

Reliability and Validity of the Back Pain and Body Posture Assessment Instrument in Adults with Disc Herniation

Sırt Ağrısı ve Vücut Duruşunu Değerlendirme Aracının Disk Hernisi Olan Erişkinlerdeki Güvenilirlik ve Geçerliliği

^aAyşenur GÖKŞEN^a, ^bHikmet KOCAMAN^b, ^cHasan YILDIRIM^c

^aDepartment of Physiotherapy and Rehabilitation, Tarsus University Faculty of Health Sciences, Mersin, Türkiye

^bDepartment of Physiotherapy and Rehabilitation, Karamanoğlu Mehmetbey University Faculty of Health Sciences, Karaman, Türkiye

^cDepartment of Mathematics, Kamil Özdağ Faculty of Science, Karamanoğlu Mehmetbey University, Karaman, Türkiye

ABSTRACT Objective: Cervical and lumbar disc herniations are musculoskeletal pain disorders that affect a large part of the population as a result of exposure to certain risk factors. The aim of this study was to provide evidence for the validity and reliability of the Back Pain and Body Posture Assessment Instrument for Adults (BackPEI) among patients with cervical and lumbar disc herniation. **Material and Methods:** Two hundred thirty-five patients with cervical and lumbar disc herniation were enrolled in the study. Internal consistency, test-retest reliability, and validity of BackPEI were evaluated. Correlations with the Musculoskeletal Health Questionnaire (MHQ) were examined for validity. For internal consistency and test-retest reliability were evaluated at one-week intervals. IBM SPSS and R software were used to evaluate patient data. **Results:** The intraclass correlation coefficient results varied between 0.716 and 0.800 for the total score and questions regarding pain intensity. The reproducibility data for the remaining questions analyzed using the k coefficient were high and satisfactory ($k=0.618-0.920$). The MHQ score and the BackPEI score showed a good correlation, with a $r=0.725$ correlation coefficient. **Conclusion:** BackPEI is a reliable and valid scale in patients with cervical and lumbar disc herniation. The BackPEI can be used in routine practice and clinical research to assess pain associated with disc herniation and postural habits that increase it.

ÖZET Amaç: Servikal ve lomber disk hernileri, belirli risk faktörlerine maruz kalma sonucu, popülasyonun büyük bir bölümünü etkileyen bir kas-iskelet sistemi problemidir. Bu çalışmanın amacı, servikal ve lomber disk hernisi olan hastalarda Sırt Ağrısı ve Vücut Duruşunu Değerlendirme Aracının [Back Pain and Body Posture Assessment Instrument for Adults (Back-PEI)] geçerlilik ve güvenilirliğine dair kanıt sağlamaktır. **Gereç ve Yöntemler:** Çalışmaya, servikal ve lomber disk hernisi olan 235 hasta dâhil edildi. BackPEI'nin iç tutarlılığı, test-tekrar test güvenilirliği ve geçerliliği değerlendirildi. Ölçek geçerliliği için Kas İskelet Sağlığı Anketi (KİS-A) ile korelasyonlar incelendi. İç tutarlılık için test-tekrar test güvenilirliği 1 hafta ara ile değerlendirilmiştir. Hasta verilerinin değerlendirilmesinde IBM SPSS ve R yazılımları kullanıldı. **Bulgular:** Ağrı şiddeti ile ilgili sorular ve toplam puan için sınıf içi korelasyon katsayısı sonuçları 0,716 ile 0,800 arasında değişmektedir. "k" katsayısı kullanılarak analiz edilen diğer sorular için tekrarlanabilirlik verileri yüksek ve tatmin edicidir ($k=0,618-0,920$). KİS-A skoru ve BackPEI skoru $r=0,725$ korelasyon katsayısı ile iyi bir korelasyon gösterdi. **Sonuç:** BackPEI, servikal ve lomber disk hernisi olan hastalarda geçerli ve güvenilir bir ölçektir. BackPEI, disk herniasyonuna bağlı ağrıyı ve ağrıyı artıran postüral alışkanlıkları değerlendirmek için rutin uygulamada ve klinik araştırmalarda kullanılabilir.

