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Hüsniye YOL AĞIL, PT, MSc[1]
Rasmi MUAMMER, PT, PhD[2]

RELIABILITY AND VALIDITY OF THE TURKISH VERSION OF THE GRADED CHRONIC PAIN SCALE 2.0

ORIGINAL ARTICLE

ABSTRACT

Purpose: To investigate the translation and cultural adaptation, the reliability and validity of the Turkish version of the Graded Chronic Pain Scale (GCPS) 2.0.

Methods: The study was an observational and cross-sectional study translated and adapted into Turkish according to the Beaton protocol. Data was collected from eighty participants diagnosed with chronic low back pain (LBP) by a physician. Due to the pandemic, the scales were sent to patients via online form. Reliability was assessed using the test-retest method, parallel form method, and internal consistency. Validity was assessed using face, content, and construct validity analyses.

Results: Cronbach's alpha was calculated as 0.89 to determine internal consistency. The intraclass correlation coefficient (ICC) was found to be 0.92 for the GCPS 2.0 total. Statistically significant correlation was found betweeen the GCPS 2.0 and the Oswestry Low Back Pain Disability Index (ODI) (r = 0.759 p = 0.001) and between the GCPS 2.0 and the Roland-Morris Disability Questionnaire (RMDQ) (r = 0.777 p = 0.001). Factor analysis revealed a 2-factor structure.

Conclusion: The Turkish version of the GCPS 2.0 is a valid and reliable measurement tool for patients with chronic LBP.

Keywords: Chronic Pain, Disability, Low Back Pain, Pain Intensity, Reliability and Validity

DERECELİ KRONİK AĞRI ÖLÇEĞİ 2.0`NİN TÜRKÇE VERSİYONUNUN GÜVENİRLİK VE GEÇERLİLİĞİ

ARAŞTIRMA MAKALESİ

ÖZ

Amaç: Dereceli Kronik Ağrı Ölçeği 2.0'nin Türkçe versiyonunun çeviri ve kültürel uyarlaması, güvenirlik ve geçerliliğinin incelenmesi.

Yöntem: Bu çalışma, Beaton protokolüne göre Türkçe'ye çevrilmiş ve uyarlanmış gözlemsel ve kesitsel bir çalışmadır. Veriler, doktor tarafından kronik bel ağrısı teşhisi konan 80 katılımcıdan toplandı. Pandemi nedeniyle ölçekler hastalara online form aracılığıyla gönderilmiştir. Güvenirlik; test-tekrar test yöntemi, paralel form yöntemi ve iç tutarlılık kullanılarak değerlendirildi. Geçerlilik; yüz, içerik ve yapı geçerliliği analizleri kullanılarak değerlendirildi.

Sonuçlar: İç tutarlılığı belirlemek için Cronbach's alpha 0,89 olarak hesaplandı. Dereceli Kronik Ağrı Ölçeği 2.0 toplamı için sınıf içi korelasyon katsayısı 0,92 olarak bulunmuştur. Dereceli Kronik Ağrı Ölçeği 2.0 ile Oswestry Bel Ağrısı Engellilik İndeksi arasında (r = 0,759 p = 0,001) ve Dereceli Kronik Ağrı Ölçeği 2.0 ile Roland-Morris Engellilik Anketi arasında (r = 0,777 p = 0,001) istatistiksel olarak anlamlı korelasyon bulunmuştur. Faktör analizi 2 faktörlü bir yapı ortaya çıkarmıştır.

Tartışma: Dereceli Kronik Ağrı Ölçeği 2.0'nin Türkçe versiyonu kronik bel ağrılı hastalar için güvenilir ve geçerli bir ölçüm aracıdır.

