an individual's work participation, performance, and efficiency [23, 24].

In this study, no significant differences were found between WORQ scores and age, gender, income, work duration, or education. The study population was heterogeneously distributed, which may have affected the known group differences. Further studies with homogenous distribution are recommended to investigate known group differences among disabled people. In addition, while WORQ included items about emotion, cognition, dexterity, and mobility, no items specifically targeted sociodemographic data, such as

age and gender. We suggest that further investigations aim to analyze the effects of socio-demographic factors on work functioning.

Our study has the following limitations: (1) two questionnaires were used in this study; between them, the BDI and WORQ had nearly 80 items in total. It was observed that some participants became bored while answering 80 questions. We believe that creating a shorter version of WORQ would make the process easier for participants and prevent boredom. For example, future studies might consider using the shorter, therapist-oriented version of WORQ. (2) BDI was used to determine the external validity of WORQ; in the literature, it was mainly used to assess the external validity of the scale. However, BDI is a depression scale, which covers only the emotional domain of the WORQ.

As Turkey is an economically developing country [25], the employment of disabled people is a key focus of government. The Turkish government's 2020 economic plan discusses the employment of disabled people and ways to increase their employability through vocational rehabilitation [21, 26]. We believe that it is important to improve the quality of vocational-rehabilitation services, not only to employ more disabled people, but also to enhance their participation and social inclusion through work participation. To address the rehabilitation needs of disabled people, follow their vocational-rehabilitation processes, and help them return to work, a valid, reliable, and vocational-rehabilitation specific form of assessment is needed within the Turkish context. According to the literature, WORQ is the only questionnaire that assesses vocational-rehabilitation outcomes, return-to-work status, and work-related functioning from an ICF-based perspective [7, 13]. This study has shown that WORQ-Turkish is a reliable and valid scale, which can be used successfully in the Turkish context. It will help researchers and clinicians implement

Table 2 Reliability and test–retest reliability

	Cronbach alpha	Test–retest split half Spearman–Brown coefficient
WorQ-Emotion	0.850	0.785
WorQ-Cognition	0.822	0.749
WorQ-Dexterity	0.819	0.800
WorQ-Mobility	0.881	0.884
WorQ	0.906	0.811

Table 3 Correlations of the WorQ-Turish with BDI and known group variables

	WorQ-Emotion		WorQ-Cognition		WorQ-Dexterity		WorQ-Mobility		WorQ	
	r	p*	r	p*	r	p*	r	p*	r	p*
BDI	0.533	<0.001	0.375	<0.001	0.303	<0.001	0.196	0.006	0.500	<0.001
Age	0.062	0.323	-0.108	0.087	0.085	0.174	0.118	0.060	0.067	0.286
	X ± SD	p**	X ± SD	p**	X ± SD	p**	X ± SD	p**	X ± SD	p**
Gender										
F	21.8 ± 22.7	0.559	12.1 ± 13.7	0.497	24.1 ± 21.4	0.962	31.3 ± 34.4	0.306	19.8 ± 14.6	0.826
M	20.1 ± 22.0		13.5 ± 16.4		24.3 ± 21.7		36.1 ± 35.5		20.2 ± 14.3	
Income (TL)										
0–1500	22.2 ± 22.8	0.127	14.0 ± 15.6	0.117	23.9 ± 20.4	0.456	31.9 ± 34.1	0.069	20.4 ± 14.1	0.301
1501–2500	14.4 ± 20.8		8.4 ± 13.5		22.5 ± 19.5		37.4 ± 34.0		17.5 ± 13.9	
2501 and higher	22.3 ± 21.0		12.9 ± 15.8		28.3 ± 25.4		46.9 ± 38.7		22.6 ± 14.4	
Employment history										
Never	18.8 ± 19.7	0.650	15.4 ± 18.3	0.173	27.0 ± 22.7	0.223	35.5 ± 37.3	0.018	21.0 ± 14.6	0.480
Less than 5 years	21.7 ± 24.5		14.4 ± 15.4		21.2 ± 18.9		32.1 ± 32.0		19.7 ± 13.4	
6–10 years	18.3 ± 19.4		10.6 ± 13.0		21.3 ± 20.6		20.3 ± 29.1		16.7 ± 13.7	
11–15 years	25.7 ± 23.8		13.1 ± 13.8		22.5 ± 20.2		41.4 ± 37.1		21.6 ± 15.1	
16 years and higher	22.3 ± 24.1		9.2 ± 11.2		28.9 ± 24.2		44.6 ± 37.2		21.9 ± 14.8	
Education										
Illiterate	27.7 ± 22.6	0.387	23.6 ± 23.2	0.222	42.9 ± 22.6	0.082	66.9 ± 32.9	0.067	33.5 ± 16.2	0.049
Primary and middle school	20.6 ± 23.6		13.6 ± 16.5		23.3 ± 19.4		34.5 ± 34.5		20.0 ± 14.1	
High and tertiary school	18.6 ± 14.2		11.9 ± 14.3		23.3 ± 21.8		32.3 ± 33.9		18.9 ± 12.8	
University and above	24.6 ± 25.6		12.4 ± 13.7		26.0 ± 24.5		34.5 ± 37.6		21.1 ± 16.3	

BDI Beck Depression Inventory, TL Turkish Lira, r Pearson correlation coefficient

Bold: $p < 0.05$

*Pearson correlation test

**One-way ANOVA test

evidence-based studies and plan vocational-rehabilitation interventions.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

Informed Consent Informed consent was obtained from all patients for being included in the study.

