



Validity and Reliability of Arabic-language Version of MedRisk Questionnaire in Assessing Patient Satisfaction with Physiotherapy Services for Low Back Pain

Ahmed S. Ali; PhD^{1*}, Nahed A. Salem; PhD¹, Amr Hassan; MD², Badr M. Abd Alrazek Khalel; MSc¹, Nabil Mahmoud Abdel-Aal; PhD³, Ahmed M ElMelhat; PhD^{4,5}, Sara M. Ahmed; PhD⁶, Ibrahim Mohamed Hamoda; PhD⁷

79

Abstract

Background: One measure of care quality is a patient's level of satisfaction with their treatment. Maintaining a focus on patient satisfaction as a way to evaluate the effectiveness of physiotherapy is important. Providers of healthcare and researchers in the field of health services continue to place an emphasis on learning more about how to improve the quality of care they offer for their patients. Patients' expectations of receiving good value for their time, money, and effort while receiving medical care are equally essential. **Aim:** The purpose of this study is to evaluate the Arabic translation of the MedRisk questionnaire with regard to its face & content validity, factor analysis, feasibility, internal consistency reproducibility, as well as test-retest reliability. **Subjects:** 300 individuals, from both genders, aged from 18 to 60, all having LBP (mechanical or discogenic) were enrolled. **Methods:** In a cross-sectional study, investigators used an Arabic translation of the MedRisk Questionnaire to evaluate patient satisfaction. **Results:** The first expert panel found a value of 74.17% for face validity, whereas the second found a value of 97.50%. Experts agreed that the content validity was very high (97.5%). It was determined that 61.1% of the total variance in the questionnaire can be accounted for by a single factorial structure. Cronbach's was used to evaluate the internal consistency. Since then, the Cronbach has reduced from 0.939 to 0.937. The Arabic translation of the MedRisk questionnaire took an average of 5.33 minutes (SD 1.04) to complete and has excellent test-retest reliability. There were no substantial changes in either the floor or the ceiling. **Conclusion:** The Arabic translation of the MRPS is simplified, easy to apply, fast, as well as comprehensive scale. Consequently, it might be an appropriate scale for clinical evaluation of Arabic-speaking patients suffering from low back pain.

Key Words: Validity, Reliability, Arabic version of MedRisk questionnaire, Patient satisfaction, Physical therapy services, Low back pain.

DOI Number: 10.14704/NQ.2022.20.15.NQ88006

NeuroQuantology 2022; 20(15): 79-89

Corresponding author: Ahmed S. Ali

Email: dr.Shawky_2011@cu.edu.eg

Affiliations:

^{1*}Lecturer, Physical Therapy Department for Neurology, Faculty of Physical Therapy, Cairo University, Egypt; ² Neurology department, Faculty of Medicine, Cairo University, Egypt; ³ Department of Physical Therapy for Basic Sciences, Faculty of Physical Therapy, Cairo University, Giza, Egypt; ⁴ Department of Physical Therapy for Musculoskeletal Disorders and their Surgeries, Faculty of Physical Therapy, Cairo University, Cairo, Egypt; ⁵ Department of Physical Therapy, Faculty of Health Sciences, Beirut Arab University, Lebanon; ⁶ Department of Physical Therapy for Women Health, Faculty of Physical Therapy, Cairo University, Egypt; ⁷ Physical Therapy department for Neurology and its Surgery, Faculty of Physical Therapy, Kafrelsheikh University, Egypt.

Relevant conflicts of interest/financial disclosures:

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



Introduction

low back pain (LBP) is a major public health issue all over the world. It's a leading source of job-related disorders in the nursing profession and other healthcare fields [1]. If your LBP has lasted for longer than 12 weeks, you have chronic pain. Only a small percentage of patients have constant pain after an acute event, as is often accepted [2]. There is a lifetime prevalence of 60-85%. The majority of cases (90%), which affect people of all ages, are nonspecific [3].

Occupational ergonomic influences, such as heavy physical activity, repetitive activities as a result of occupational demands [4]; sports activities or sports-concerned injuries [5]; a sedentary lifestyle, extensive sitting or immobilization, and absence of exercises [6]; after an operation or surgery [7]; bad trunk control as well as postural problems [8]; and psychological and behavior-concerned factors, such as smoking, alcohol addiction, obesity, depression, stress [9] socio-economic problems [10]; as well as aging [11] all contribute to LBP.

Treatment of subacute and chronic LBP is recommended to include physiotherapeutic modalities within multimodal therapy plans. As a result, we will be conducting tests of muscular strength, flexibility, coordination, and endurance in an effort to evaluate and perhaps improve the patient's physical health and ability to engage in physical activity again [12].

Patient satisfaction concerning health care may be described as "an experience of a person obtaining examination and treatment in a certain location within a specified time period." [13]. Several patient satisfaction surveys [14] have been developed for use with patients diagnosed with cancer; [15] similar instruments have been developed for use in the area of nursing.

When patients are satisfied with their treatment results and their interactions with their therapists, they are more likely to return for continued therapy and to follow their therapist's recommendations [16]. Factors such as age, sex, education, employment position, race, the frequency of treatments received in the past, and the length of time a patient has been ill all have an impact on their level of satisfaction [17].