Anahtar Kelimeler: Kronik Ağrı, Engellilik, Bel Ağrısı, Ağrı Yoğunluğu, Güvenirlik ve Geçerlilik

1 *Yeditepe University, Institute of Health Sciences, Department of Physiotherapy and Rehabilitation, İstanbul Turkey*
2 *Yeditepe University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, İstanbul Turkey*

Correspondence (İletişim):

Rasmi MUAMMER
Yeditepe University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation
Phone: +90 216 578 00 00 (3186)
E-mail: rasmi.muammer@yeditepe.edu.tr
ORCID: 0000-0001-5538-8952

Hüsniye YOL AĞIL
E-mail: husniyeyol@gmail.com
ORCID: 0000-0003-2688-4409

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INTRODUCTION

Pain is a subjective, multidimensional sensory and emotional experience that varies from person to person, and a message that the body wants to convey to the person (1). The International Association for the Study of Pain has defined pain as; 'An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.' (2).

Chronic pain affects 20% of the world's adult population (3). It lasts longer than 3 months and being independent of tissue healing. It can be cured with well-diagnosed. When the patients treated with multidisciplinary approaches, it was determined that there were major changes in their chronic pain (4,5). For this reason, the use of the biopsychosocial approach has been increased in the field of rehabilitation (6). GCPS measures the extent of which the patient is affected biologically and socially due to pain and provides us with valuable information on this subject. The 7-item chronic pain scale developed in 1992 by Von Korff et al (7) was revised to an 8-item GCPS 2.0 in 2010. The scoring and classification in the revised scale was simplified (8).

In the original scale, each item asks about pain intensity over a 6-month period. Von Korff, considering studies conducted after 1992, concluded that reports of retrospective mean pain recall should not exceed 3 months when assessing chronic pain. For this reason, the 6-month period during which pain was assessed in the new scale was reduced to 3 months. (8). When assessing pain intensity, only one value was reported by averaging the values of Question (Q)2, Q3, Q4. Chronic pain was defined as persistent or recurrent pain lasting longer than 3 months (9). For this reason, the scale was expanded to include the first item (Q1), which measures the persistence of pain and whether it is chronic pain, and asks about pain days within 6 months. The disability score (DS) was averaged from questions Q5, Q6, Q7, and Q8, which measure the patient's limitation due to chronic pain. As a result, a revised scale was developed (8).

The GCPS 2.0 is a multidimensional measurement instrument that can provide information about the persistence of pain while determining both pain intensity and disability level. The items in the scale are short and simple, and the scale is very easy to answer and score. In addition, the scale does not only measure the pain of a single body region, but is suitable for measuring pain in entire body regions. When a patient with chronic pain is examined, instead of using many different scales to determine pain intensity and degree of disability, results are obtained easily and quickly with this single scale.

When evaluating patients before and after treatment, the existing measurement methods and scales should be considered. Assessment should be done with instruments whose validity and reliability have been demonstrated in the literature. In this way, discrepancies between different data are minimized. Until standardization of the scale is achieved, each element of the scale should be analyzed and reviewed in detail, and the scoring and interpretation of the scale should be clearly stated (10,11).

The aim of this study was to evaluate the validity and reliability of the Turkish version of the GCPS 2.0, which was adapted to many languages and was mainly used in the USA and European countries and less frequently in Asian countries.

METHODS

Participants

The ethical approval was obtained from the Yeditepe University Clinical Trials Ethics Committee for the study, which was dated 24/09/2020 and numbered 37068608-6100-15- 1965. Eighty participants were recruited for the 8-item GCPS 2.0. The sample size was calculated considering the 10:1 item ratio (10 participants per item) proposed by Kline P (12). To ensure homogeneity of participants, these eighty participants consisted of people with chronic LBP. The study data was collected between October 2020 and November 2020 by emailing the scales to participants living in Turkey who signed the informed written consent in the study. Figure 1 shows the inclusion criteria. Participants who had a psychiatric disorder, a cognitive disorder, a history of disease such as dementia or Alzheimer's disease, LBP requiring immediate treatment, inflammatory LBP, and LBP due to a vascular cause were not included in the study (13).

Data Collection Instruments

The data collection instruments used in this study were: Clinic and Demographic Assessment Form, ODI, RMDQ and GCPS 2.0 (8). Turkish versions of the ODI and RMDQ were used as parallel forms to our scale.

Clinical and Demographic Evaluation Form

The clinical section contains questions about inclusion and exclusion criteria. If the patient meets the study criteria, the demographic portion of the form and other forms can be completed.

