

Cross Cultural Adaptation Validity and Reliability Test of the Arabic Version of the Outpatient Physical Therapy Improvement in Movement Assessment Log

EMAN H.A. HUSSEIN, M.Sc.; MOHSEN M. ALSAYAAD, Ph.D. and NABIL M. ISMAIL, Ph.D.

The Department of Physical Therapy for Basic Sciences, Faculty of Physical Therapy, Cairo University

Abstract

Background: The Outpatient Physical Therapy Improvement in Movement Assessment Log (OPTIMAL) is a self-reported instrument designed to assess difficulty and confidence in performing functional movements among physical therapy outpatients. While the OPTIMAL has been translated into several languages, no validated Arabic version exists.

Aim of Study: This study aimed to translate, culturally adapt, and evaluate the psychometric properties of the Arabic version of the OPTIMAL (OPTIMAL-AR) for use among Arabic-speaking physical therapy outpatients.

Material and Methods: The study involved three expert panels (10 experts each) and 880 adult outpatients (mean age: 35.21 ± 9.00 years) from various physiotherapy clinics. The OPTIMAL-Ar underwent translation, cultural adaptation, and rigorous psychometric testing, including face validity, content validity, construct validity, internal consistency reliability, and test-retest reliability. Internal consistency was assessed using Cronbach's alpha, while test-retest reliability was evaluated using intra-class correlation coefficients (ICC). Construct validity was examined through factor analysis and correlations with the Activities-specific Balance Confidence (ABC) Scale.

Results: The OPTIMAL-Ar demonstrated excellent internal consistency, with Cronbach's alpha values of 0.950 for the total score, 0.908 for the difficulty domain, and 0.909 for the confidence domain. Test-retest reliability was high, with ICC values of 0.999 for the total score and individual domains ($p < 0.001$). Factor analysis revealed an eight-factor structure, explaining 80.81% of the total variance. Strong negative correlations were observed between the OPTIMAL-Ar and the ABC Scale at baseline ($r = -0.915$, $p = 0.001$) and one week later ($r = -0.914$, $p = 0.001$), confirming construct validity. The

OPTIMAL-Ar was feasible, with an average completion time of 17.41 ± 3.69 minutes and minimal missing data (0.04 ± 0.20 items).

Conclusion: The Arabic version of the OPTIMAL is a reliable, valid, and feasible instrument for assessing functional movement difficulty and confidence among Arabic-speaking physical therapy outpatients. Its strong psychometric properties make it a valuable tool for clinical and research settings

Key Words: Cross-cultural adaptation – OPTIMAL – Arabic version – Reliability – Validity – Physical therapy – Functional movement.

Introduction

FUNCTIONAL movement is a fundamental component of physical rehabilitation, aiming to restore an individual's ability to perform daily activities efficiently [1]. The Outpatient Physical Therapy Improvement in Movement Assessment Log (OPTIMAL) is a self-reported instrument designed to assess difficulty and confidence in performing functional movements among physical therapy outpatients [2]. The ability to execute these movements depends not only on physical capability but also on an individual's self-efficacy and confidence in their movement ability [3].

Self-reported outcome measures are widely used in rehabilitation to assess a patient's functional limitations and treatment outcomes [4]. Questionnaires provide a practical and efficient way to gather patient-reported data on quality-of-life limitations, functional impairments, and treatment effectiveness [5]. However, to ensure the validity and reliability of these instruments across different linguistic and cultural populations, rigorous translation and cultural adaptation are essential [6,7].

Correspondence to: Dr. Eman H.A. Hussien, The Department of Physical Therapy for Basic Sciences, Faculty of Physical Therapy, Cairo University

Translating and culturally adapting patient-reported outcome measures, such as the OPTIMAL questionnaire, is essential for ensuring the tool's effectiveness across diverse populations. The translation process goes beyond language, aiming to preserve the conceptual meaning and relevance of each item to the target population. By achieving this, clinicians can gather more accurate and culturally meaningful data, which is crucial for improving patient care [8,9].