To better understand the factors that contribute to the overall satisfaction of patients undergoing physical therapy for musculoskeletal diseases in either the public or private areas, a new

instrument called MRPS (MedRisk instrument for assessing Patient Satisfaction) was created. In order to facilitate comparative analyses, this instrument has been translated as well as transculturally modified into Brazilian Portuguese and utilized in several nations including the USA and Australia [18]. To ensure its reliability and validity, the number of elements in the English version was narrowed down to 12 to reflect two factors: internal and external [19].

The results of a patient satisfaction questionnaire may be used to create a map showing the degree to which individuals were satisfied with the care they received. This step may enhance the quality of treatment patients get by facilitating the development of novel administration and marketing [20].

80

Purpose of the study:

The purpose of this study was to evaluate the Arabic translation of the MedRisk questionnaire with regard to its face & content validity, factor analysis, feasibility, internal consistency reproducibility, as well as test-retest reliability

Methods:

The study population involved all the adult patients getting physiotherapy at the out clinics for their LBP in selected hospitals in Dakahlia Governorate.

Design of the study: Quantitative research method (cross-sectional study).

I. Participant: 300 patients from both sexes were recruited from 18 public hospitals at Dakahlia Governorate. Their age ranged from 18-60 years. Participants with (mechanical or discogenic) low back pain at any stage. Exclusion Criteria: Patients with a history of bone disease, renal, liver, or endocrinal disorders and a history of serious pathologies like tumors, and tuberculosis were excluded.

All patients were given a full explanation of the protocol of the study and every patient signed a consent form prior to enrollment in the study.

II. Instruments:

1- Informed consent form.

It's a protocol followed when exposing private information or performing a medical procedure on a patient. Before administering treatment, a doctor or therapist may seek a patient's permission to go on with the plan of care, and a researcher conducting a clinical trial will need informed



consent from a participant before including them in the study. Medical and research ethical principles inform the process of obtaining informed permission.

2- MedRisk Questionnaire

After extensive research and development [21], the MedRisk instrument for evaluating patient satisfaction regarding physical therapy services (MRPS) was developed with high levels of validity and reliability (Cronbach alpha=0.83).

III. Procedures of the study:

1- Informed consent form.

All sections of the Consent Form must be thoroughly, slowly, and clearly presented to participants throughout the informed consent process. Furthermore, we routinely test the prospective subject's knowledge by asking suitable questions. Additionally, information on the patient's clinical features (such as therapy type and duration, pain, as well as recovery) and demographics (such as age, gender, education level, and employment) were gathered.

2- Translation of MedRisk questionnaire into Arabic.

3-Patient satisfaction after receiving physiotherapy services may be measured using MedRisk, an English-language instrument developed in the United States [18]. Using funding from the World Confederation of Physical therapy, a group of researchers from across the world has completed a series of experiments to create translated versions of the MRPS questionnaire (in German, Mandarin Chinese, Arabic, Norwegian, Korean, Indonesian, as well as Brazilian Portuguese) [21]. Educators in Arabic as well as bilingual staff of the physiotherapy department at King Abdul-Aziz University translated the patient satisfaction questionnaires [22]. The Arabic version of the MedRisk questionnaire was translated and culturally adapted in accordance with the most up-to-date and thorough recommendations of **Borsa et al.** [23] and **Sousa and Rojjanasrirat** [24].

4- Investigate the validity and reliability of the Arabic version of the MedRisk questionnaire.

The tool was short, succinct, and easy to apply, and it offered measurable outcomes supported by evidence of reproducibility and validity [25]. It is important to translate and culturally adjust questionnaires for the specific context in which

they will be utilized. Also, the tool's validity, reproducibility, and capacity to replicate the results of the original version of the questionnaire should be determined by a review of the questionnaire's psychometric qualities [26]. Many processes must be gone through before an Arabic version of the MRPS questionnaire can be created, including translation, cultural adaptation, validation, and reliability testing.

Step 1: Forward translation

The MedRisk Health Questionnaire has been translated into Arabic. Two native Arabic speakers independently translated the English scale into two different forms (A1 and A2). One translator was familiar with the cultural as well as linguistic nuances of the Arabic language, while the other was well enough in health terms and the topic area of the tool's construction.

Step 2: Synthesis of Versions A1 and A2 into A1, 2

Researchers as well as the Basic Science Research Committee for Physiotherapy examined and integrated versions A1 and A2. In order to clear up any confusion, certain members of the physiotherapy faculty were consulted. In this phase, the first Arabic translation was created (A1, 2).

Step 3: Blind back translation

2 back-translated English versions of the Arabic version (A1, 2) of the scale were created (B1 and B2). At least two translators worked on the back translation separately without access to the English MedRisk Questionnaire. One translation specialized in health terminology and the subject area of the tool's construction in English, while the other specialized in the cultural and linguistic nuances of the language.

Step 4: Expert committee

Researchers, medical experts, translators, as well as a language expert made up the group. Instructions, items, answer formats, words, sentence structures, meaning, and significance were all compared between the original English scale and the back-translated versions of the scale (B1 and B2) by the committee. A1 and A2 were forward translations, A1, 2 were back translations, and B1 and B2 were a written report comparing the two. The initial first translated Arabic version was believed to be the prefinal Arabic version of the scale dependent on those translations.