ODI

The ODI is a questionnaire that measures the impact of LBP on daily life and the degree of disability caused by this pain. It consists of a total of 10 questions. At the end of the survey, a minimum score of 0 and a maximum score of 50 can be obtained (14).

RMDQ

The RMDQ is a sensitive instrument for measuring functional loss and disability due to LBP. It is a questionnaire that consists of 24 questions and is easy to answer. "0" means no disability, and "24" means the highest disability (15).

GCPS 2.0

The Chronic Pain Grade Scale was developed by M. Von Korff as a 7-item scale to measure pain intensity and disability due to chronic pain (7). The scale asks about pain intensity for a period of the last 6 months. In 2010, Von Korff converted the scale to query pain intensity for the last 3 months (8) and transformed it into GCPS 2.0. To measure the persistence of pain, the first item was added, which asks about the pain days experienced in the last 6 months. Other items ask about the situation in the quarterly period. In the converted form, there are 8 items. Items 2, 3, 4 measure pain intensity and items 5, 6, 7, 8 measure disability level. As pain intensity, the sum of pain at the moment (Q2) and worst pain in 3 months (Q3) and usual pain intensity (Q4) in 3 months are asked. The degree of disability asked is the extent of usual (Q5) and daily activities (Q6), recreational, social, and family activities (Q7) in the last 3 months, and finally the degree of limitation in the ability to work (Q8). It is an 11-point Likert scale, except for the first item.

In addition, there is a short 3-question scale in this scale to determine the chronic pain of patients in primary care: Graded Chronic Pain-Primary Care Scale. One of these three items is usual pain intensity (Q4) for pain intensity, the other two are the sum of impairment of daily activities (Q6), the score for days kept from usual activities (Q5) to assess the DS.

Statistical Analysis

The IBM Statistical Package for the Social Sciences Statistics Version 22 software (IBM Corp. Armonk, NY, USA) was used for the statistical analysis of the results obtained in the study. The variables from the clinical and demographic data of the study group were tabulated as mean, standard deviation, minimum and maximum values. Other variables are presented in tables as numbers and percentages. The suitability of the research variables for normal distribution was determined by Kolmogorov-Smirnov / Shapiro-Wilk tests and visual inspection of histograms.

Reliability of the Scale

Reliability was assessed using the test-retest method, the parallel forms method, and internal consistency. For the internal consistency method, we used the Cronbach's alpha coefficient. The higher the alpha coefficient, the more the items of the scale agree with each other (16). In the study, test-retest reliability was investigated using the ICC method, which was preferred by the researchers and which they considered more reliable (17). In this study, the test-retest method was applied to 30 participants with an interval of 10 days (18,19). The study used the RMDQ and the ODI as parallel forms of the scale.

Transcultural Adaptation and Translation Process

The Beaton protocol was followed in translating the scale (20). First, the scale was translated from English to Turkish by two individuals whose native language is Turkish and who are fluent in English. The translated examples were converted into a single draft. This draft was then translated into English by two individuals whose native language is English and who are fluent in Turkish. The two