A key challenge in cross-cultural adaptation lies in preserving the psychometric properties of the original instrument, such as reliability, validity, and sensitivity [6]. Research has shown that even subtle language and cultural differences can impact how patients interpret questions, potentially altering their responses and the instrument's validity. Thus, it is essential to rigorously test and adapt these tools in the new context, as failure to do so can lead to biased or unreliable results [10,11].

Most self-report measures in musculoskeletal care are hybrid measures that combine multiple International Classification of Functioning, Disability, and Health (ICF) components into a single measure [12]. An outcome measure that captures the impact of a person's confidence in performing actions would add an important dimension to understanding the relationship between physical therapy interventions and function [2]. Therefore, assessing patient confidence related to activity limitations is vital for overcoming functional deficits [13].

The use of validated outcome measures across languages and cultures is growing in importance as healthcare systems worldwide emphasize patient-centred care. These measures provide valuable insights into treatment effectiveness and quality of life across diverse patient populations, helping healthcare providers better address the needs of multilingual and multicultural patients [14,15].

Adapting tools like the OPTIMAL questionnaire to different cultural contexts allows healthcare providers to capture patients' experiences and perceptions of their functional abilities in a culturally sensitive manner. This approach enhances the quality of patient-reported data, contributing to more personalized and effective care, which is especially relevant in regions with diverse cultural backgrounds [16,17].

While the OPTIMAL questionnaire has been translated into Spanish and Italian [18,19], no validated Arabic version exists. Given the increasing need for culturally adapted assessment tools in

Arabic-speaking populations, this study aims to translate, culturally adapt, and evaluate the psychometric properties of the Arabic version of OPTIMAL (OPTIMAL-Ar). Proper translation ensures that conceptual meaning is preserved, allowing clinicians to collect accurate and meaningful data from Arabic-speaking patients [8,10]. Therefore, the aim of the current study was to translate, culturally adapt, validate, and test the reliability of the Arabic version of the Outpatient Physical Therapy Improvement in Movement Assessment Log (OPTIMAL).

Material and Methods

This study was conducted across multiple physiotherapy outpatient clinics between September 2023 and August 2024. The objectives were to translate, culturally adapt, validate, and assess the reliability of the Arabic version of the OPTIMAL (Outpatient Physical Therapy Improvement in Movement Assessment Log), which evaluates movement improvement following physiotherapy interventions.

Study design:

The study design was a cross-cultural validation of the Outpatient Physical Therapy Improvement in Movement Assessment Log on physical therapy outpatients. The research protocol was approved by the ethical committee review board of the Faculty of Physical Therapy with reference number: P.T.REC/012/004887. The current study authors were granted permission by e-mail from the author of the original English version to translate and culturally adapt the Arabic version.

Participants:

Three expert panels (10 experts each) were involved in this study to test the face and content validity of OPTIMAL Arabic version. All experts had experience not less than 10 years or at least master's degree in physical therapy; the major part of their work is with Arabic population; also, they were fluent in Arabic and English. Twenty patients per item were chosen to estimate the sample size for testing the psychometric properties of the OPTIMAL Arabic version (20). So, 880 patients (437 male patients and 443 female patients), were chosen according to the following criteria: Their age ranged between 18–60 years, took at least a month of physiotherapy sessions and are able to read and write in Arabic. Patients were reached from different outpatient clinics by the help of the staff working there, each patient agreed to participate in the study by signing a consent document that detailed the procedure.