Step 5: Face and content validity

The face as well as content validity of the



preliminary Arabic version of the scale was evaluated by three expert panels. As a first step, a group of 10 specialists was tasked with assessing the clarity of the tool's items (face validity) and offering ideas for making the tool clearer for its target demographic by using either yes/no questions or more nuanced statements. Minor adjustments were made following the recommendations of the first expert panel, bringing the clarity index up to the minimum permissible value of 80%; [23] so that it could be administered to patients. The revised, preliminary Arabic version of the scale was then reviewed for clarity by a second group of experts. The revised prefinal Arabic version of the scale was then given to a separate panel of 10 experts, who were tasked with assessing the items' content equivalency (content-related validity) utilizing the following grading scale. The options are: 1 (not relevant); 2 (unable to judge relevance); 3 (relevant but requires minimal change); and 4 (extremely relevant, short, and offers recommendations to enhance relevance) (1 and 2 seemed not relevant, 3 and 4 seemed relevant). Following successful completion of face and content validity testing by experts, the revised prefinal version was defined as the final version.

Step 6: Full psychometric testing

Three hundred patients with low back pain took part in this research to help establish the first comprehensive psychometric features of the newly translated, modified, and cross-validated Arabic version of the MedRisk Questionnaire. Patients completed the MedRisk Questionnaire in Arabic [27].

Data analysis

1-The SPSS 22.0 program for Windows was used for the statistical analysis (Chicago, IL, USA).

2-Categories are given in terms of frequency and percentage, whereas continuous variables are displayed in terms of mean and standard deviation.

3-The MedRisk questionnaire's suitability of the proposed was determined by calculating the frequency of lost answers and the total amount of time it took to administer the questionnaire.

4-Both the face, as well as content validity, were evaluated to get a descriptive score. Item- and scale-level content validity indices (I-CVI and S-CVI, respectively) and average and extreme

indices (S-CVI and S-CVI, respectively) were used to assess content validity.

5- External construct validity as well as factor analysis were used to evaluate construct validity.

6-Kaiser, Mead, Olkin, and Bartlett's tests were utilized prior to factor analysis to ensure sufficient data for a valid conclusion.

7-The reproducibility of the MedRisk questionnaire was examined by means of test-retest plus internal consistency analysis.

8- The level of internal consistency reveals how well the individual items in the overall score are reflecting the same underlying concept. Cronbach's alpha was used to determine the internal consistency, and a score of 0.80 or above was regarded as very good [28].

9-The MedRisk questionnaire's reproducibility was assessed between tests utilizing a two-way mixed Intra-class Correlation Coefficient (ICC) using 95% confidence intervals (95% CI). Correlation values of 0.8 or above were regarded to be statistically significant [29].

82

Results

Subjects' characteristics

300 patients with low back pain, their ages ranged from 18 to 60 years (40.5±8.8 years) with 168 males (56%) and 132 females (44%) subjects.

1. Validity of Arabic-language version of MedRisk questionnaire.

• Face Validity

Two expert panels participated to test the face validity of the Arabic-language version of the MedRisk questionnaire. The first expert panel consisted of ten experts with mean experience (15.6±4.5) years, one of them was a master's degree and nine of them were PhD holders. The second expert panel consisted of ten experts with mean experience (17.3± 3.6) years, two of them were master's degrees and eight of them were PhD holders. According to 1st expert panel opinion, the clarity index for all twelve items was 74.17%, where the clarity index was 60% for 2 items, 70% for 4 items, 80% for 5 items, and 90% for 1 item. The MedRisk questionnaire was translated into Arabic and revised based on feedback from the first expert panel (2nd panel). The overall clarity index for all 12 items was 97.5, as determined by a second expert panel. where the clarity index was 90% for 3 items and 100% (clear) for 9 items as shown in **table 1**.



Table (1): Item clarity index of the final version by the 1st and 2nd expert panels.

Items	1 st expert panel		2 nd expert panel	
	# of experts agree	Clarity index	# of experts agree	Clarity index
Item 1	7	70%	10	100%
Item 2	8	80%	9	90%
Item 3	7	70%	10	100%
Item 4	8	80%	10	100%
Item 5	7	70%	10	100%
Item 6	6	60%	9	90%
Item 7	8	80%	10	100%
Item 8	7	70%	10	100%
Item 9	9	90%	10	100%
Item 10	8	80%	10	100%
Item 11	6	60%	9	90%
Item 12	8	80%	10	100%
Mean		74.17%		97.5%

▪ **Content Validity.**

The third expert panel measured the content validity of the Arabic-language version of MedRisk questionnaire. The third expert panel consisted of ten experts with mean experience (16.6±5.2) years, one of them was a master’s degree and nine of them were Ph.D. holders. All items had a 100% for I-ICV (Content Validity index) score, except for items 1 and 3, which scored 90% each. As a whole, the scale’s CVI averaged 98.33%, the S-CVI/UA was 83.3%, and also the mean expert percentage was 98.4%. According to **table 2**, expert opinions indicate that the Arabic version of the MedRisk questionnaire has excellent content validity (97.5%).

Table (2): Content validity of the final version by the 3rd expert panels.

Items	No of experts agree	I-CVI
Item 1	9	90%
Item 2	10	100%
Item 3	9	90%
Item 4	10	100%
Item 5	10	100%
Item 6	10	100%
Item 7	10	100%
Item 8	10	100%
Item 9	10	100%
Item 10	10	100%
Item 11	10	100%
Item 12	10	100%
Mean	Mean experts’ proportions=98.4%	S-CVI/AV= 98.33%

▪ **Construct Validity**

Factor analysis was used to determine the Arabic MedRisk questionnaire’s construct validity. Kaiser Meyer Olkin test= 0.937, X² (66) = 22703.203, and P 0.0001 as indicated in table 3 indicates that the sample size is appropriate for factor analysis. Scree Plot graph as shown in (**Fig. 1**) as well as the total variance analysis as shown in (**table 4**) both indicated that the Arabic language version of the MedRisk questionnaire had a single factorial structure.