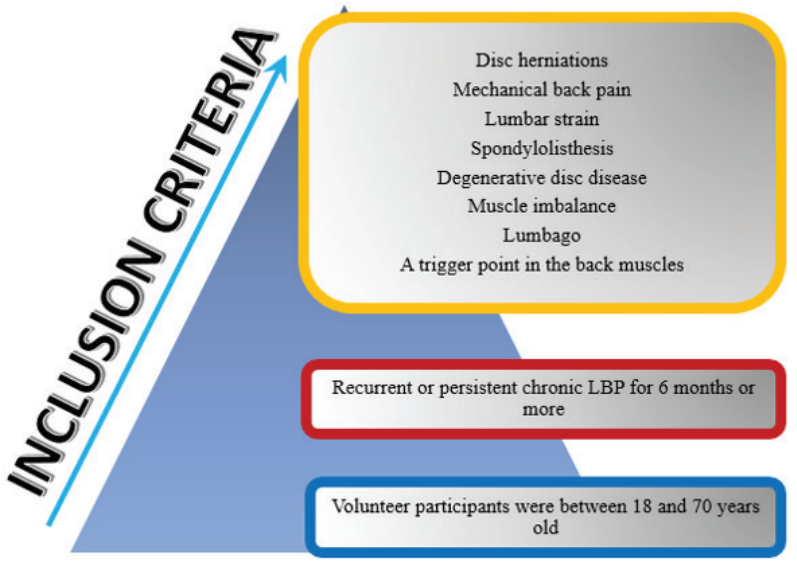

Figure 1. Inclusion Criteria

translations were compared with the original and it was found that they did not differ significantly in terms of integrity of meaning. Incomprehensible items were translated more clearly and the second draft was prepared for expert opinion. The scale was examined by physicians, nurses, and 3 specialized physical therapists. Their opinions were taken and we thought that the word 'recreation' would not be understood by participants of all sociocultural groups only in the 7th item. We decided to replace the word 'recreation' with the word 'entertainment', which is more understandable in Turkish. Apart from this, other expressions were found to be understandable and appropriate. With the last draft, a pilot test was conducted with 30 people who suffered from chronic pain. After the pilot test, we received reports that the phrase "daily activities" in item 6 was confusing. As a result, we considered it would be better to include examples of daily activities in parentheses to eliminate the confusion caused by the phrase "daily activity" in item 6. The scale was finalized taking into account the participants' comments.

Validity of the Scale

The validity of the scale was assessed using face, content, and construct validity analyses. The Beaton protocol was used to translate the scale (20). Content validity, i.e. logical validity, was assessed by interviewing experts. For construct validity, we used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). With EFA, we determined how many factors constituted the basic components. In CFA, the model created was tested using the information we obtained from the EFA (16,21,22).

RESULTS

Description of the Sample

Eighty participants with chronic LBP were included in the study. 62.5% (n=50) of the participants were women. 50% of the women were unemployed. 50% of the participants were overweight and 12.5% were obese. In addition, 60% had been suffering from pain for more than 2 years. The mean age of the participants was 36.99 ± 12.03 years. 26.2% were taking pain medication. The 36% of the women were housewives, 12% physical therapists, and 12% students. The 26.7% of the men were workers, 23.3% engineers, and 16.7% technicians. 68.8% of the participants had a herniated disc. 52.5% of participants had LBP with radiating leg pain. The sociodemographic and clinical characteristics of the participants are shown in Table 1.

Reliability Analysis of the GCPS 2.0

The Cronbach's alpha was found to be 0.89. The Cronbach's alpha of the subscale for characteristic pain intensity (CPI) was 0.88, and the Cronbach's alpha of the subscale for DS was 0.87. Thus, it

Table 1. Distribution of Sociodemographic and Clinical Characteristics by Gender.

	Female		Male		Total	
	Number (n)	Percentage (%)	Number (n)	Percentage (%)	Number (n)	Percentage (%)
Gender	50	62.50	30	37.5	80	100
Education Level						
Pre-University	24	48	14	46.70	38	47.50
High Education	26	52	16	53.30	42	52.50
Employment Status						
Employed	22	44	24	80	46	57.50
Unemployed	28	56	6	20	34	42.50
BMI Group						
Thinness and Normal	22	44	8	26.60	30	37.50
Overweight	20	40	20	66.70	40	50
Obese	8	16	2	6.70	10	12.50
Profession						
Housewife	18	36	0	0	18	22.50
Worker	2	4	8	26.70	10	12.50
Other Professions*	30	60	22	73.30	52	65
Pain Durations						
6-12 months	11	22	6	20	17	21.20
1-2 years	7	14	8	26.70	15	18.80
More than 2 years	32	64	16	53.30	48	60
Use of Pain Medication						
Yes	13	26	8	26.70	21	26.20
No	37	74	22	73.30	59	73.80
Age (year) (Mean ± SD)	36.18±12.15		38.33±11.90		36.99±12.03	

SD: Standard Deviation, Other Professions*: Engineer (n:8, %10), Student (n:7, %8.8), Physiotherapist (n:6, %7.4), Teacher (n:5, %6.2), Technician (n:7, %8.8), Government official (n:4, %5), Dietician (n:2, %2.5), Retired (n:2, %2.5), Finance (n:2, %2.5), Tradespeople(n:2, %2.5), Others (n:7, %8.8)

shows that the internal consistency of the scale and its subscales was reliable. At the same time, the decreases in the Cronbach's alpha value when the item was deleted show that the items were consistent and contributed highly.