*Procedures:**Translation and cultural adaptation:*

The OPTIMAL translation and cross-cultural adaptation into Arabic version were done according to the most recent and comprehensive guidelines of Borsa et al. [21] and Sousa and Rojjanasirrat [22]. The Outpatient Physical Therapy Improvement in Movement Assessment Log (OPTIMAL) is an instrument that measures difficulty and self-confidence in performing 22 movements that a patient needs to accomplish in order to do various functional activities [2]. The OPTIMAL was developed as a self-report instrument with 2 sections: The first section could efficiently assess the degree of difficulty associated with activity limitations and the second section assess the extent of confidence in completing the activities [2]. An outcome measure that could capture the impact of a person's sense of mastery over the ability to perform actions would add an important dimension to our understanding of the relationship between physical therapy intervention and function [2]. The response options of the items include 5-point Likert scales plus a "not applicable" option. The total score for each scale can be calculated by summing all applicable responses, with a result of 22-110 when the respondent completes all items. If 1 activity included in the OPTIMAL is marked "not applicable," then it is completely deleted from the total score and the maximum possible score is lower. Scores approaching 0 represent good mobility and scores approaching 100 indicate poor mobility (greater physical disability) [19].

Forward translation:

Arabic language translation of the OPTIMAL English version was done by two independent native Arabic language translators and resulted into two forward-translated versions of the log (A1 and A2). One translator was knowledgeable about health terminology and the content area of the construct of the tool in the Arabic, and the other translator was knowledgeable about the cultural and linguistic nuances of the Arabic language.

Synthesis of Versions A1 and A2 into A1, 2:

A1 and A2 versions were compared and merged by the researchers and research committee of basic science for physical therapy. Some of the faculty members at the faculty of physical therapy were asked for help in resolving ambiguities and discrepancies. This stage led to the development of the preliminary initial translated Arabic version (A1, 2).

Blind back translation:

The preliminary initial translated Arabic version (A1, 2) of the log was translated into English to produce two back-translated versions (B1 and B2). Two translators independently participated in the back translation, and they were blinded to the original English version of the OPTIMAL during this process. The two translators had distinct backgrounds; one translator was knowledgeable about health terminology and the content area of the construct of the tool in the English, and the other translator was knowledgeable about the cultural and linguistic nuances of the English.

Expert committee:

The committee consisted of researchers, health professionals, translators, and a language professional. The committee compared back translation of the Log B1 with B2, and also compared both B1 and B2 with the original English version regarding instructions, items, response format, wording, sentence structure, meaning, and relevance. The committee reviewed all the translations (A1 and A2, A1, 2, B1 and B2) and the written report comparing the back translations with the forward-translation A1,2. Based on those translations, the preliminary initial translated Arabic version was considered to be the prefinal Arabic version of the OPTIMAL.

Face and content validity:

Three expert panels tested the prefinal Arabic version of the OPTIMAL for face and content validity. The first expert panel (10 experts) were asked to evaluate each item of the tool for clarity (face validity) and provide suggestions to improve its clarity; dichotomous questions (clear/unclear) is used. According to the suggestions of the first expert panel, slight changes had been made to improve the clarity index to the minimum acceptable value (80%; Borsa et al., 2012) so that it can be given to the patients. Then the second expert panel reassessed the clarity of modified prefinal Arabic version of the OPTIMAL. Then the third expert panel (10 experts) was asked to evaluate each item of the modified prefinal Arabic version of the scale for content equivalence (content-related validity) using the following scale: 1 = not relevant; 2 = unable to assess relevance; 3 = relevant but needs minor alteration; 4 = very relevant and succinct and give suggestions to improve its relevance (1 and 2 considered not relevant, 3 and 4 considered relevant). After the modified prefinal version passed expert face and content validity tests, it was named the final version.

Full psychometric testing:

To establish the initial full psychometric properties of the newly translated, adapted, and cross-validated Arabic version of OPTIMAL, 880 patients participated in this study. Patients filled out the Arabic version of OPTIMAL along with the Arabic version of the Activities-specific Balance Confidence (ABC) Scale [22], and 1 week later, the patient refilled out the two questionnaires.