Keywords: Neck pain; low back pain; posture

Anahtar Kelimeler: Boyun ağrısı; bel ağrısı; postür

The Back Pain and Body Posture Assessment Instrument for Adults (BackPEI) evaluates back pain and pain-related factors such as bad postural habits. The original version of the BackPEI scale was created in Brazil in 2013 by Noll et al. in the Portuguese language. In the same study, the scale was translated

from its original language into English, and cultural adaptations were made.¹ This scale, which has also been culturally adapted to the Spanish adolescent population.² The reliability of the BackPEI on adults, whose use is common for children and adolescents, was tested in 2018. The scale was found to be a re-

Correspondence: Ayşenur GÖKŞEN

Department of Physiotherapy and Rehabilitation, Tarsus University Faculty of Health Sciences, Mersin, Türkiye

E-mail: aysenur.karaman@windowslive.com



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producibile, valid, and reliable tool for adults in the assessment of back and neck pain and pain-related factors, as well as postural habits in activities of daily living.³ Although the validity of the questionnaire for school-aged children and adults has been verified, its validity for a particular disease group has not been tested.^{1,3} In the present study, the reliability and validity of the scale were proven for the first time in a disease group in our knowledge. In this respect, our study will contribute to the literature. The use of this scale should be considered in patients with disc herniation. Because symptoms of disc herniation are mainly influenced by the physiological characteristics of the muscles connecting the upper to the shoulder and the lower to the pelvis.⁴ Homeostasis of the surrounding muscles is important for the stability and function of the disc material.⁵ The trapezius muscle in the upper extremity extends from the neck to the lower spine.⁴ The supraspinatus, infraspinatus, subscapularis, teres minor, and teres major muscles are the muscles that extend towards the scapula and provide mobility around the shoulder. These small muscles have fast-twitch muscle fiber properties.⁴ The wrong postural habits, overuse of the shoulder joint, and performing activities with the wrong body biomechanics cause fatigue in these muscles and inflammation in the muscle tissue.⁶ The progression of inflammation causes severe calcified tissue and adhesion in the fascia.⁷ Considering all this information, inappropriate postural habits and activity habits form the basis of mechanical neck and back pain.⁸ Another factor is muscle spasm caused by incorrect biomechanical loading and excessive strain of the ligaments supporting the spine and shoulder, as well as the joint capsule.⁹ Similarly, abnormal function of the latissimus dorsi and hamstring muscle groups for the lower extremities affects the lumbar biomechanics, causing increased pain in people with low back pain.⁷ Incorrect posture habits can trigger muscle dysfunction and pain in patients with disc herniation. Even if you improve bad postural habits, it will affect posture positively and help reduce the symptoms of disc herniation.⁶ The questions in the BackPEI questionnaire evaluate pain and posture for back pain. Since this assessment tool was developed and tested on children and adolescents, its use in different sample groups may only be possible after its validity and re-

liability have been tested in the relevant sample groups. Within this context, this study was conducted to test the validity and reliability of the BackPEI-TR in patients with disc herniation.

MATERIAL AND METHODS

This study was carried out at the Karamanoğlu Mehmed Bey University Training and Research Hospital. The protocol was approved by the Health Science Ethical Committee (date: November 24, 2021, no: KA12/204) and the research was conducted in accordance with the Declaration of Helsinki.

PARTICIPANTS

Participants included in the study must have at least 1 cervical or lumbar disc herniation (disc protrusion, disc extrusion, or sequestered disc). Data were obtained through face-to-face interviews with patients who were diagnosed with cervical and lumbar disc herniation at the physical therapy and rehabilitation department of the Karaman Training and Research Hospital. Patients with cervical and lumbar scoliosis and spondylolisthesis were not included in the study. In this way, a more homogeneous group was obtained. It was planned to include patients between the ages of 20 and 65 in the study, but the age range of the patients participating in the study was between 30 and 45 in accordance with the inclusion criteria. Participants were asked to sign informed consent forms. Informed consent was obtained from all individual participants included in the study.

EVALUATIONS

A sociodemographic form was used to question the participants' information, such as age, gender, sex, height, and body mass index (BMI). The validity and reliability of the BackPEI in patients with disc herniation was evaluated. The Turkish version of the Musculoskeletal Health Questionnaire (MHQ-TR) was applied to evaluate the validity of the BackPEI-TR.

