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Original Article

Turkish Version of Physiotherapist Self-Efficacy Questionnaire: Cultural Adaptation, Validity, and Reliability

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What is already known on this topic?

- *Self-efficacy of health professionals affects their work performance.*
- *To assess self-efficacy level of physiotherapists is crucial for reporting positive and negative aspects regarding the physiotherapy and rehabilitation undergraduate program.*

What this study adds on this topic?

- *Turkish Physiotherapist Self-Efficacy questionnaire is both a valid and reliable scale.*

ABSTRACT

Objective: The study aimed to evaluate the validity and reliability of Turkish version of the Physiotherapist Self-Efficacy (PSE) Questionnaire while ensuring cultural adaptation.

Methods: In this study, translation, back translation, and cultural adaptation processes were completed. One hundred twenty-two intern or graduated physiotherapists participated.

Results: The neurological and cardiopulmonary scales demonstrate a high level of reliability (Cronbach's $\alpha = 0.81$, 0.87 respectively). The orthopedic subscale is also found to be reliable (Cronbach's $\alpha = 0.76$). The Turkish version of the PSE questionnaire exhibits excellent internal consistency for neurological, orthopedic, and cardiopulmonary subscales (with Cronbach's α values of 0.98, 0.98, and 0.99 respectively).

Conclusion: Turkish PSE Questionnaire is both a valid and reliable scale. It can be used to assess the professional self-efficacy levels of both intern and graduated physiotherapists.

ClinicalTrial Number: NCT05335291

Keywords: Education, self-efficacy, validity

Introduction

Self-efficacy is an individual's belief in their ability to perform tasks and achieve goals. It is not merely a measure of skills or abilities but is one's confidence in applying those skills to overcome challenges and achieve desired outcomes. Shaped by personal experiences, observational learning, persuasion, and physiological factors, self-efficacy plays a crucial role in influencing behavior, motivation, and resilience.[1] Self-efficacy also holds significant importance in professional practice, as studies have shown its correlation with job performance, particularly in clinical settings.[2]

Self-efficacy is not only a personal belief but also a critical determinant of clinical competence.[1,3,4] Physiotherapists with low self-efficacy may not be good at complex tasks and have difficulty in solving problems. On the other hand, high self-efficacy increases confidence, effort, and motivation, which can improve clinical decision-making and performance.[4,5] Also, self-efficacy affects clinical communication skills that are necessary for interprofessional collaboration.[6] Therefore, understanding and improving physiotherapists' self-efficacy is crucial for supporting clinical reasoning and enhancing patient outcomes.[4,7,8]

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Physiotherapy and rehabilitation education consist of many courses aimed at enhancing individuals' knowledge, skills, and clinical performance.[9] Physiotherapists can assess their own self-efficacy by evaluating how well they apply the knowledge and skills learned during their education to their clinical practice, determining the extent to which they benefit from these experiences.[10] The "Physiotherapist Self-Efficacy (PSE) Questionnaire" used for assessing the self-efficacy of physiotherapists was developed by Jones and Sheppard.[10] It was shown that this questionnaire is a valid and reliable scale to evaluate self-efficacy for the specific fields that are neurological, orthopedic, and cardiopulmonary rehabilitation. There are 13 items about assessments, problem-solving, planning, and communication for physiotherapy and rehabilitation programs.[10,11]

In the physiotherapy and rehabilitation education system in Türkiye, internships are conducted in a rotational manner, providing experiences to undergraduate students with patients in various fields. Moreover, the duration of clinical internships aligns with references from Australia and Canada.[12] However, determining the level of perceived self-efficacy among individuals during these internships and clinical experiences has been challenging. Although the PSE Questionnaire has been used to assess self-efficacy level of the physiotherapists, there is a need for a Turkish version for use in Türkiye. Therefore, the aim of this study was to evaluate the validity and reliability of Turkish version of the PSE Questionnaire while ensuring cultural adaptation.

Research Question

Is the Turkish version of the PSE Questionnaire a valid and reliable instrument for assessing self-efficacy among physiotherapists?