Statistical analysis:

Statistical analysis was conducted through the statistical package for social studies (SPSS) version 25 for windows (IBM SPSS, Chicago, IL, USA). Descriptive statistical analysis on the sample was performed using means and standard deviations for numerical data and using frequency and percentage for categorical data. Continuous variables were presented as mean and standard deviation, while categorical variables were expressed as frequencies and percentages. Test–retest and internal consistency analyses were conducted to assess the reliability of the Arabic version of the back OPTIMAL. Internal consistency, which evaluates whether items within the total score measure the same underlying construct, was assessed using Cronbach's alpha. Test–retest reliability was evaluated using the two-way mixed intraclass correlation coefficient (ICC), with 95% confidence interval values of ≥ 0.8 considered to indicate a high level of correlation. Feasibility was examined by analyzing the frequency of missing responses per item and the average administration time. The level of significance for all statistical tests was set at $p < 0.05$. Face and content validity were assessed descriptively, with content validity measured through the item content validity index (I-CVI) and scale content validity indices (S-CVI/Ave and S-CVI/UA). Construct validity was assessed through factor analysis and external construct validation. External construct validity, indicating the degree of agreement between the OPTIMAL and the Activities-specific Balance Confidence (ABC) Scale, was examined using Pearson correlation coefficients for responses at baseline and one week later. Finally, ceiling and floor effects were assessed by calculating the percentage of participants who achieved the lowest and highest possible total scores on the Arabic version of the back OPTIMAL.

Results

Subject characteristics:

The study included 880 adult outpatients with mean age of 35.21 ± 9 years. They attended an average of 13.91 ± 1.66 physiotherapy sessions, with

50.3% females and 49.7% males. Most participants (94.0%) had higher education, with smaller percentages having post-graduate or secondary education. About 75.8% of subjects were married, 19.2% single, 3.6% divorced, and 1.4% widowed. The largest groups worked in healthcare (23.3%) and administration (20%). Common diagnoses were lumbar issues (17.4%), carpal tunnel syndrome (14.8%) and tendonitis. (Table 1).

Table (1): General characteristics of the subjects.

	Mean ± SD	Minimum	Maximum
Age (years)	35.21±9.00	18	59
Number of sessions	13.91±1.66	12	19
	N	%	
<i>Sex distribution:</i>			
Females	443	50.3	
Males	437	49.7	
<i>Educational level:</i>			
Higher Education	826	94.0	
Post graduate studies	42	4.7	
Secondary	12	1.4	
<i>Marital status:</i>			
Divorced	32	3.6	
Married	666	75.8	
Single	170	19.2	
Widowed	12	1.4	
<i>Occupation:</i>			
Accounting/Finance	133	15.0	
Administration	176	20.0	
Engineering/Technical	129	14.7	
Healthcare	205	23.3	
Education	158	18.0	
Other	79	9.0	
<i>Diagnosis:</i>			
Sprains	80	9.1	
Carpal Tunnel Syndrome	110	12.4	
Cervical Issues	95	10.8	
Shoulder Issues	100	11.4	
Lumbar Issues	130	14.8	
Meniscal Tears	105	11.9	
Tendinitis	130	14.8	
Tennis Elbow	130	14.8	

SD: Standard deviation.

Face validity:

Ten experts (5 females and 5 males) participated in this study to assess the face validity of the Arabic version of the OPTIMAL questionnaire. All participants held Ph.D. degrees; nine were university faculty members, and one was a consultant. The expert panel had a mean $\pm$ SD of 14.5 ± 4.17 years of professional experience, ranging from 10 to 20 years.

The mean index of clarity of Arabic version of The OPTIMAL questionnaire was 95.91% which is excellent. The index of clarity of Arabic version of The OPTIMAL questionnaire ranged from 80% to 100%. 18 items (81.8%) received a clarity index of 100% and 4 items (18.2%) had clarity indices between 80% and 90%.

Content validity:

Ten experts (4 females and 6 males) participated in this study to assess the content validity of the Arabic version of the OPTIMAL questionnaire. All participants held Ph.D. degrees and were university faculty members. The expert panel had a mean $\pm$ SD of 14.30 ± 3.37 years of professional experience, ranging from 11 to 20 years.