BACKPEI

The BackPEI is a scale that evaluates back pain and postural habits in daily life.^{1,3} The validity and reliability of the Back Pain and Body Posture Assessment Scale used in the study were previously performed in Turkish.¹⁰ The questionnaire consists of 20 questions

in total. The positions shown in the photographs, including questions 9-14 in the questionnaire, are related to postures in activities of daily living. The questionnaire also includes questions that include demographic, socio-economic, hereditary, and behavioral factors. The BackPEI applies a general scoring system that includes only questions that refer to risk factors. In questions 1-4, appropriate posture gets 1 point and unsuitable posture gets 0 points. Only one option is accepted for these questions. In questions 5, 8, and 10, positive answers get 0 points and negative answers get 1 point. In question number 6, positive answers get 1 point and negative answers get 0 points. Questions 7 and 9 are not scored. In question 11, the option "on my stomach (in my stomach)" gets 0 points, and the other options get 1 point. In the question, 12, 7, 8, or 9 hours of sleep get 1 point; other options get 0 points. The total score is the sum of all scores (maximum 10 points). The higher the score obtained, the lower the exposure to risk factors for pain.³ The Turkish version of the scale, which was made by Gençbaş, was used in the present study.

MHQ

It is a short and easy-to-understand questionnaire developed by Scott et al. in 2020 to obtain a holistic approach in patients with musculoskeletal involvement. The questionnaire included pain and stiffness (during the day and night), physical function (walking and dressing), physical activity level, involvement of symptoms-related work, daily, and social activities and hobbies, difficulty sleeping, fatigue, emotional well-being, and diagnosis, and it consists of a total of 14 questions evaluating the understanding of the treatment and the overall effect of the disease. Each question has a 5-point Likert scale score. The total score ranges from 0-56, with 0 points indicating the worst health status and 56 points indicating the best health status.¹¹ The Turkish version, which was made by Akkubak and Kulunkoglu, was used in the present study.¹²

PROCEDURE

Internal consistency, test-retest reliability, reproducibility analysis and concurrent validity were evaluated. For the evaluations for test-retest reliability were made with an interval of 1 week. Concurrent va-

lidity was examined for correlations with the MHQ-TR. The assessment participation period lasted 8 days, during which participants were evaluated twice. All participants were asked to complete the BackPDE-TR and MHQ-TR on day 1, and the BackPDE-TR again on day 8 (final). The participants received no treatment during the questionnaire application procedure. Before the assessments and between the 2 assessments, the patients were asked not to use anti-inflammatory drugs or any conservative treatment and not to receive any treatment. The recommendations of Boateng et al. were employed to determine the study's sample size, and it can be claimed that the sample size is adequate in light of these recommendations.¹³ Following the power analysis for the study's validation process (i.e. correlation analysis), it was determined that 82 patients were needed for the sample size to have a minimum of power and a medium effect size at a level of significance. Since the study sample consisted of 235 patients, it can be said that an adequate sample size was used.

STATISTICAL ANALYSIS

In this study, various statistical tests were performed depending on the data structure according to the purposes of the study. Descriptive statistics including frequency and percentage values for qualitative variables and mean and deviation for quantitative variables were obtained.

SCALE RELIABILITY/VALIDITY AND STATISTICAL ANALYSIS PROCESS

Internal Consistency

In order to determine the agreement between measurements for each nominal question (i.e., questions 1-15 and questions 17-19), Cohen's κ (kappa) analysis was run. The evaluation criteria defined by Cohen were given as follows: (i) $0 < \kappa \leq 0.20$ [Poor], (ii) $0.201 < \kappa \leq 0.40$ [Fair], (iii) $0.401 < \kappa \leq 0.60$ [Moderate], (iv) $0.601 < \kappa \leq 0.80$ [Good] and (v) $0.801 < \kappa \leq 1.000$ [Very Good].¹⁴

Test-retest Reliability: Test-retest reliability analyses were used in the process of examining the scale's reliability. Reliability analysis was thoroughly analyzed using correlation analysis, paired samples

test (t test or Wilcoxon signed ranks test), and intra-class correlation coefficient (ICC) using total scale scores collected throughout 2 time periods considering the scale's data structure (considering the fact that it is not Likert type).