Methods

In this study, the internationally accepted linguistic validation rules of the MAPI Research Institute were followed for the Turkish version of PSE Questionnaire. Permission was obtained via e-mail from the person who developed the scale prior to the adaptation process of translating the scale into Turkish. Firstly, the English questions of the scale were translated into Turkish by 2 independent physiotherapist authors. Then, the prepared Turkish items were translated into English and compared with the original items in the scale. The translators conducted the process independently from each other. The Turkish version of the scale was applied to 10 people as a pilot study in its final form. It was reported that there were no unclear statements by the participants at this stage. It was found that the Turkish translation of the questionnaire accurately captured the meaning of the original English version, indicating that the translation was equivalent. Based on this, it was concluded that the Turkish version of the questionnaire is appropriate and can be considered a reliable measure for use in Turkish-speaking populations. At the beginning of the study, all participants were invited via e-mail and were asked to complete the questionnaire through an online survey form prepared with Google Forms. Also, 1 week after the first responses, the questionnaire was sent again via e-mail, and participants were asked to complete the same items once more.

Participants

Taking 5 or more times, the number of items is one of the most used statistical analyses for determining sample size in validation studies.[13] Based on this, the sample size was calculated as at least 65. A total of 122 people were included in the study. Participants were informed about the study, and voluntary consent forms were obtained from individuals who volunteered to participate. The study was carried out in accordance with the rules specified in the Declaration of Helsinki. The study protocol was recorded in the Clinical Trials (NCT05335291). Ethics committee approval was obtained from İstanbul Bilgi University Ethics Committee (No.: 2022-40030-32; Date: March 25, 2022).

Physiotherapy and rehabilitation students who participated in at least 1 clinical internship and physiotherapists who graduated from the department of physiotherapy and rehabilitation were included in the study. The exclusion criteria of the study were not being able to communicate in Turkish and having cognitive problems. The ages of the participants, the number of internships they completed if they were students, and the years of employment if they graduated were recorded.

Outcome Measurements

Physiotherapist Self-Efficacy Questionnaire

The PSE was developed by Jones and Sheppard.[4] This scale includes 13 items that assess an individual's perceived level of competence in problem-solving, planning, and communication related to case loads in the clinical setting. Each item has a Likert scale response ranging from 1 to 5 (ranging from very little confidence to a lot of confidence). The scale has been shown to be a valid and reliable method in the specific areas of neurological, musculoskeletal/orthopedic, and cardiopulmonary clinical fields in physiotherapy and rehabilitation.[11,4] The questions are answered separately according to the neurological, musculoskeletal/orthopedic, and cardiopulmonary fields. Higher scores indicate higher self-efficacy.

Generel Self-Efficacy Scale

The General Self-Efficacy (GSE) Scale, developed by Schwarzer & Jerusalem,[14] is utilized to gauge individuals' perceptions of their capability to handle and adjust to stressful experiences. Aypay et al[15] reported that the Turkish version of the GSE scale is a valid and reliable scale. This scale consists of 10 items, with responses given on a 4-point Likert scale (ranging from "completely true" to "completely wrong"). A higher score indicates a stronger sense of general self-efficacy.

Statistical Analysis

The statistical analyses for the study utilized the Statistical Package for the Social Sciences (IBM SPSS Corp.; Armonk, NY, USA) version 28.0. The Shapiro–Wilk test determined the normality of the study data, and since the data exhibited a normal distribution, parametric analysis tests were employed. Descriptive statistics were presented as mean (SD) or number (percentage).

Validity Assessment

To assess validity, Pearson correlation coefficient was calculated between the PSE and GSE scores. The correlation coefficients resulting from all statistical analyses were regarded as follows: 0-0.3, weak relationship; 0.3-0.5, moderate relationship; 0.5-0.9, strong relationship; and 0.9-1.00, very strong relationship.