The Arabic version of the OPTIMAL demonstrated excellent content validity, the scale CVI (S-CVI) was 0.99. 21 out of 22 items (95.5%) received an I-CVI of 100%, indicating full agreement on their relevance. Item Q1 had an I-CVI of 0.9%. The S-CVI/UA (Universal agreement) is 0.95.

Construct validity:

The correlation between ABC scale and the OPTIMAL at baseline was strong negative significant correlation with difficulty domain ($r = -0.875$, $p = 0.001$), strong negative significant correlation with confidence domain ($r = -0.898$, $p = 0.001$), and was strong negative significant correlation with total score of the OPTIMAL ($r = -0.915$, $p = 0.001$).

The correlation between ABC scale and the OPTIMAL at 1 week was strong negative significant correlation with difficulty domain ($r = -0.873$, $p = 0.001$), strong negative significant correlation with confidence domain ($r = -0.898$, $p = 0.001$), and was strong negative significant correlation with total score of the OPTIMAL ($r = -0.914$, $p = 0.001$). (Table 2).

Table (2): Correlation between the OPTIMAL and the ABC scale at baseline and 1 week.

OPTIMAL	Baseline		1 Week	
	r-value	p-value	r-value	p-value
<i>ABC scale:</i>				
Difficulty	-0.873	0.001	-0.873	0.001
Confidence	-0.898	0.001	-0.898	0.001
Total score	-0.914	0.001	-0.914	0.001

r-value: Pearson correlation coefficient.

p-value: Probability value.

Reliability:

- Internal consistency of the Arabic version of the OPTIMAL:

Cronbach's alpha was used to assess the internal consistency of the OPTIMAL measure. The Arabic version of OPTIMAL showed excellent internal consistency with Cronbach's alpha of 0.950. The difficulty domain had a Cronbach's alpha of 0.908 and the confidence domain had a Cronbach's alpha of 0.909, both had excellent internal consistency. (Table 3).

Table (3): Cronbach's Alpha for Arabic version of OPTIMAL.

	Number of items	Cronbach's Alpha	95% CI
The OPTIMAL	44	0.950	0.945- 0.955
Difficulty	22	0.908	0.899- 0.917
Confidence	22	0.909	0.900-0.918

Cronbach's alpha if item deleted										
Difficulty										
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9		
0.907	0.906	0.903	0.905	0.904	0.906	0.906	0.905	0.901		
Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18		
0.905	0.906	0.902	0.903	0.903	0.902	0.904	0.903	0.901		
Q19	Q20	Q21	Q22							
0.906	0.907	0.905	0.903							
Confidence										
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9		
0.908	0.906	0.905	0.903	0.906	0.907	0.905	0.906	0.902		
Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18		
0.905	0.904	0.907	0.902	0.907	0.904	0.906	0.903	0.905		
Q19	Q20	Q21	Q22							
0.906	0.905	0.903	0.904							

CI: Confidence interval.

- Test-retest reliability of the Arabic version of THE OPTIMAL:

The Arabic version of the OPTIMAL demonstrated high test-retest reliability across all sections. The Intraclass Correlation Coefficient (ICC) for the total score was 0.999, with a 95% confidence interval (CI) of 0.999-1. The difficulty domain showed high test-retest reliability with an ICC of 0.999 and 95% CI of 0.999-0.999. The confidence domain also showed high test-retest reliability with an ICC of 0.999 and 95% CI of 0.999-0.999. (Tables 4,5).

Table (4): Test-retest reliability of the Arabic version of the OPTIMAL.

The OPTIMAL	ICC	(95% CI)		<i>p</i> -value
		Lower bound	Upper bound	
Total score	0.999	0.999	0.999	0.001
Difficulty domain	0.999	0.999	0.999	0.001
Confidence domain	0.999	0.999	0.999	0.001

ICC: Intraclass correlation coefficient value.

CI : Confidence Interval.

p-value: Probability value.**Feasibility:**

The time required to complete the questionnaire varied among participants, with the majority taking between 12 to 20 minutes (81.9%). The majority of respondents (47.8%) completed the questionnaire within 16-20 minutes, followed by 34.1%, required 12-15 minutes. A smaller proportion of participants (17.6%) required 21-25 minutes, while only 0.4% required 26-30 minutes (Table 6, Fig. 1). There were 0.04±0.20 missed items with minimum of 0 and maximum of 2 items.

