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

References:

- [1] Dipietro 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.

Disclosure of Interest: None declared

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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 Biyopsikososyal 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, kinesophobia 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, kinesophobia and mental health.

Results: The mean (SD) age was 59 (8) years, 63% were women. Self-reports of physical function (RMDQ) were 4.5 (4.8), health related quality of life (EQ5D) 0.71 (0.21), kinesiophobia (FABQ-PA and FABQ-Work) 8.3 (5.9) and 14.7 (11.1), and mental health (HAD-A and HAD-B) 8.8 (2.0) and 4.5 (1.7). Comparing the different screening methods, 5 patients (7%) were at high risk as captured by SBST while using the pain mannequin 38 (52%) patients had CWP and 22 (30%) had MS-CWP. No patients in the SBST high risk group had NCP, but 31 (50%) in the SBST low risk group reported CWP, and 16 (26%) reported MS-CWP. In the medium risk group 3 reported CWP, and 3 were also categorized as MS-CWP.

Table 1

Pain distribution groups	StarT Back Screening Tool		
	Low risk	Medium risk	High risk
No chronic pain (NCP)	7	1	0
Chronic regional pain (CRP)	24	2	1
Chronic widespread pain (CWP)	31	3	4
No multisite - CWP	46	3	2
Multisite - CWP (high risk)	16	3	3

Conclusions: SBST and the pain mannequin as screening tools partly capture different patients at high risk of developing chronic back pain. Using a combination of the two instruments may improve the ability to facilitate triage to appropriate treatment level.

References:

[1] Macfarlane GJ et al. EULAR revised recommendations for the management of fibromyalgia. *Ann Rheum Dis.* 2017;76(2):318–328.

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AB1200-HPR THE RELIABILITY OF ROMANIAN ROLAND MORRIS DISABILITY QUESTIONNAIRE IN PEOPLE WITH LOW BACK PAIN. A PRELIMINARY STUDY

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Background: Patient reported assessments are widely recommended by the clinical guidelines and an important part of a comprehensive assessment. Patient-reported questionnaires should be translated into local language accordingly and validated in the translated language (1). The clinicians in Romania suffer from lack of validated questionnaires in Romanian language. The Roland Morris Disability questionnaire is one of the most recommended questionnaires evaluating low back pain. Although, the Romanian translation was performed before, there is no effort regarding to its validation in Romanian language until now.

Objectives: To investigate the test-retest reliability Romanian version of the Roland Morris Disability Questionnaire (RMDQ-Ro) in people low back pain.

Methods: The permission to conduct such a study was asked to the original author Prof. Martin Roland, before starting to the study. The Romanian translated form of Roland Morris Disability Questionnaire which is provided on the web site "http://www.rmdq.org/" was used in the study. A total of 100 people with low back pain filled the RMDQ as well as Numeric Rating Scales for rest (NRS-R) and activity (NRS-A). Due to the lack of other validated measures such the Oswestry Disability Index in Romanian, these additional assessments (VAS-R and VAS-A) were performed for investigating convergent validity. For test-retest reliability 30 people filled the RMDQ-Ro after 3–14 days later as recommended. Test-retest reliability was assessed with intra-class coefficient correlation (ICC). Non-parametric tests were employed due to the heterogeneity of the data. Therefore, the Spearman correlation test was used for determining the relationship between RMDQ-Ro and VAS-R and VAS-A.

Results: The characteristics of the participants were shown at Table 1. The test-retest reliability of RMDQ-Ro was found at an excellent level (ICC: 0.95). Moderate positive correlations were determined between RMDQ-Ro and NRS-R (rho: 0.518, $p < 0.001$), and NRS-A (rho: 0.484, $p < 0.001$).

Table 1. Characteristics of the Participants

	Male (n: 52) Median (IQR 25/75)	Female (n: 48) Median (IQR 25/75)	Total (n: 100) Median (IQR 25/75)
Age (years)	32 (28.25/46.50)	35 (28.5/45.5)	34.5 (28.5/46)
Height (cm)	179.50 (175/183)	168 (163/170.5)	174 (168/180)
Weight (kg)	81 (72/90)	61 (55.5/61)	71 (61/81.5)
RMDQ-Ro (0–24)	6 (3/8)	4 (3/7)	5 (3/7)
NRS-R (0–10)	3.5 (2/5)	3.5 (2/5)	3.5 (2/5)
NRS-A (0–10)	2 (1/5)	3 (1/6)	2 (1/5)

IQR: Interquartile Range, RMDQ-Ro: Romanian Version of Roland Morris Disability Questionnaire, NRS-R: Numeric Rating Scale in Rest, NRS-A: Numeric Rating Scale in Activity.