Internal Consistency Assessment

Internal consistency was measured with Cronbach's α that was calculated from all items of each Turkish PSE subscale (neurological, orthopedic, cardiopulmonary). For internal consistency, Cronbach's α was accepted as follows: $\alpha < 0.5$ unacceptable, $0.5 \leq \alpha < 0.6$ poor, $0.60 \leq \alpha < 0.70$ questionable, $0.70 \leq \alpha < 0.80$ acceptable, $0.80 \leq \alpha < 0.90$ good, and $0.90 \leq \alpha$ excellent. A value of around 0.70 or greater is mentioned to be widely considered desirable in the literature.[16]

Test–Retest Reliability Assessment

For the reliability assessment, the PSE Questionnaire was sent to the same participants again 1 week later. One hundred (82%) of the 122 participants completed the retest assessment. To analyze test-retest reliability, the intraclass correlation coefficient (ICC) and Cronbach's α coefficient was calculated between baseline PSE scores and the next scores. The results were investigated at 95% confidence intervals and

significance at $P < .05$. The scale was interrupted that Cronbach's α coefficient of 0.70 was acceptable, and 0.80 or greater was a high level of reliability.[17]

Results

One hundred twenty-two people (mean age 23.6 ± 3.9) were included in this study. The characteristics of all participants are shown in Table 1. The specialized field was divided into 5 groups: neurological, orthopedic, cardiopulmonary, neurological & orthopedic, and neurological & orthopedic & cardiopulmonary rehabilitation. Most of the participants have been working in orthopedic rehabilitation (39.3%).

Validity

There was a moderate relationship between the neurological subscale of the Turkish PSE Questionnaire and GSE ($r = 0.47$, $P < .001$), orthopedic subscale and GSE ($r = 0.35$, $P < .001$), and cardiopulmonary subscale and GSE ($r = 0.37$, $P < .001$) (Table 2).

Internal Consistency

According to the results, all subscales of Turkish PSE Questionnaire – neurological, orthopedic, and cardiopulmonary had excellent internal consistency (Cronbach's α = 0.98, 0.98, 0.99, respectively).

Reliability

Test-retest reliability of 2 subscales (neurological, cardiopulmonary) was found to be highly reliable for the Cronbach's α value (0.81, 0.87, respectively). The orthopedic dimension was found to be a reliable scale (Cronbach's α = 0.76). The mean scores of the first and second tests of the Turkish version neurological, orthopedic, cardiopulmonary PSE scores, Cronbach's α, ICC values, and confidence intervals were given in Table 3.

Construct Validity

In the current study, the construct validity of the scale was assessed using exploratory factor analysis. Initially, the correlation matrix of the scale items was determined, followed by the application of the Kaiser Meyer Olkin (KMO) and Bartlett tests.[18] These tests measure the strength of relationships between variables, with KMO determining the adequacy of the sample for analysis.[18] For the neurological subscale, the correlation matrix's *r* value ranged from 0.742 to 1.000, with $P = .000$. The KMO value was 0.958, indicating a high level of sample adequacy. The Bartlett test yielded a chi-square value of 2.51, df 78, and significance of $P = .000$. Similarly, for the orthopedic subscale, the correlation matrix's *r* value ranged from 0.793 to 1.000, with $P = .000$. The KMO value was 0.959, indicating high sample adequacy. The Bartlett test resulted in a chi-square value of 2.78, df 78, and significance of $P = .000$. For the cardiopulmonary subscale, the correlation matrix's *r* value ranged from 0.837 to 1.000, with $P = .000$. The KMO value was 0.953, indicating a high level of sample adequacy. The Bartlett test showed a chi-square value of 3.09, df 78, and significance of $P = .000$.

Overall, the KMO values for all subscale groups were at an excellent level, indicating high correlation matrix values, and the Bartlett test results were statistically significant, supporting the adequacy of the samples for factor analysis.