Table (5): Test-retest reliability of difficulty and confidence domain items of the Arabic version of the OPTIMAL.

		Difficulty domain				Confidence domain			
		ICC	(95% CI)		<i>p</i> -value	ICC	(95% CI)		<i>p</i> -value
			Lower bound	Upper bound			Lower bound	Upper bound	
Q1	Lying Flat	0.999	0.999	0.999	0.001	0.965	0.960	0.969	0.001
Q2	Rolling Over	0.997	0.997	0.998	0.001	0.967	0.963	0.971	0.001
Q3	Moving-Lying to Sitting	0.998	0.997	0.998	0.001	0.922	0.911	0.932	0.001
Q4	Sitting	0.889	0.873	0.902	0.001	0.983	0.981	0.985	0.001
Q5	Squatting	0.998	0.998	0.998	0.001	0.992	0.991	0.993	0.001
Q6	Bending/Stooping	0.999	0.999	0.999	0.001	0.992	0.991	0.993	0.001
Q7	Balancing	0.997	0.997	0.998	0.001	0.993	0.993	0.994	0.001
Q8	Kneeling	0.998	0.998	0.998	0.001	0.983	0.981	0.985	0.001
Q9	Standing	0.997	0.997	0.998	0.001	0.922	0.911	0.932	0.001
Q10	Walking Short Distance	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q11	Walking Long Distance	0.997	0.997	0.998	0.001	0.999	0.998	0.999	0.001
Q12	Walking Outdoors	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q13	Climbing Stairs	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q14	Hopping	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q15	Jumping	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q16	Running	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q17	Pushing	0.999	0.999	0.999	0.001	0.999	0.998	0.999	0.001
Q18	Pulling	0.997	0.997	0.998	0.001	0.998	0.998	0.999	0.001
Q19	Reaching	0.999	0.999	0.999	0.001	0.998	0.998	0.998	0.001
Q20	Grasping	0.93	0.920	0.939	0.001	0.922	0.911	0.932	0.001
Q21	Lifting	0.999	0.999	0.999	0.001	0.998	0.997	0.998	0.001
Q22	Carrying	0.999	0.999	0.999	0.001	0.999	0.999	0.999	0.001

ICC: Intraclass correlation coefficient value.

CI: Confidence Interval.

p-value: Probability value.

Table (6): Frequency distribution of time needed to fill the questioner in minutes.

Time intervals (min)	Frequency	Percent
12-15 minutes	300	34.1
16-20 minutes	421	47.8
21-25 minutes	155	17.6
26-30 minutes	4	0.4

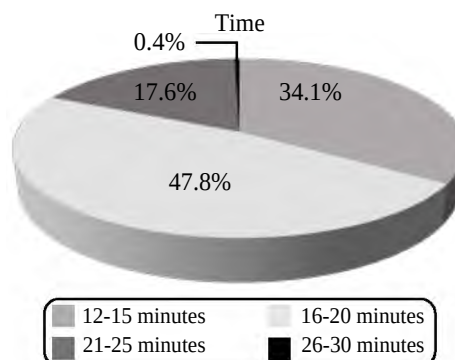


Fig. (1): Distribution of time needed to fill the questioner in minutes.

Discussion

The results of the current study demonstrate that the Arabic version of the OPTIMAL questionnaire is a valid and reliable tool for assessing functional movement among Arabic-speaking physical therapy outpatients. The findings align with previous research on translated versions of the OPTIMAL, including the Spanish and Italian adaptations [18,19].

