

arthritis, but patients cannot tolerate longer protocols without an increase in discomfort.

References:

- [1] Di Pietro L, et al. (2003). Evaluation of an instrumented glove for hand-movement acquisition. *Journal of Rehabilitation Research and Development*, 40(2), 179–89.

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AB1197-HPR VALIDITY AND RELIABILITY OF A SMARTPHONE GONIOMETER APPLICATION FOR MEASURING HIP RANGE OF MOTION IN PATIENTS WITH HIP OSTEOARTHRITIS: A PILOT STUDY

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Background: Osteoarthritis (OA) of the hip affects the entire joint structure and function and leads joint capsular changes which result limitation in range of motion (ROM). Therefore, measuring ROM is an essential part of the hip assessment. Various measurement tools are available for determining the ROM such as universal goniometers (UG), digital inclinometers, motion analysis systems. Recently, smartphones equipped with suitable applications are able to measure ROM.

Objectives: The aim of this study was to determine the inter-rater and intra-rater reliability of a smartphone application "PT Goniometer® 2015 Mark Busman" (PTG) and investigate the agreement within PTG versus UG for active hip ROMs in patients with hip OA.

Methods: This study included eight people who were diagnosed with hip OA. Two physiotherapists performed the ROM measurements on affected hips by using PTG and UG. UG was employed as the reference standard. Hip ROM tests were performed in the following order; flexion, abduction, internal and external rotation. Intraclass correlation coefficient (ICC) models were used to determine the intra-rater and inter-rater reliability. The Spearman correlation coefficients were used to establish validity of PTG.

Results: The PTG smartphone application demonstrated good to excellent inter-rater and intra-rater reliability (ICCs >0.75) for all measured hip movements in patients with hip OA. ICC scores, minimum detectable change (MDC₉₅) and standart error of measurement (SEM) values were indicated in Table 1 and Table 2. Additionally,UG and PTG application methods demonstrated positive correlations for all hip movements (p<0.05).

Table 1. Inter-rater Reliability of the PT Goniometer Application

Movement	PT 1, PTG (Mean ± SD)	PT 2, PTG (Mean ± SD)	ICC (%95 CI)	SEM	MDC ₉₅
Flexion	66.18±28.87°	63.66±30.74°	0.99 (0.94–1.00)	0.91	2.52
Abduction	27.98±12.93°	29.58±13.03°	0.99 (0.90–0.99)	0.4	1.1
IR	10.86±10.66°	11±10.67°	0.99 (0.99–1.00)	0.33	0.91
ER	20.12±11.74°	21.06±12.5°	0.99 (0.96–1.00)	0.33	0.91

PT1: Physiotherapist1, PTG: PT Goniometer application, PT2: Physiotherapist 2, ICC: Intraclass correlation coefficient, CI: Confidence Interval, SEM: Standard Error of Measurement, MDC₉₅: Minimum Detectable change at the %95 confidence level, SD: Standard deviation, IR: Internal rotation, ER: External rotation. Table 2. Intra-rater Reliability of PT Goniometer Application

Movement	PT 1, PTG (Mean ± SD)	PT1, RT PTG (Mean ± SD)	ICC (%95 CI)	SEM	MDC ₉₅
Flexion	66.18±28.87°	65.64±28.58°	0.99 (0.97–0.99)	0.91	2.52
Abduction	27.98±12.93°	28.58±13.61°	0.99 (0.98–1.00)	0.4	1.1
IR	10.86±10.66°	10.96±10.73°	0.99 (0.99–1.00)	0.33	0.83
ER	20.12±11.74°	20.46±11.96°	0.99 (0.98–1.00)	0.37	1.02

PT 1: Physiotherapist 1, PTG: PT Goniometer Application, RT PTG: Retest PT goniometer application, ICC: Intraclass correlation coefficient, CI: Confidence Interval, SEM: Standard Error of Measurement, MDC₉₅: Minimum Detectable Change at the %95 confidence level, SD: Standard deviation, IR: Internal rotation, ER: External rotation.

Conclusions: High correlations obtained in this pilot study suggest that using a smartphone application might be a valid and a reliable method for measuring hip ROM in patients with hip OA and smartphone applications can be used in clinical settings. Studies with larger population are required for further investigation of smartphones' psychometric properties on measuring hip ROM.