Table (3): Kaiser Meyer Olkin and Bartlett Measure of Sampling Adequacy.

Kaiser Meyer Olkin Test	Bartlett’s Test		
	Chi-square	df	P
0.937	22703.203	66	< 0.0001

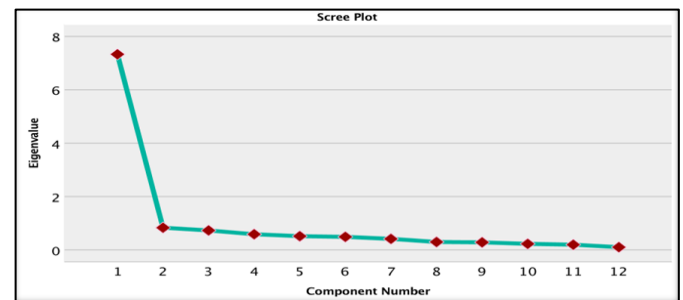


Figure (1): Screen plot graph of the Arabic version of the MedRisk questionnaire.

Table (4): Total Variance Analysis of the Arabic version of the MedRisk questionnaire.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.332	61.103	61.103	7.332	61.103	61.103
2	0.832	6.933	68.036			
3	0.730	6.081	74.117			
4	0.587	4.892	79.009			
5	0.514	4.287	83.296			
6	0.489	4.077	87.373			
7	0.413	3.441	90.814			
8	0.297	2.472	93.286			
9	0.283	2.358	95.644			
10	0.227	1.888	97.532			
11	0.194	1.620	99.153			
12	0.102	0.847	100.00			



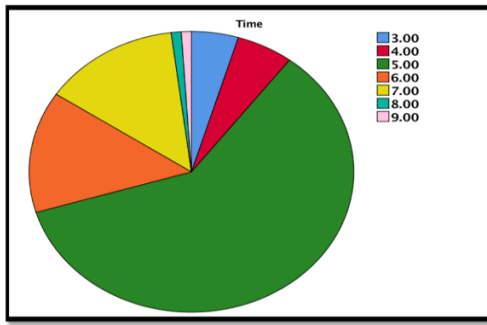


Figure (2): Distribution of time in minutes to fill out the Arabic version of MedRisk Questionnaire.

4. Floor and ceiling effect of Arabic-language version of MedRisk questionnaire.

No substantial floor or ceiling influences were seen in the response distributions, indicating that all answer categories were utilized for all items. As a result, it was reassuring to see that the great majority of items in the BQ had floor influences of 18% and ceiling influences of 37%, as shown by a total of 40% of respondents picking "1" or "5" to suggest that an item did not display substantial "floor" or "ceiling" effects, sequentially. Detailed analyses of the distributions of scale scores across time (table 8) reveal that the scores may be used to access a wide variety of impacts.

Table (8): Item completeness and response distribution for each MedRisk item.

Item	n	% Missing	Response category (%)				
			1	2	3	4	5
1	300	0	1.3	13.7	15.3	39.7	30
2	300	0	6	18	22.7	23	30.3
3	300	0	17.3	22.7	41.3	14.3	4.3
4	300	0	4.3	18.3	32	24.7	20.7
5	300	0	7.7	13.3	42.7	26	10.3
6	300	0	7.3	20.8	33.7	24.7	13.5
7	300	0	3	12.3	30	27.7	27
8	300	0	5.3	10.7	40.3	26.7	17
9	300	0	1	7	21.3	43.7	27
10	300	0	2	5.3	19.3	37.3	36
11	300	0	6	13	31.3	36.7	13
12	300	0	6.3	12.3	25.7	39.7	16.3

Summary of the results:

Two separate panels of experts evaluated the face validity, with the first finding a clarity index of 74.17% and the second finding a score of 97.50%. Experts agreed that the Arabic translation of the MedRisk questionnaire had a high content validity (97.5%). According to both the Scree Plot graph and the total variance analysis, the Arabic-translated version of the

MedRisk questionnaire had a single factorial structure, with the single factor accounting for 61.1% of the total variation. Cronbach's alpha was used to assess the questionnaire's reliability within itself, and it was found that all 12 scale items/questions contributed to the total result. High test-retest reliability is seen in the Arabic translation of the MedRisk questionnaire. The average time it took to complete the Arabic version of the MedRisk questionnaire was 5.33 minutes (SD= 1.04). No substantial floor or ceiling effects were seen in the response distributions, indicating that all answer categories were utilized for all items.

Discussion

The study was a cross-sectional study performed to evaluate the Arabic translation of the MedRisk questionnaire with regard to its face & content validity, factor analysis, feasibility, internal consistency reproducibility, as well as test-retest reliability.

The present study aimed to translate the MedRisk questionnaire into Arabic, adapted it to the target culture, verified it, and conducted reliability testing. Although it was a time-consuming multi-step procedure, the Arabic version of the MedRisk questionnaire for LBP was produced in accordance with the most up-to-date, thorough, and published recommendations [24; 23]. It's possible that the MedRisk questionnaire may be regarded as a valid and reliable instrument among Arabic speakers. Investigators in this study looked at how satisfied Egyptians were with their physiotherapy services. patient satisfaction was excellent for the majority of the items. Previous investigations in English and Spanish speakers using the MRPS support these satisfaction factors [25].