Table 1. Characteristics of the Participants

Characteristics (N = 122)	Mean (SD) or n (%)
Age (years)	23.64 (3.95)
Employement status	
Intern	85 (69.7)
Graduated	37 (30.3)
Number of the internships	4.05 (3.35)
Professional experience (years)	5.01 (4.40)
Specialized fields	
Neurological rehabilitation	29 (23.8)
Orthopedic rehabilitation	48 (39.3)
Cardiopulmonary rehabilitation	7 (5.7)
Neurological & orthopedic rehabilitation	33 (27.0)
Neurological, orthopedic, & cardiopulmonary rehabilitation	5 (4.1)

Table 2. Correlation Between Physiotherapist Self-Efficacy Questionnaire and General Self-Efficacy Questionnaire

	General Self-Efficacy Questionnaire	
Physiotherapist Self-Efficacy Questionnaire	*r*	*P*
Neurological	0.47	<.001*
Orthopedic	0.35	<.001*
Cardiopulmonary	0.37	<.001*

*$P < .05$.

Discussion

This study shows that the Turkish PSE Questionnaire is a valid and reliable questionnaire to assess physiotherapists' self-efficacy levels. The neurological, orthopedic, and cardiopulmonary subscales of Turkish PSE Questionnaire were moderately related to the GSE scale. The neurological and cardiopulmonary subscales were highly reliable, and the orthopedic subscale was reliable. Also, all subscales of Turkish PSE Questionnaire showed excellent construct validity.

In this study, a moderate correlation was found between Turkish PSE subscales and GSE scale. In a previous study, weak to moderate correlations were found between PSE subscales and other indicators of self-efficacy. Since there was no gold standard for assessing the validity

Table 3. Test-retest Reliability of the Physiotherapist Self-Efficacy Questionnaire

Subscales	Mean (SD) [95% CI]	Test-retest Reliability ICC [95% CI]	Cronbach's α
Neurological			
First test	48.94 (12.75) [45.87-52.00]	0.68 [0.53-0.79]	0.81
Second test	50.57 (12.64) [47.54-53.61]		
Orthopedic			
First test	49.57 (12.19) [46.64-52.51]	0.61 [0.44-0.74]	0.76
Second test	51.34 (10.87) [48.73-53.95]		
Cardiopulmonary			
First test	42.53 (15.70) [38.76-46.30]	0.78 [0.66-0.85]	0.87
Second test	43.59 (14.12) [40.20-46.98]		

CI, confidence interval; ICC, intraclass coefficient.

of the PSE Questionnaire, Lankveld et al[11] used the General Self-Efficacy Scale for the validity analysis, similar to the current study. They also assessed self-efficacy related to work/study using the PsyCap and found that there were low correlations between the PSE subscales and the PsyCap subscale Self-efficacy.[11] In this study, no additional scale other than GSE was used for general self-efficacy. Although a very long time was not required to answer the scales, participants still answered 39 questions in total for the 3 subscales of the PSE. The GSE scale consists of a total of 10 questions. An additional scale was not needed for the study to be feasible. Cronbach's α was 0.81, 0.76, and 0.87 for the internal consistency of the Turkish PSE neurological, orthopedic, and cardiopulmonary subscales, respectively. Similarly, the internal consistency of the Dutch PSE Questionnaire was found to be higher (Cronbach's $\alpha > 0.75$).[11] Also, the Hebrew version of the PSE Questionnaire exhibited a high internal consistency ($\alpha = 0.93$) and excellent test-retest reliability (ICC = 0.94).[19] These results indicate that the Turkish PSE Questionnaire shows comparable reliability to other cultural adaptations of the scale, supporting its applicability.

The self-efficacy questionnaire for physiotherapists was developed to assess undergraduates' self-efficacy levels for their preclinical experience.[10] Self-efficacy can be improved through practical application since self-efficacy is related to work skills. The assessment of self-efficacy is crucial for needed changes in physiotherapy and rehabilitation education systems and for developing strategies for individuals who have low levels of self-efficacy. In the country, the department of physiotherapy and rehabilitation is widely available in numerous universities.[20] Thus, the number of graduated physiotherapists has been increasing every year. Evaluating the self-efficacy of the undergraduates using the Turkish version of the PSE Questionnaire will contribute to important data for the national educational program. In education systems, the evaluation of quality in education programs and the competence of physiotherapists at the graduation stage are among the critical elements to be considered within the scope of Plan-Do-Check-Act (PDCA) cycles.[21] In this context, the Turkish version of the PSE Questionnaire can be used as an effective tool to evaluate the self-efficacy of undergraduate students at the graduation stage. Such an evaluation will make a significant contribution to the national physiotherapy education programs and highlight future education processes.