The ICC values (95% CI) for test-retest reliability were found to be within the range of 0.87 to 0.96. Test-retest correlation of the total score of the scale was found as 0.92. Factor structure, item analysis and ICC values are shown in Tables 2 and 4.

RMDQ between GCPS 2.0 (r=0.717 p=0.001) and ODI between GCPS 2.0 (r=0.759 p=0.001) was found a high correlation (Table 3).

Table 2. Test-Retest Reliability of GCPS 2.0 and Its Subscales.

	Test (n=30) (Mean±SD)	Re-Test (n=30) (Mean±SD)	ICC	p
Number of Days with Pain	76.03±69.00	71.53±72.35	0.96	**0.001****
CPI	16.60±6.34	17.03±7.14	0.87	**0.001****
DS	12.96±10.38	12.36±9.29	0.90	**0.001****
GCPS Total	29.56±14.92	29.40±15.15	0.92	**0.001****

SD: Standard Deviation, n: Number, ICC: Intraclass Correlation Coefficient, DS: Disability Score, CPI: Characteristic Pain Intensity

Table 3. Correlation Test Results Related of GCPS 2.0 Total and Subscale Scores with "RMDQ" and "ODI" Scores.

	GCPS-CPI		GCPS-DS		GCPS	
	r	p	r	p	r	p
RMDQ	0.621	**0.001****	0.605	**0.001****	0.717	**0.001****
ODI	0.777	**0.001****	0.571	**0.001****	0.759	**0.001****

RMDQ: Roland-Morris Disability Questionnaire, ODI: Oswestry Low Back Pain Disability Index, GCPS-CPI: Graded Chronic Pain Scale - Characteristic Pain Intensity, GCPS-DS: Graded Chronic Pain Scale – Disability Score, GCPS: Graded Chronic Pain Scale

Validity Analysis of the GCPS 2.0

The KMO value was found to be fairly good at 0.81 (0.80-0.89), and the sample size was considered adequate. The result of Bartlett's test was $p < 0.05$ (chi-square=447.917 df=28 p=0.001), and the data were found suitable for factor analysis.

In applying factor analysis, direct oblimin rotation was selected as the rotation method and principal component analysis was selected as the extraction method to keep the structure of the relationship between factors the same, and factor components were formed. As a result of the factor analysis, the variables were grouped under 2 factors with a total explained variance of 74.833%. The resulting factor structure of the scale is shown in Table 4.

The original scale, consisting of 7 items, has two subscales; one with three items and one with four items. We included item 1 in the analysis, which was not included in the original and adaptation studies, and validated these two subscales that appeared in the EFA in the CFA as well. The fit indices we obtained in the CFA are shown in Table 5.

The First Item

The first item asks on how many days the patient had pain in the last 6 months. The response to item 1 consisted of days. The Cronbach's alpha of the entire inventory decreased to 0.22 when this item was analyzed in the usual way because it was incompatible with the other questions. When the item was removed from the analysis, the Cronbach's alpha of the inventory increased to 0.89. The fifth item, consisting of days and presented as an 11-point Likert, gave us an idea. For this reason, we applied a similar transformation to Item 1 to Item 5 to make Item 1 fit the Likert type. When we

Table 4. Factor Structure, Item Analysis and ICC Analysis Results of GCPS 2.0.