In this study, face validity was tested by two expert panels, each containing 10 experts. According to 1st expert panel opinion, the clarity index for all twelve items was 74.17%, where the clarity index was 60% for 2 items, 70% for 4 items, 80% for 5 items, and 90% for 1 item. The MedRisk questionnaire was translated into Arabic and revised based on feedback from the first expert panel (2nd panel). Based on the feedback of the second panel of experts, the overall level of clarity was 97.5 percent, with three topics receiving a 90% rating and nine receiving a 100% rating (clear). These findings are consistent with what has been reported for the original English MRPS, therefore they provide more evidence of its face validity as



well as acceptability [25; 31]; Brazilian Portuguese [32]; and Turkish [33].

Testing for content validity looks at how well the questionnaire's items reflect the targeted concepts [31]. In contrast to prior research, the current study sought to evaluate the content validity of the Arabic translation of the MedRisk questionnaire [32; 25; 33]. This was done for the English edition at its creation, but modern translation practices require that material should be assessed before being transferred to a new language. All items (except from 1 and 3) had a 100% I-ICV (Content Validity index) score, whereas items 1-3 had a 90% score. In addition, the average scale CVI (S-CVI/Ave) was 98.33% across all items, the universal agreement index for the scale was 83.33%, and the percentage of experts was an average of 98.4%. The Arabic translation of the MedRisk questionnaire scored very well in terms of content validity among experts (97.5%).

Kaiser-Meyer-Olkin and the Bartlett tests indicated that the sample size was appropriate for factor analysis. According to both the Scree Plot graph and the overall variance analysis, the Arabic-translated version of the MedRisk questionnaire has a single factorial structure, with the single factor accounting for 61.1% of the total variation. Because there aren't enough questions to generate a sufficient number of factors, the authors of the present study supported the opinion that the MedRisk questionnaire seems to have a single factorial structure. Based on these findings, it seems that the cultural features of each nation have a significant impact on the factorial design of this instrument [35]. For the Spanish version of the MedRisk questionnaire, which consists of two components, the present study's findings did not match up with those of **Beattie et al.** [25].

It is suggested that additional validated, acknowledged, gold-standard, and, if feasible, context-specific questionnaires be used to evaluate the external concept validity. However, among the existing questionnaires for assessing LBP, there is currently no "gold standard" [26]. The Roland-Morris Questionnaire and the Oswestry Disability Index have been used to validate the MRPS in the majority of the localized versions. On the other hand, the Arabic Roland-Morris questionnaire's construct validity was only evaluated in regarding to one dimension (pain intensity) and reported to have a poor

correlation with that dimension; moreover, the questionnaire's physiological pain, as well as physical functioning subscales, were not evaluated [37].

The Oswestry Disability Index is frequently utilized by extremely acute patients, has just three variables (pain, physical function, as well as a social activity), and asks people on their current state rather than their average [38]. The MRPS, on the other hand, only has 12 questions and focuses on collecting demographic data like age, gender, and the physical location of any current symptoms. In this case, the external factors are represented by items 1-3, whereas the internal factors are items 4-10. Satisfaction on a global scale is measured by items 11 and 12 [31]. The MedRisk questionnaire, which has been translated and validated into several languages [25; 32; 31; 33; 39], was thus chosen for use with LBP patients.

This research found that the questionnaire had great internal consistency, with a Cronbach alpha of 0.939 for the initial measurement and 0.937 for the second. Cronbach's alpha values declined across the board when items were removed, demonstrating that everyone's questionnaire's twelve questions made a significant contribution to the final tally. Cronbach alpha values of the MRPS have ranged from 0.86 to 0.64 to 0.63 to 0.53 by **Lee et al.**, 0.49 to 0.81 by **Yeşilyaprak et al.**, 0.83 by **Beattie et al.**, 0.63 to 0.77 by Oliveira et al., and 0.90 to 0.82 by **Beattie et al.** [25; 32; 31; 33; 39]. Thus, compared to the other language variants, the Arabic MRPS's Cronbach alpha values were discovered to be relatively high. This study's findings confirm that the Arabic MRPS is very consistent with itself.

Patients were requested to complete the questionnaire again 7 days later to counteract the impact of the short time intervals seen in other research [25], and the findings showed that the Arabic version of the MedRisk questionnaire was reliable. Re-test findings from the present research were consistent with those from **Yeşilyaprak et al.**, who said that the time period was selected since the typical duration of stay was restricted to 7-10 days (usually 3-7 days including physiotherapy) in the hospital units that were employed. Prior research found no statistically substantial difference in test-retest results done at a time interval of 2 days versus 2 weeks [40], thus a retest was conducted 72 hours from the first dose prior to their discharge to prevent recollection effects.



The 95% confidence intervals (CI) for the ICC values ranged from 0.990 to 0.994 ($p < 0.0001$). The Arabic translation of the MedRisk questionnaire has excellent test-retest reliability, as shown by an ICC value of 0.992 ($p < 0.0001$). The test-retest ICC findings for the overall score on the questionnaire calculated by **Oliveira et al.** varied from 0.64 to 0.79 [32]. Excellent consistency was observed between the two total scores, with an ICC of 0.97 (95% CI: 0.94-0.98) [33] as reported by **Yeşilyaprak et al.** According to **De Vet et al.** [41], the ICC is understood as follows: less than 0.40 (poor reliability); 0.40 to 0.75 (moderate reliability); 0.75 to 0.90 (considerable dependability); better than 0.90 (good reliability). The ICC values of the present study's test-retest were comparable to those of the prior investigations. It may be concluded that the Arabic version of the MRPS is constant over time based on the ICC values of individual questions and the overall score of the questionnaire.