The face validity of the Arabic-language version of the OPTIMAL questionnaire was excellent, as assessed by three expert panels. The first panel consisted of Ten experts (6 females and 4 males) who participated as expert panel 1 to assess the face validity of the Arabic version of the OPTIMAL questionnaire. All participants held Ph.D. degrees; five were university faculty members, and five were consultants. The expert panel had a mean $\pm$ SD of 15.40 ± 3.20 years of professional experience, ranging from 10 to 20 years. The first panel evaluated the clarity of the items, achieving a clarity index of 82.1%, which led to modifications in the questionnaire. These changes were implemented, and the revised pre-final form was sent to the second panel, which further refined the content. The third panel reviewed the modified pre-final version and achieved a final clarity index of 96.9%. Although face validity is not always evaluated in studies validating similar questionnaires, it was deemed that it is essential to include this step. Face validity involves experts critically assessing whether the questionnaire items appropriately reflect the construct being measured [23]. This ensures that each item aligns conceptually with the intended domains of the construct, strengthening the overall validity of the instrument.

Content validity assessment revealed strong agreement among expert panels, with 21 out of 22 items (95.5%) received an I-CVI of 100%, indicating full agreement on their relevance. Item Q1 had an I-CVI of 0.9%. The S-CVI/Ave (average) is 0.99, which is an excellent score. This reflects the overall agreement among experts across all items on the scale. The S-CVI/UA (Universal agreement) is 0.95 [24], meaning that 95% of the items had unanimous agreement among all experts, which is also considered strong. These values are comparable to prior adaptations of functional movement assessment tools, supporting the comprehensiveness and clarity of the Arabic OPTIMAL.

Construct validity was confirmed through strong negative correlations with the ABC Scale, reinforcing the questionnaire's ability to measure physical function. The high internal consistency (Cronbach's $\alpha = 0.96$) further supports its reliability,

consistent with findings from Guccione et al. [2] and Riddle et al. [25].

The sample size of 880 participants was suitable and adequate for factor analysis. The Arabic version of the OPTIMAL was found to have eight factorial structures according to the scree plot graph. The total variance analysis revealed that these eight factors accounted for 80.81% of the total variance. The results of this study differ from those of Vanti et al. [18], who reported only four factors in the Italian version. Whereas Pinto-Carral et al. [19], identified 3 factors (trunk, upper limb, and lower limb mobility), in the Spanish version of the OPTIMAL. This aligned with Guccione et al. [2] who identified 3 factors too for the original version of the OPTIMAL. This difference likely reflects cultural and linguistic variations in how movement tasks are perceived, as well as methodological differences in analysis. The authors of the current study support the interpretation of the eight-factor structure, as the number of questions in the Arabic version was sufficient to yield a robust factorial composition.

Test-retest reliability, assessed via ICC values, demonstrated excellent stability over time, with total score ICC values of 0.95, aligning with prior research [2,25]. Specifically, the ICC for the "Difficulty" subscale was 0.96, and for the "Confidence" subscale, it was 0.97 ($p < 0.0001$). These findings align with the results of previous studies on the original English version of the OPTIMAL, where ICC values ranged from 0.93 to 0.97 for different subscales [2,25].

The feasibility of the Arabic version of the Outpatient Physical Therapy Improvement Movement Assessment Log (OPTIMAL) was assessed by calculating the missed item index and the average time required to complete the questionnaire. The scale items were completed by 99.5% of participants across all sheets, with an average response time of 17.41 ± 3.69 minutes. This result is in line with previous studies assessing the feasibility of other translated versions of the OPTIMAL, such as the Spanish version, where a completion rate of 99.4% and a response time of 11.8 minutes (SD ± 1.1) were reported [19]. These findings indicate that the Arabic version of the OPTIMAL is feasible and user-friendly for participants in outpatient physiotherapy settings, providing valuable insights into its practicality for a wider range of cultural contexts.

In this study, the presence of ceiling and floor effects were assessed in the Arabic version of the Outpatient Physical Therapy Improvement Movement Assessment Log (OPTIMAL). According to Lim et al. [26], a ceiling effect is considered present

if more than 15% of patients achieve the highest possible score, and a floor effect is considered present if more than 15% of patients score the lowest possible value. This study's results indicated a floor effect of 7% and a ceiling effect of 8%, meaning that fewer than 15% of participants scored at the extreme ends of the scale. These findings suggest that the Arabic version of the OPTIMAL demonstrated good discriminative ability and no significant floor or ceiling effects, ensuring that the scale was able to accurately capture variations in participant performance in outpatient physiotherapy settings.