Reproducibility Analysis

ICC values were calculated to investigate the relationships and reproducibility aspect between question 16, 20 and the total scores of the BackPEI-TR scale. As the experimental design of ICC, was used on a 2-way (random effects) repeated measures analysis of variance model with absolute agreement. Fleis et al. defined the range of ICC as follows: (i) $ICC < 0.40$ [Weak], (ii) $0.41 < ICC < 0.70$ [Moderate] and (iii) $0.71 < ICC < 1$ [Excellent].¹⁵

Concurrent Validity: The correlation analysis (Spearman coefficient) was conducted to examine the relationships between the BackPEI-TR and MHQ-TR scores.

Construct Validity: The lower and upper 27% of the total scale scores were compared in order to assess the scale's construct validity.

Additional Validity Requirements: Validity processes including language and scope validity for this scale were done previously by Gençbaş and Bebiş.¹⁰

Statistical Analysis: In this study, various statistical tests were performed depending on the data structure according to the purposes of the study. Descriptive statistics including frequency and percentage values for qualitative variables and mean and deviation for quantitative variables were obtained.

On the examination based on BackPEI-TR and MHQ-TR scores, Mann-Whitney U test was used to

compare groups based on gender, and Spearman (or Pearson) correlation coefficient was employed to analyze the relationship. In order to investigate the test-retest reliability between total scales scores obtained during 2 time periods, t test or Wilcoxon signed ranks test were used.

The Shapiro-Wilk (or Kolmogorov-Smirnov test) and Levene tests, respectively, were used to verify statistical assumptions such as normality and homogeneity of variances. Additionally, the Box plot and z-scores of each quantitative variable were used for checking potential outliers. The scatter plot was utilized to verify the linearity assumption. For each significance test, the level of significance was fixed at 5%. Analyses of the results were undertaken using SPSS for Windows version 24.0 (SPSS, 8 Inc, Chicago, Illinois).

RESULTS

The study population was 235 people, including 153 women and 82 men. Of the 235 patients who were included in the study, 133 had cervical disc herniation, and 102 had lumbar disc herniation. The mean age of the individuals included in the study is 35.97 ± 6.73 . The BMI of the individuals included in the study was 25.09 ± 3.87 . The descriptive statistics of total BackPEI scores for each scale were given in Table 1. The κ (kappa) values corresponding Cohen kappa analysis to examine the internal consistency was given in Table 2. The results showed that eleven questions were classified as good and the rest of them as very good. Therefore, all questions can be seen as reasonable and should be remain in this scale based on the threshold given as $\kappa \geq 0.5$ by Kramer and Fein-

TABLE 1: The descriptive statistics of total scores for each scale.

	Mean	SD
(First) BackPEI-TR total score	4.83	2.09
(Second) BackPEI-TR total score	4.69	1.79
Health system inquiry of musculoskeletal system	43.26	9.83
(First) On the scale from 0 to 10, please identify the intensity of your back pain for the last 3 months.	4.51	1.88
(Second) On the scale from 0 to 10, please identify the intensity of your back pain for the last 3 months.	4.96	2.39
(First) On the scale from 0 to 10, please identify the intensity of your neck pain for the last 3 months.	4.79	1.94
(Second) On the scale from 0 to 10, please identify the intensity of your neck pain for the last 3 months.	4.76	2.43

SD: Standard deviation; BackPEI-TR: The Turkish version of the Back Pain and Body Posture Assessment Instrument for Adults.

TABLE 2: κ values corresponding to the categorical variables of the scale.