Ideally, a questionnaire used in clinical practice would be short enough that it wouldn't be too burdensome to complete, while still being inexpensive to administer and handle [42]. The missing item index and average response time were used to determine the practicability of the Arabic MRPS. No missing data was recorded for any scale item, and all sheets included complete responses for all other questions. The average time it took to complete the Arabic version of the MedRisk questionnaire was 5.33 minutes (SD=1.04). The average number of minutes spent on each question and the percentage of total time spent on each question.

There was no evidence of a floor or ceiling impact in the response distributions for any of the questions in the present investigation. No research has determined the ceiling or floor effects of the MRPS [43]. This measuring feature was initially tested in the Brazilian-Portuguese MRPS research [32], where a striking ceiling effect was seen. The instrument may not be able to differentiate between satisfied and dissatisfied patients if they experience a ceiling effect. Patients suffering from diabetes [45], as well as those who have undergone knee [46] and hip [47] reconstructive surgery, have been reported to have ceiling effects on satisfaction measures [44].

Floor and ceiling effects were estimated by calculating the proportion of patients whose

scores lay at the very low and very high ends of the scale, respectively, as reported by **Oliveira et al.** [32]. Ceiling and floor effects were assumed to be present if there were more than 15% of patients with the lowest or highest potential total score. Distributional features of scale scores were analyzed across all time points, revealing that the scores may be used to access a broad variety of impacts. Although **Oliveira et al.** claimed that we did not find any floor effects, we did find that 58.1% of patients (176 of 303) had scores of 60 or more and that 7% of volunteers (49 of 65) had scores of 65 or more, indicating a significant ceiling impact. However, **Yeşilyaprak et al.** [33] found no evidence of either a floor or ceiling effect. Only 17.8 percent of patients ($n = 8.33$) achieved the highest possible score of 60 points, while no patients achieved the lowest possible score of 0. The Turkish translation of the MRPS is sensitive to changes at either extreme of the satisfaction range and may distinguish between patients who are very and extremely satisfied.

Conclusions

There is sufficient evidence to support the validity and reliability of the Arabic MedRisk questionnaire. The results of the Kaiser-Meyer-Olkin and Bartlett tests indicated that the sample size was appropriate for factor analysis. Most patients reported high levels of satisfaction with the physical therapy treatment they received for LBP, and the MedRisk questionnaire showed high levels of test-retest as well as internal consistency reliability. Most people reported that they will return to the same medical centers in the future.

This result provides some support for the construct validity as well as the cross-language validity of our instrument. These results are encouraging since they indicate that the English and Arabic versions of the MRPS evaluate the same underlying components despite language and probable cultural differences across participants. The findings of the study confirmed up the hypothesis that LBP patients were satisfied with the care they got from their physiotherapists.

REFERENCES

1. **Homaïd MB, Abdelmoety D, Alshareef W, Alghamdi A, Alhozali F, Alfahmi N, et al. (2016):** Prevalence and risk factors of low back pain among operation room staff at a Tertiary Care Center, Makkah, Saudi Arabia: a cross-sectional study. *Annals of occupational and environmental medicine.* Dec 1;28(1):1.
2. **Itz, C. J., Geurts, J. W., Van Kleef, M., & Nelemans, P. (2013):** Clinical course of non-specific low back pain: A systematic review of prospective cohort studies set in primary care. *European journal of pain,* 17(1), 5-15.