Limitations:

- The study lacked longitudinal construct validity, and future research should evaluate the questionnaire's responsiveness over time.
- The questionnaire was completed in a clinical setting, which might influence how participants respond (e.g., feeling rushed or trying to "please" the therapist).
- Psychological and social variables (e.g., motivation, depression, fear of movement) that could influence self-reported movement limitations were not examined.
- Although expert panels were involved, patients themselves may not have been consulted during cultural adaptation missing direct insight from end users.

Conclusion:

The Arabic OPTIMAL is a valid, reliable, and feasible tool for assessing functional movement in Arabic-speaking physiotherapy patients. Rigorous translation and cultural adaptation ensured equivalence to the original version, while psychometric testing confirmed excellent internal consistency ($\alpha = 0.95$), test-retest reliability (ICC = 0.999), and strong validity (correlation with ABC Scale: $r^* = -0.914$). Its eight-factor structure (80.81% variance) reflects cultural uniqueness. Clinically practical (completion time: ~17 minutes) and free of floor/ceiling effects, it addresses a critical need in Arabic rehabilitation. This study fills a critical gap by providing a culturally adapted, psychometrically sound tool to evaluate movement improvement in Arabic-speaking rehabilitation contexts, aligning with global efforts to standardize patient-centered outcome measures.

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اختبار التكيف الثقافي والصلاحية والموثوقية للنسخة العربية لسجل تقييم الحركة في تحسين العلاج الطبيعي لمرضى العيادة الخارجية

الخلفية: استبيان تحسين الحركة للعلاج الطبيعي الخارجي (OPTIMAL) هو أداة تقييم صُممت لقياس مستويات الصعوبة والثقة لدى المرضى أثناء أداء الحركات الأساسية في الأنشطة اليومية. يتوفر الاستبيان بعدة لغات، ولكن لم تكن هناك نسخة عربية قبل هذه الدراسة.

الغرض: ترجمة وتكييف النسخة العربية من استبيان (OPTIMAL) واختبار صلاحيتها ومصداقيتها للاستخدام مع المرضى الناطقين باللغة العربية الذين يعانون من مشاكل عضلية هيكلية.

الطريقة: شارك في هذه الدراسة ثلاث لجان من الخبراء و٨٨٠ مريضاً من عيادات العلاج الطبيعي الخارجية. تم استخدام طرق متعددة لاختبار الموثوقية، بما في ذلك الاتساق الداخلي (Cronbach's Alpha) والاختبار-إعادة الاختبار (ICC) كما تم تقييم صلاحية الوجه، المحتوى، التقارب، والتباين باستخدام مجموعة من الاختبارات الإحصائية.

النتائج: أظهرت النسخة العربية من استبيان (OPTIMAL) ثمانية عوامل هيكلية تُفسر ٨١, ٨٠٪ من التباين الإجمالي. أظهر تحليل الاتساق الداخلي قيمة $\alpha = 0.96$ ، مما يشير إلى درجة عالية من الموثوقية. كما أظهرت الاختبارات المكررة (ICC) قيماً تتجاوز ٠, ٩٥ لجميع المكونات. أظهرت الصلاحية المتقاربة والتباعدية ارتباطات قوية بين الاستبيان العربي ومقياس التوازن المحدد للأنشطة (ABC)، مما يعزز من صلاحية البناء.

الخلاصة: النسخة العربية من استبيان (OPTIMAL) هي أداة موثوقة وصالحة لتقييم الصعوبة والثقة أثناء أداء الأنشطة اليومية. أظهرت الدراسة أن الأداة يمكن استخدامها بشكل فعال في بيئات العلاج الطبيعي للناطقين باللغة العربية.