Items	Mean	SD	Factor Loads		Total Factor Load	Explained Variance (%)	Cumulative Explained Variance (%)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	ICC
Item 1	5.91	3.01		0.66				0.59	0.89	0.96
Item 2	4.30	2.57	**Factor 1**	0.92	4.66	58.28	58.28	0.68	0.88	0.87
Item 3	6.00	2.48		0.86				0.72	0.87	0.81
Item 4	5.12	2.54		0.93				0.74	0.87	0.89
Item 5	2.06	2.32		0.87				0.40	0.90	0.90
Item 6	3.18	2.77	**Factor 2**	0.79	1.32	16.54	74.83	0.75	0.87	0.86
Item 7	2.81	2.72		0.73				0.73	0.87	0.85
Item 8	3.47	2.83		0.69				0.75	0.87	0.92

SD: Standard Deviation, %: Percentage, ICC: Intraclass Correlation Coefficient

Table 5. Fit Indices of Confirmatory Factor Analysis.

The Criterion of Model Fit	Good Fit	Acceptable Fit	Fit in this Study
CMIN/DF	χ2/df ≤3	χ2/df ≤5	1.34
GFI	GFI≥0.90	GFI≥0.85	0.94
AGFI	AGFI≥0.90	AGFI≥0.85	0.87
CFI	CFI≥0.97	CFI≥0.95	0.99
RMSEA	RMSEA≤0.05	RMSEA≤0.08	0.04
IFI	IFI≥0.95	IFI≥0.90	0.99
NFI	NFI≥0.95	NFI≥0.90	0.94

CMIN/DF (x2/df): Chi-Square Fit Test (Minimum Discrepancy (chi-square) / Degrees of Freedom), GFI: Goodness of Fit Index, RMSEA: Root Mean Square Error of Approximation, AGFI: Adjusted Goodness of Fit Index, IFI: Incremental Fit Index, CFI: Comparative Fit Index, NFI: Normed Fit Index

analyzed item 1 in this way, the Cronbach's alpha of the whole scale increased to 0.89 and the correlation with the other items became consistent. In all previous studies, item 1 was excluded from the analysis because it was not compatible, but in our study, item 1 was included in the analysis, giving a new perspective to the analysis.

DISCUSSION

The aim of this study was to conduct a Turkish and cross-cultural adaptation, and a validity and reliability of the GCPS 2.0 to make it available for Turkish patients with chronic pain. According to the results of our study, GCPS 2.0 is a valid and reliable instrument for Turkish patients with chronic LBP.

The GCPS 2.0 has been adapted to many languages. It has been used in many studies in the Americas and in European countries. In recent years, it has also been used in Asian countries. The GCPS 2.0 scale is a short, simple, multidimensional, useful instrument with high validity and reliability that can be used in all patients with chronic pain (7,8).

To be used in international and national settings, the scale must meet certain criteria and norms. In developing the scale, it was also important to ensure its reliability and validity. Scales developed without adherence to standards may have high error rates and bias. In addition, scale adaptation was an easier, more reliable, and less expensive method than developing a scale from scratch. To ensure that our scale was reliable and valid, we followed the criteria and standards set forth in the scale adaptation (23).

When we looked at the internal consistency of the Turkish adaptation of the scale, the GCPS 2.0 total score was 0.89, and the internal consistency of the subscales was found to be GCPS-CPI 0.88 and GCPS-DS 0.87. If the alpha coefficient is between $0.80 \leq \alpha < 1.00$, it means that the scale is very reliable (24). According to this classification, our scale was very reliable in terms of internal consistency. If we look at other studies that have been done so far, the lowest value found for internal consistency was 0.70 (DS in the Brazilian version) (25) and the highest value was 0.95 (DS in the Greek version) (26). Internal consistency was 0.916 for CPI and 0.815 for DS in Arabic version (27).

We thought it appropriate to consider item 1 in calculating the internal consistency of our scale. Converting the first item into a Likert form and including it in the analysis ensured the integrity of the scale. In this way, the first item was not excluded from the analysis and the internal consistency of the scale was increased. If the Likert form of Item 1 had been included in the scale in GCPS 2.0, the scale would have been more powerful and simpler, as well as more useful. If this new idea we found is reevaluated and considered, and if the GCPS 2.0

is revised with this form, its use in clinical and research settings could be easier and more useful.