References

1. Chamberlain MA, Moser VF, Ekholm KS, O'Connor RJ, Herceg M, Ekholm J. Vocational rehabilitation: an educational review. *J Rehabil Med.* 2009;41(11):856–69.
2. Elliot T, Leung P. Vocational rehabilitation: history and practice. In: Walsh WB, Savickas M, editors. *Handbook of vocational psychology: theory, research, and practice.* 3rd ed. Mahwah: Lawrence Erlbaum Associates Publishers; 2004. p. 319–343.
3. Finger ME, Escorpizo R, Glässel A, Gmünder HP, Lückenkemper M, Chan C, et al. ICF Core Set for vocational rehabilitation: results of an international consensus conference. *Disabil Rehabil.* 2012;34(5):429–38.
4. Saltychev M, Kinnunen A, Laimi K. Vocational rehabilitation evaluation and the International Classification of Functioning, Disability, and Health (ICF). *J Occup Rehabil.* 2013;23(1):106–14.
5. Escorpizo R, Ekholm J, Gmünder H-P, Cieza A, Kostanjsek N, Stucki G. Developing a core set to describe functioning in

- vocational rehabilitation using the International Classification of Functioning, Disability, and Health (ICF). *J Occup Rehabil.* 2010;20(4):502–11.
6. Escorpizo R, Finger ME, Reneman MF. Integration and application of the International Classification of Functioning, Disability and Health (ICF) in return to work: *Handbook of Return to Work*. New York: Springer; 2016. p. 99–118.
 7. Finger ME, Escorpizo R, Bostan C, De Bie R. Work Rehabilitation Questionnaire (WORQ): development and preliminary psychometric evidence of an ICF-based questionnaire for vocational rehabilitation. *J Occup Rehabil.* 2014;24(3):498–510.
 8. Vermeulen K, Woestyn M, Oostra K, Geers S, Ryngaert K, Van de Velde K, et al. Cross-cultural adaptation and psychometric evaluation of the Dutch Version of the Work Rehabilitation Questionnaire (WORQ-VL). *J Occup Rehabil.* 2019;29(3):514–25.
 9. Fernandes SMdS. Translation, cultural adaptation and reliability analysis of the Brazilian version of the rehabilitation questionnaire for work—WORQ (Article in Portuguese); Doctoral Thesis, Post-Graduation Program and Developmental Disorders, São Paulo: Mckenzie Presbyterian University; 2017.
 10. Finger ME, Escorpizo R, Tennant A. Measuring work-related functioning using the Work Rehabilitation Questionnaire (WORQ). *Int J Environ Res Public Health.* 2019;16(15):2795.
 11. The Eleventh Development Plan (2019–2023). Turkish Republic Presidency, Presidency of strategy and budget, Ankara, 2019.
 12. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine.* 2000;25(24):3186–91.
 13. Husmann A, Escorpizo R, Finger ME. Examining work-related functioning in a physical therapy outpatient clinic: validity and reliability of the Work Rehabilitation Questionnaire (WORQ). *J Occup Rehabil.* 2019;30(6):1–11.
 14. Finger ME, Schwegler U, Escorpizo R, editors. Poster presentation: psychometric properties and factorial structure of the ICF based Work Rehabilitation Questionnaire (WORQ)—French Version. *Work Disability Prevention & Integration*, Amsterdam; 2016.
 15. Beck AT. A systematic investigation of depression. *Compr Psychiatry.* 1961;2(3):163–70.
 16. Hisli N. A study on the validity of Beck Depression Inventory, (in Turkish). *Psikoloji Dergisi.* 1988;6:112–26.
 17. Henson RK. Understanding internal consistency reliability estimates: a conceptual primer on coefficient alpha. *Meas Eval Counsel Dev.* 2001;34(3):177–89.
 18. Kuder GF, Richardson MW. The theory of the estimation of test reliability. *Psychometrika.* 1937;2(3):151–60.
 19. Brown TA. *Confirmatory factor analysis for applied research*. New York: Guilford Publications; 2015.
 20. Kline RB. *Exploratory and confirmatory factor analysis*. In: Petscher Y, Schatschneider C, editors. *Applied quantitative analysis in the social sciences*. New York: Routledge; 2013. p. 171–207.
 21. Kulaksız Y. Regional disparities in Turkey, diversification of employment services and agencies. MSc Thesis, Turkish Republic The Ministry of Labor and Social Security, Turkey Labour Association; 2008.
 22. Ataca B. Turkish family structure and functioning. In: Bekman S, Aksu-Koç A, editors. *Perspectives on human development, family, and culture*. Cambridge: Cambridge University Press; 2009. p. 108–125.
 23. Gilmour H, Patten SB. Depression and work impairment. *Health Rep.* 2007;18(1):9–22.
 24. Woo J-M, Kim W, Hwang T-Y, Frick KD, Choi BH, Seo Y-J, et al. Impact of depression on work productivity and its improvement after outpatient treatment with antidepressants. *Value Health.* 2011;14(4):475–82.
 25. Karaca A, Caglar E, Bilgili N, Ayaz S. Screen time of adolescents in an economically developing country: the case of Turkey. *Ann Hum Biol.* 2011;38(1):28–33.
 26. Orhan S, Akögretmen M. Evaluation of historical development of disability employment terms of Turkish Social Policy (fulltext in Turkish). XI. IBANESS Congress Series—Tekirdag / Turkey, 9–10 March 2019, Cataloging-In-Publication Data. 2019:767.

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