3. **Krismer M, and van Tulder M (2007):** Strategies for prevention and management of musculoskeletal conditions. *Low back pain (non-specific)*. *Best Pract Res Clin Rheumatol*, 21:77-91.
4. **Heuch, I.; Heuch, I.; Hagen, K.; Zwart, J.A. (2017):** Physical activity level at work and risk of chronic low back pain: A follow-up in the Nord-Trøndelag Health Study. *PLoS One* 12(4), e0175086.
5. **Trompeter, K.; Fett, D.; Platen, P. (2017):** Prevalence of back pain in sports: A systematic review of the literature. *Sports Med*. 47, 1183-1207.
6. **Teichtahl, A. J., Urquhart, D. M., Wang, Y., Wluka, A. E., O'Sullivan, R., Jones, G., & Cicuttini, F. M. (2015):** Physical inactivity is associated with narrower lumbar intervertebral discs, high fat content of paraspinal muscles and low back pain and disability. *Arthritis research & therapy*, 17(1), 1-7.
7. **Manchikanti, L., Manchikanti, K. N., Gharibo, C. G., & Kaye, A. D. (2016):** Efficacy of percutaneous adhesiolysis in the treatment of lumbar post-surgery syndrome. *Anesthesiology and pain medicine*, 6(2).
8. **Maulik, S.; Iqbal, R.; De, A.; Chandra, AM. (2014):** Evaluation of the working posture and prevalence of musculoskeletal symptoms among medical laboratory technicians. *J. Back Musculoskeletal Rehab*. 27, 453-461.
9. **Burgel, BJ, and Elshatarat, RA. (2017):** Psychosocial work factors and low back pain in taxi drivers. *Am. J. Ind. Med.*, 60, 734-746.
10. **Farioli, A.; Mattioli, S.; Quagliari, A.; Curti, S.; Violante, F.S.; Coggon, D. (2014):** Musculoskeletal pain in Europe: Role of personal, occupational and social risk factors. *Scand. J. Work Environ. Health* 40, 36-46.
11. **Wong, A.Y.; Karppinen, J.; Samartzis, D. (2017):** Low back pain in older adults: Risk factors, management options and future directions. *Scoliosis Spinal Disord*. 12, 14.
12. **Arnold B, Brinkschmidt T, Casser HR et al., (2014):** Multimodal pain therapy for treatment of chronic pain syndrome. Consensus paper of the ad hoc commission on multimodal interdisciplinary pain management of the German Pain Society on treatment contents. *Schmerz* 28:459-472.
13. **Beattie PF, Dowda M, Turner C, Michener L, Nelson R. (2005):** Longitudinal continuity of care is associated with high patient satisfaction with physical therapy. *Phys Ther*; 85 (10):1046-1052.
14. **Nguyen TV, Bosset JF, Monnier A, et al., (2011):** Determinants of patient satisfaction in ambulatory oncology: a cross sectional study based on the OUT-PATSAT35 questionnaire. *BMC Cancer*. 11:526.
15. **Wagner D, and Bear M. (2009):** Patient satisfaction with nursing care: a concept analysis within a nursing framework. *J Adv Nurs*. 65:692-701.
16. **Sen S, Fawson P, Cherrington G, Douglas K, Friedman N, Maljanian R, et al., (2005):** Patient satisfaction measurement in the disease management industry. *Dis Manag*; 8(5):288-300.
17. **DeVoe JE, Wallace LS, Fryer Jr GE. (2009):** Measuring patients' perceptions of communication with healthcare providers: Do differences in demographic and socioeconomic characteristics matter? *Health Expect*; 12(1):70-80.
18. **Beattie PF, Pinto MB, Nelson MK, and Nelson R. (2002):** Patient satisfaction with outpatient physical therapy: Instrument validation. *Phys Ther*, 82(6):557-565.
19. **Beattie PF, Turner C, Dowda M, Michener L, and Nelson R. (2005):** The MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy Care: a psychometric analysis. *J Orthop Sports Phys Ther*; 35 (1):24-32.
20. **Beattie PF, Nelson R, Murphy DR. (2011):** Development and preliminary validation of the MedRisk Instrument to Measure Patient Satisfaction with Chiropractic Care. *J Manipulative Physiol Ther*; 34:23-29.
21. **Guimarães, É.A., Faria, M.N., Lima, K.R., Makhoul, K.D.L., Sousa, L. R., Simamoto Junior, P.C., & Fernandes Neto, A.J. (2018):** Patient Satisfaction Measurement by MedRisk Instrument. *Manual Therapy, Posturology & Rehabilitation Journal*, 15, 0-0.
22. **Devreux, I. C., Jacquerye, A., Kittel, F., Elsayed, E., and Al-Awa, B. (2012):** Benchmarking of patient satisfaction with physical rehabilitation services in various hospitals of Jeddah. *Life science journal*, 9(3), 73-8.
23. **Borsa, J.C., Damasio, B.F., & Bandeira, D.R. (2012):** Cross-cultural adaptation and validation of psychological instruments: Some considerations. *Paidéia (Ribeirão Preto)*, 22(53), 423-432.
24. **Sousa, V. D., & Rojjanasrirat, W. (2011):** Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user friendly guideline. *Journal of Evaluation in Clinical Practice*, 17(2), 268-274.
25. **Beattie PF., Nelson RM., and Lis A. (2007):** Spanish-language version of the MedRisk instrument for measuring patient satisfaction with physical therapy care (MRPS): preliminary validation. *Physical therapy*, 87(6), 793-800.
26. **Beaton, D. E., Bombardier, C., and Guillemin, F. (2000):** Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, 25,3186-3191.
27. **Reham, E.A.E., Mohamed., M.K., Mammoudh., A.A., & Eman., M.O. (2016):** Reliability of the Arabic Egyptian version of short form 36 health survey questionnaire to measure quality of life in burned patient. *Med. J. Cairo Univ*, 84(2), 311-316.
28. **Schlosser, T.P., Stadhouders, A., & Schimmel, J.J. (2014):** Reliability and validity of the adapted Dutch version of the revised Scoliosis Research Society 22-item questionnaire. *The Spine Journal*, 14, 1663-1672.
29. **Weir, J.P. (2005):** Quantifying test-retest reliability using the intraclass correlation coefficient and the SEM. *Journal of Strength and Conditioning Research*, 19, 231-240.
30. **Dean K, Walker Z, and Jenkinson C. (2018):** Data quality, floor and ceiling effects, and test-retest reliability of the Mild Cognitive Impairment Questionnaire. *Patient Relat Outcome Meas*; 9: 43-47.
31. **Beattie PF, Turner C, Dowda M, Michener L, and Nelson R. (2005):** The MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy Care: a psychometric analysis. *J Orthop Sports Phys Ther*; 35:24-32.
32. **Oliveira, N.D.F.C., Costa, L.O.P., Nelson, R., Maher, C.G., Beattie, P.F., De Bie, R., and Costa, L.D.C.M. (2014):** Measurement properties of the Brazilian Portuguese version of the MedRisk instrument for measuring patient satisfaction with physical therapy care. *Journal of orthop sports phys ther*, 44(11), 879-889.
33. **Yeşilyaprak, S. S., Özyürek, S., Tomruk, M., İlçin, N., Karadibak, D., Keskinoglu, P., & Savcı, S. (2020):** The Turkish version of the MedRisk instrument for measuring patient satisfaction: measurement properties in physical therapy care among inpatients. *Disability and rehabilitation*, 42(2), 247-254.
34. **Tsang, S., Royle, C. F., & Terkawi, A. S. (2017):** Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. *Saudi Journal of Anaesthesia*, 11(Suppl 1), S80-S89.
35. **Hush JM, Lee H, Yung V, et al., (2013):** Intercultural comparison of patient satisfaction with physiotherapy care in Australia and Korea: an exploratory factor analysis. *J Man Manip Ther*; 21:103-112.
36. **Calmels, P., Bethoux, F., & Condemine, A. (2005):** Low back pain disability assessment tools. *Annales de Réadaptation et de Médecine Physique*, 48, 288-297.
37. **Maki. D, Rajab. E, Watson. P.J & Critchley DJ. (2014):** Cross-cultural translation, adaptation, and psychometric testing of the Roland-Morris disability questionnaire into modern standard Arabic. *Spine (Phila Pa 1976)*, 1; 39(25): E1537-44.
38. **Algarni, A. S., Ghorbel, S., Jones, J. G., & Guermazi, M. (2014):** Validation of an Arabic version of the Oswestry index in Saudi Arabia. *Annals of Physical and Rehabilitation Medicine*, 57(9-10), 653-663.
39. **Lee HJ, Adams R, Oh TY. (2013):** Factor structure of a Korean-language version of the Patient Satisfaction with Procedural Aspects of Physical Therapy Instrument. *J Korean Soc Phys Ther*. 25:160-166.
40. **Marx RG, Menezes A, Horovitz L, et al. (2003):** A comparison of two time intervals for test-retest reliability of health status instruments. *J Clin Epidemiol*. 56:730-735.
41. **De Vet, H. C., Terwee, C. B., Mokkink, L. B., & Knol, D. L. (2011):** Measurement in medicine: a practical guide. Cambridge university press.
42. **Margareta, N., Neusa, M., Costa, A., & Marco, C. (2003):** Measures for low back pain: A proposal for clinical use. *Rev Latino-Am Enfermagem*, 11 (2), 152-155.
43. **Campbell, M. J., and Swinscow, T. D. V. (2009):** Correlation and regression. *Statistics at square one*, 119-132.
44. **Hudak PL, and Wright JG. (2000):** The characteristics of patient satisfaction measures. *Spine (Phila Pa 1976)*. 25:3167-3177.
45. **Bradley C, Plowright R, Stewart J, Valentine J, Witthaus E. (2007):** The Diabetes Treatment Satisfaction Questionnaire change version (DTSQc) evaluated in insulin glargine trials shows greater responsiveness to improvements than the original DTSQ. *Health Qual Life Outcomes*; 5:57.
46. **Dinjens RN, Senden R, Heyligers IC, Grimm B. (2014):** Clinimetric quality of the new 2011 Knee Society score: high validity, low completion rate. *Knee*. 2014; 21:647-654.
47. **Mahomed N, Gandhi R, Daltroy L, Katz JN. (2011):** The Self-Administered Patient Satisfaction Scale for primary hip and knee arthroplasty. *Arthritis*. :591253.