Question	Explanation	Agreement	Kappa	SE	CI (95%)
1	How do you typically sit at your desk when writing?	89.1	0.713	0.109	0.499-0.927
2	How do you typically sit on a chair or a bench when talking to your friends?	90.1	0.808	0.081	0.650-0.966
3	How do you typically sit when using your desktop or laptop computer?	89.1	0.706	0.096	0.520-0.893
4	How do you typically pick up objects from the floor?	89.1	0.715	0.107	0.504-0.924
5	Have you been involved in any car accident?	96.4	0.909	0.064	0.785-1.000
6	Do you practice sport or physical exercise regularly?	87.3	0.725	0.096	0.538-0.912
7	How many days per week do you practice sport or exercise?	80.9	0.680	0.138	0.410-0.949
8	Do you practice this sport or physical exercise competitively?	100	1.000	0	1.000-1.000
9	How many hours per day do you spend seated using your desktop/laptop computer?	74.5	0.655	0.085	0.490-0.820
10	Do you usually read or study in bed?	83.7	0.618	0.107	0.405-0.828
11	What is your favorite sleeping position?	89.1	0.833	0.063	0.708-0.957
12	How many hours do you spend sleeping in a day - 24 hour period?	89.1	0.828	0.063	0.704-0.952
13	Have you felt (or have been) back pain in the last 3 months?	92.8	0.920	0.054	0.813-1.000
14	How often do you feel (or felt) back pain?	87.2	0.824	0.066	0.695-0.954
15	Does the back pain prevent (or have prevented) you from performing daily life activities, such as: working, reading, practicing sports?	82.6	0.630	0.102	0.428-0.829
17	Have you felt (or have been) neck pain in the last 3 months?	85.5	0.716	0.090	0.537-0.894
18	How often do you feel (or felt) neck pain?	79.4	0.721	0.091	0.541-0.902
19	Does the neck pain prevent (or have prevented) you from performing daily life activities, such as: working, reading, practicing sports?	87.8	0.789	0.093	0.605-0.973

Each agreement and corresponding κ were obtained via Cohen kappa coefficient; SE: Standard error, CI: Confidence interval.

TABLE 3: The results of test-retest reliability analysis between the first and second BackPEI-TR scale scores.

	Mean	Median	SD	SE	Wilcoxon		Correlation		ICC		
					W	p value ^a	r value	p value ^b	Value	F	p value ^c
BackPEI-TR total score (First)	4.41	4.00	1.67	0.219							
BackPEI-TR total score (Second)	4.69	4.00	1.79	0.235	64	0.009	0.809	<0.001	0.889	9.383	<0.001

BackPEI-TR: The Turkish version of the Back Pain and Body Posture Assessment Instrument for Adults;

SD: Standard deviation; SE: Standard error; ICC: Intraclass correlation coefficient.

a: Corresponds to the significance values based on Wilcoxon signed ranks test.

b: Corresponds to the significance values based on Pearson correlation analysis.

c: Corresponds to the significance values based on Intraclass correlation analysis.

Value: Intraclass correlation coefficient,

F: Test statistic correspond to the 2-way (random effects) repeated measures analysis of variance model with absolute agreement.

stein.¹⁶ As can be seen from the [Table 2](#), the percentages of agreement and the confidence intervals are also clearly high and satisfactory. [Table 3](#) presents the findings from an investigation of test-retest reliability between the first and second BackPEI-TR scale scores using 3 different techniques, including the Wilcoxon signed ranks test, correlation analysis, and ICC coefficient. According to the results, the scale is found as reliable based on each method since of the significant results ($p < 0.001$) and high positive corre-

lation values. The ICC values to investigate the reproducibility were given in [Table 4](#) were calculated using the total BackPEI score and questions regarding pain intensity (question 16, 20) and varied between 0.716 and 0.800. An inspection of the results in [Table 4](#) reveals that question 16, 20 and BackPEI-TR total scores were highly correlated with excellent. Besides, the correlation between each measurement was found as statistically significant. The correlation analysis results carried out with the context of con-

TABLE 4: The agreement between the test and retest of questions (Q16, Q20 and BackPEI-TR).

	ICC	CI 95%	F	Sig
Q16. On the scale from 0 to 10, please identify the intensity of your back pain for the last 3 months.	0.716	[0.537, 0.833]	6.278	<0.001***
Q20. On the scale from 0 to 10, please identify the intensity of your neck pain for the last 3 months.	0.944	[0.881, 0.973]	38.67	<0.001***
BackPEI-TR total score	0.800	[0.681, 0.877]	9.383	<0.001***

***: Corresponds to the significant results under 0.05 significance value; F: Test statistic and p values correspond to the 2-way (random effects) repeated measures analysis of variance model with absolute agreement; BackPEI-TR: The Turkish version of the Back Pain and Body Posture Assessment Instrument for Adults; ICC: Intraclass correlation coefficient; CI: Confidence interval.