In this study, most participants were newly graduated or interns. This may have reflected the overall levels of self-efficacy results, as self-efficacy is improved through experience.[7] Older or more experienced physiotherapists might report higher levels of self-efficacy, particularly in clinical decision-making and problem-solving. Although the primary aim of this study was to investigate the validity and reliability of the PSE, future studies should include a wider age range to see how self-efficacy may differ by professional experience. Understanding this relationship is also important because self-efficacy improves clinical performance and can help guide educational strategies.[4] Assessing the self-efficacy of employed physiotherapists, perhaps at regular intervals, can lead to identifying areas needing improvement and determining necessary educational/practical training.

Self-efficacy is a key attribute for healthcare professionals as it influences various aspects of their work, including patient care, decision-making, stress management, and professional development. High self-efficacy contributes to better outcomes for both professionals and their patients.[22] Therefore, there was a need to objectively assess the self-efficacy of healthcare professionals, and scales/questionnaires were developed previously. Similar to the PSE, Self-Efficacy Scales were used for nursing professionals and student.[23,24] In addition to the profession self-efficacy questionnaire, there is also a self-efficacy scale developed for measuring clinical communication skills in health sciences.[6]

As per the guidelines set forth by the World Confederation of Physical Therapy, it is required for physiotherapy students to engage in self-assessment. This practice aims to enhance the efficacy of care, interventions, and treatments, ensuring alignment with the expectations of physical therapist practice.[25] Jones et al[7] reported that while most new graduates physiotherapists show strong confidence in communicating with professionals from various disciplines and understanding their roles, they demonstrate lower confidence in resolving interprofessional conflicts and delivering feedback to colleagues. These results highlight specific areas where new physiotherapy graduates may feel underprepared for professional practice. In order to outline a roadmap for improving physiotherapists' self-efficacy, it is first necessary to identify the professional self-efficacy areas that need development. Therefore, the scale used in this study, which is a valid and reliable measure, will enable the assessment of physiotherapists at a national level as well as international results.

Including mostly the physiotherapists who have currently graduated or continued their education may be a limitation; however, the PSE can be used to assess self-efficacy of both newly graduated and intern physiotherapists. In further studies, physiotherapists that have more experience in the field can be assessed in terms of their self-efficacy. Nonetheless, the current Turkish PSE demonstrates similar results with existing outcomes for validity and reliability.

Conclusion

This study demonstrates that the Turkish PSE is a valid and reliable tool for assessing physiotherapists' self-efficacy. The neurological, orthopedic, and cardiopulmonary subscales showed strong reliability and excellent construct validity.

Given the increasing number of physiotherapy graduates in the country, using the Turkish PSE can help identify areas for professional development, such as conflict resolution and peer feedback. This aligns with the growing emphasis on sustainable and quality education, highlighting the importance of assessing the competence of physiotherapists during their graduation process. Evaluating self-efficacy through the Turkish PSE offers an effective means to address critical aspects of the PDCA cycle,[26] ensuring both graduate quality and educational improvement. Regular assessment of self-efficacy can inform educational strategies, enhancing clinical competence and ensuring graduates are well-prepared for professional practice.

While the current study provides valuable insights into the self-efficacy levels of physiotherapists, future research should explore how PSE influences patient-reported outcomes. Further studies that examine the direct and indirect effects of self-efficacy on clinical outcomes could provide stronger evidence for including self-efficacy training into professional development programs.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of İstanbul Bilgi University (Approval No.: 2022-40030-32; Date:25.03.2022).

Informed Consent: Written informed consent was obtained from individuals who participated in this study.

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