إستبيان المرضى

1-الاسم 2- رقم الهاتف.....

3- السن: (عاماً) 4- النوع: ذكر أنثى

5- المنطقة الخاضعة للعلاج (ضع علامة على كل ما ينطبق):

الرقبة الظهر الذراع الساق القدم/ كعب القدم اليد/ رسغ اليد

يرجى الإجابة على الأسئلة الموضحة فيما يلي من خلال وضع دائرة حول الإجابة التي تصف أفضل الآراء الخاصة بك عن العلاج المقدم إليك

موافق تماماً	موافق	محايد	غير موافق	غير موافق تماماً	
5	4	3	2	1	1- موظف الاستقبال بالعيادة مهذب.
5	4	3	2	1	2- عملية التسجيل غير مناسبة.
5	4	3	2	1	3- مكان الانتظار مريح من حيث (الإنارة- درجة الحرارة- الديكور- الأثاث).
5	4	3	2	1	4- لا يقضي اخصائي العلاج الطبيعي وقتاً كافياً معي.
5	4	3	2	1	5- اخصائي العلاج الطبيعي يشرح طرق العلاج التي أحصل عليها بعناية.
5	4	3	2	1	6- اخصائي العلاج الطبيعي يعاملني باحترام.
5	4	3	2	1	7- اخصائي العلاج الطبيعي يستمع لاهتماماتي.
5	4	3	2	1	8- اخصائي العلاج الطبيعي لم يجيب على جميع أسئلتى.
5	4	3	2	1	9- أخصائي العلاج الطبيعي ينصحنى بطرق تجنب المشكلات المستقبلية.
5	4	3	2	1	10- اخصائي العلاج الطبيعي يعطيني تعليمات مفصلة بخصوص برنامجي بالمنزل.
5	4	3	2	1	11- بصفة عامة أنا راض تماماً بالخدمات التي يقدمها لي اخصائي العلاج الطبيعي.
5	4	3	2	1	12- سوف أعود لهذه العيادة لتلقي خدمات أو رعاية مستقبلية.