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AB1198-HPR PRESENTATION OF A NEW SCALE ASSESSING THE BIOPSYCHOSOCIAL ASPECTS OF HEALING PROPERTIES IN RHEUMATIC PATIENTS

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Background: Exercise programs have been being provided in Hacettepe University for 12 years. The group exercises were transformed into a book named as "Bilişsel Egzersiz Terapi Yaklaşımı (BETY) (1)" in 2014 and were registered as a trademark by the Turkish Patent Institute in 2015. This approach includes cognitive processes in pain management, clinical pilates exercises and awareness of mood state via dance therapy (2).When rheumatic patients participating in BETY sessions, they are evaluated with appropriate scales for their diseases and it is stated that these scales do not express enough the healing properties they feel with BETY.

Objectives: The aim was to develop a new scale assessing the biopsychosocial aspects of healing properties in rheumatic patients.

Methods: After 12 years of treatment, cognitive beliefs about health perceptions were gathered from the patients who participates in the BETY group for at least 5 years, with the open-ended question "What kind of changes did you make in this group?". After elimination of similar sentences, 30 cognitive beliefs about different health perceptions were obtained. The newly developed scale was applied to 89 patients aged 18–69 years (42,94±12.85), who had different rheumatic diseases and were not included in the BETY group. Working questions were determined.

Results: The internal consistency was found to be 0.89. In this process, 5 items that didn't work and had the same meaning were removed from the scale. After this, "What kind of improvements did you make in Daily life by participating in the BETY group?" question was asked to the patients participated in BETY group to narrow the expressions and 5 new sentences are determined. The scale was sent to 24 rheumatologists and 2 physiatrists for expert opinion. 15 rheumatologists and 1 physiatrist were returned. When the survey items were examined on a question-based basis, the acceptance rate of all questions was 70.83%. According to this result, the scale was finalized. Structural validity of the created draft will be investigated in the subheadings of functional activity, pain, sexual life, fear of movement, mood.

Conclusions: As a result, an original scale which will assess the biopsychosocial aspects of healing properties in rheumatic patients is developed. Our future purpose is to investigate the validation of this scale in different rheumatic diseases.

References:

- [1] E.Ünal (Ed.) Romatizmal Hastalıklarda Biyopsikosozyal Model: Bilişsel Egzersiz Terapi Yaklaşımı (BETY), 2014, Pelikan Yayıncılık, Ankara. ISBN: 9786056474101.
[2] Kısacık,P. Ünal,E. Akman,Ü. Yapalı,G. Karabulut,E. Akdoğan,A. Investigation the effects of a multidimensional exercise program on symptoms and antiinflammatory status in female patients with ankylosing spondylitis. *Complementary Ther. Clin. Pract.* 22(2016):38–43.

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AB1199-HPR IMPROVING TRIAGE TO APPROPRIATE TREATMENT LEVEL BY USING A COMBINATION OF SCREENING TOOLS IN PATIENTS AT RISK OF DEVELOPING CHRONIC BACK PAIN

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Background: The screening instrument STarT (Subgroups for Targeted Treatment) Back Screening Tool (SBST) identify patients at risk of developing chronic back pain in order to facilitate triage to appropriate treatment level. The SBST takes into account known risk factors such as activity limitations, kinesiophobia and psychological health. However, SBST does not consider pain distribution which is a known predictor of chronic widespread pain (CWP). According to evidenced clinical practice patients with CWP should be referred to multimodal rehabilitation (1).

Objectives: The purpose of the study was to compare screening by SBST with screening of multisite chronic widespread pain (MS-CWP) in a group of patients with back pain and to analyze to what extent the two screening methods identify the same patients at higher risk.

Methods: 73 individuals with a report of chronic back pain (≥3 months during last year) age 40–70 years responded to both screening tools. The SBST stratify patients into low, medium or high risk groups. A pain mannequin was used to categorize patients into no chronic pain (NCP), chronic regional pain (CRP) or chronic widespread pain (CWP) and number of painful areas (0–18). A presence of a CWP in combination with ≥7 painful areas was stratified as MS-CWP. The outcome of the different screening tools was analyzed by cross tabulations. The Roland-Morris Disability Questionnaire (RMDQ, 0–24), health related quality of life (EQ5D, 0–1), Fear-Avoidance Beliefs Questionnaire about physical activity (FABQ-PA, 0–24) and work (FABQ-Work, 0–42), Hospital Anxiety (HAD-A, 0–21) and Depression scale (HAD-D, 0–21) were used to describe physical function, health related quality of life, kinesiophobia and mental health.