Item Q2 gave us the idea not to make the interval of test retest too long. This is because immediate pain is a symptom that changes rapidly depending on time and other factors. For this reason, we set our test-retest interval at 10 days. The test-retest reliability was 0.92 for ICC GCPS 2.0 overall. The ICC value of the original scale was 0.88 (7). In the Spanish version (28) (n=75) of the study, they enrolled 46 patients at 10-day intervals and found an ICC of 0.81. In the Brazilian version (n=283) (25), they enrolled 131 patients at 6-10-day intervals and found an ICC of 0.76 for GCPS-CPI and 0.72 for GCPS-DS. In the Indonesian version (n=202) (29), 45 participants completed the test 2 weeks later and found an ICC of 0.78 for CPI and 0.70 for DS. Reviewing all this information, we can conclude the following: The repeatability and temporal invariance of the Turkish GCPS 2.0 were found to be highly reliable.

In designing the study, we chose 2 scales, such as the GCPS 2.0, that can classify participants with a disability and whose reliability and validity were conducted in Turkish. When we examined the correlation between these 2 forms and the GCPS 2.0, there was a high correlation between the ODI and the GCPS 2.0 ($r = 0.759$ $p = 0.001$) and between the RMDQ and the GCPS 2.0 ($r = 0.777$ $p = 0.001$). The relationship between the RMDQ and the GCPS 2.0 was examined in the Spanish version and a correlation of $r = 0.509$ was found (28).

In assessing the validity of the scale, we examined the scale using content, face, and construct validity methods. Before we began adapting the scale, we obtained permission from the owner of the scale. Then, the scale was translated according to the language adaptation instructions (17,30). As the International Testing Commission (ITC) explains, words that were not culturally adaptable can be changed without distorting the whole, and words with similar meanings can replace them(31). For this reason, it was decided to use the word 'Entertainment' instead of the word 'Recreation' in order to increase cultural harmony. In the Spanish version, they chose the word leisure activities rather than recreation, similar to our version (28). In the comments of the participants of the pilot test, it was written that the word "daily activities" in item 6 was not understood. To explain the daily activities in Item 6, we put short examples in parentheses (taking a bath, eating, going shopping, etc.). In the German version, they added a description for the same item. In our estimation, they may have received negative feedback for this item (32).

When it could be applied EFA to our scale, the scale appeared with 2 factors. Unlike other studies, we included the 1st item in the analysis when calculating the factor loading. Then, we observed whether the structure of our two-factor scale that emerged in the EFA was appropriate with the CFA. We confirmed our two-factor structure formed in the EFA using the goodness-of-fit results (33).

There are many single and multidimensional scales that measure pain or limitation (RMDQ, ODI, Brief Pain Inventor). However, a short and simple-to-use scale that measures both pain intensity and the long term effect of pain on movement together, such as GCPS 2.0, has not yet been translated into Turkish. After the scale is being brought to the literature, it will provide convenience to users in academic studies or clinics and will simultaneously provide information about the dimensions of pain (8,14,15,34)

There are some limitations in the study. This study was done online instead of face to face, which made it difficult to reach every segment of society that is in some way not related to technology. For example, this was a barrier for older people who did not know how to fill out online forms on the Internet. Apart from this, only participants with chronic LBP patients were included in this study. For this reason, we suggest further studies for other types of chronic pain. Additionally, when the 1st question of the scale is a Likert-type question, ıt might facilitate both scoring and use of the scale. Furtermore, Since patients with chronic pain are at risk of depression, we think that using a depression scale along with the GCPS 2.0 could be useful in diagnosing chronic pain.

According to the results of this study, which deals with the process of cross-cultural adaptation and translation of the scale into Turkish, GCPS 2.0 is a valid and reliable instrument, as well as being short

and easy to use in patients with chronic low back pain.

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Conflict of Interest: There is no conflict of interest.

Author Contributions: Concept – HYA, RM; Design - HYA, RM; Supervision – RM; Resources and Financial Support - HYA; Materials – HYA, RM; Data Collection and/or Processing - HYA; Analysis and/or Interpretation - HYA, RM; Literature Research - HYA; Writing Manuscript - HYA, RM; Critical Review - RM. All authors read and approved the final manuscript.

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