Conclusions: RMDQ-Ro was found reliable regarding test-retest reliability. This questionnaire can be performed in the repeated measures for evaluating low back pain patients. However, more psychometric characteristics of RMDQ-Ro such as internal consistency and construct validity should be investigated in further studies.

References:

[1] Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process

of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)*. 2000;25(24):3186–91.

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AB1201-HPR THE VALIDITY AND TEST-RETEST RELIABILITY OF THE TURKISH PATIENT SPECIFIC FUNCTIONAL SCALE IN CHRONIC NECK PAIN PATIENTS. A PRELIMINARY REPORT

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Background: Current clinical guidelines recommend to use both clinical and self-reported measurements for evaluation of chronic neck pain. Among the self-reported outcomes, Neck Disability Index (NDI) and Patient Specific Functional Scale (PSFS) are the most widely used and recommended instruments.¹ Although, NDI was validated in Turkish language before, no validation study related to the PSFS was detected in the literature.

Objectives: The aims of this study were to translate PSFS in Turkish language and to establish the test-retest reliability and validity of the PSFS-T in chronic neck pain patients.

Methods: The PSFS was translated into Turkish by using the "translation-backward translation" method as recommended in the guidelines.² The demographic information, PSFS-T and NDI were recorded at the first visit of the patients. Thirty patients were called by phone for the retest evaluation of PSFS-T. The construct validity of PSFS-T was determined by investigating the correlation between NDI and PSFS-T scores. The Cronbach's alpha was used for the internal consistency. Intra-class coefficient (ICC) was employed to determine the test-retest reliability.

Results: The final form was completed by 42 chronic neck pain patients (18 F) until now. The mean age was 42±14. The internal consistency was found as good (Cronbach's alpha:0.89). A positive moderate correlation was determined between NDI and PSFS-T scores ($p < 0.05$; $r = 0.405$). The ICC for test-retest reliability was determined in high level (ICC: 0.88).

Conclusions: The PSFS-T is a reliable and valid instrument for chronic neck pain patients. However, the preliminary results should be confirmed by completing the study.

References:

[1] Childs JD, Cleland JA, Elliott JM, Teyhen DS, Wainner RS, Whitman JM, Sopky BJ, Godges JJ, Flynn TW. Neck pain: Clinical practice guidelines linked to the International Classification of Functioning, Disability, and Health from the Orthopedic Section of the American Physical Therapy Association. *J Orthop Sports Phys Ther.* 2008;38(9):A1-A34.

[2] Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)*. 2000;25(24):3186–91.

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AB1202-HPR RELATIONSHIP OF WORK DISABILITY BETWEEN THE DISEASE ACTIVITY, DEPRESSION AND QUALITY OF LIFE IN HOUSEWIFE AND WORKING PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: The aim of this study was to determine the work status in patients with rheumatoid arthritis (RA) while also defining the factors related to work disability.

Objectives: In this study, our objective was to determine the work productivity, work disability and difficulty in time-off daily activities of the housewife and working patients with rheumatoid arthritis (RA) and to investigate the relation of these parameters with disease activity, anxiety, depression and quality of life.

Methods: 82 patients with the diagnosis of RA (26 males, 56 females) and 29 healthy control subjects (5 males, 24 females) were included in the study. In patients with RA, DAS28 was used to evaluate the disease activity; Duruöz hand index was used to determine the functional status. In addition, HAQ (Health assessment quality) and The Short Form (SF-36) Health Survey was used to evaluate the health status, Hospital Anxiety and Depression Scale (HADS) was used for the evaluation of depression and anxiety and Work Productivity and Activity Impairment Questionnaire: Specific Health Problem v2.0 (WPAI:SHP) was used to evaluate the work productivity.

Results: Demographic characteristics such as age and gender, were comparable in both patient and control groups ($p > 0.05$). The difficulty in the time off daily activities were worse in the patient group compared with the control group ($p < 0.05$). Anxiety, were significantly higher in housewife RA group ($p < 0.05$). Difficulty in time-off daily activities was correlated with VAS-fatigue and DAS28, HAQ, Duruöz hand index was correlated. ($p < 0.05$).

Conclusions: Even if they are not working in housewives, we have found that