TABLE 5: The correlation results between BackPEI-TR and MHQ-TR scores.

	Mean	Median	SD	Normality	Spearman correlation	
				p value*	Value**	p value***
BackPEI-TR total score	4,83	5,00	2,09	<0.001	0.725	<0.001
MHQ-TR score	43,26	46,00	9,83	<0.001		

*: Normality results based on Kolmogorov-Smirnov test; **: Correlation coefficient values based on Spearman correlation analysis; ***: Corresponds to the significant results under 0.05 significance value; BackPEI-TR: The Turkish version of the Back Pain and Body Posture Assessment Instrument for Adults; MHQ-TR: The Turkish version of the Musculoskeletal Health Questionnaire; SD: Standard deviation.

TABLE 6: The significance results of lower and upper 27% of BackPEI-TR scale scores.

	Measurements	Mean	SD	SE	t	p value
Scores	First 27%	2.57	0.52	0.13	-16.28	<0.001
	Last 27%	6.82	0.91	0.23		

BackPEI-TR: The Turkish version of the Back Pain and Body Posture Assessment Instrument for Adults; SD: Standard deviation; SE: Standard error; p: Corresponds to the significance value based on independent samples t test.

current validity between BackPEI-TR and MHQ-TR scores were presented in Table 5. The results, as shown in Table 5, indicated that a positive and significant correlation was found. This confirms that BackPEI-TR scale can be considered a useful and applicable scale. In order to assess the construct validity of the scale, comparisons of the scores belong to the lower and higher 27% percentiles were performed, and the results are shown in Table 6. As a result of this table, the scale is a reliable and has the ability to measure the defined situation. According to the findings, there is no difference in BackPEI-TR and MHQ-TR scores between males and females ($p=0.230$, 0.807 respectively). The normality, linearity, and homogeneity assumptions that are required for each test were evaluated independently during each the statistical tests, and the appropriate parametric or non-parametric test result was presented after the assumption validation.

DISCUSSION

The major finding of the present study was that all questions in the BackPEI-TR questionnaire can be considered reasonable for patients with cervical and lumbar disc herniation. This study was the first to provide evidence of the validity and reliability of the back pain and body posture assessment scale for lumbar disc herniation, a common spinal pathology. The results of the study have high and satisfactory agreement percentages and confidence intervals. Since cervical and lumbar disc herniation is a disease within the framework of chronic muscle imbalance and pain, the MHQ-TR was used in the assessment. Patients who reported high scores on pain according to the BackPEI questions regarding pain intensity and significantly lower MHQ-TR scores also scored lower on the BackPEI-TR. The questionnaire we investigated for validity and reliability assesses the pain and

posture of patients with cervical and lumbar disc herniation.

In the present study, the internal consistency of the Turkish version of the BackPEI was found to be good, as the k values of all the subscales were above 0.70. Similarly, the Spanish version of the BackPEI offered sufficient agreement for questions 1-20, except for question 9.² The reason for the low ICC value in the 9th question may be due to the low time spent in front of the computer by the Spanish youth.² However, the average time is not given in the article. According to the results of our study, the reproducibility data for the questions analyzed using the k coefficient were high and satisfactory ($k=0.618-0.920$). Also, the ICC results varied between 0.716 and 0.800 for the total score and questions regarding pain intensity.

It was seen that the adaptation of the BackPEI into Turkish was carried out on 139 students studying at a secondary school. The correlation coefficient between the score of the Back Pain and Body Posture Assessment Tool and the visual analogue scale score was found to be $r=-0.684$.¹⁰ Most of the studies in the literature have been done on adolescent patients.^{1,2,17} Unlike the literature, our study was conducted on adults and specific to a disease. According to the results of our study, MHQ-TR score and BackPEI-TR score showed a good correlation with the correlation coefficient of $r=0.725$. The results of their study showed that BackPEI-TR answers were highly correlated both for lower back ($p=0.574$), (ICC=0.908) and cervical ($p=0.968$) (ICC 0.865) pain.³ However, no study has been found in the literature regarding the safety of using this scale in a specific disease group.

Studies in the literature related to this scale are on healthy children, teenagers and adults. The validity and reliability of this scale on a specific disease has not been examined previously.¹⁸ In this respect, this study is unique in our knowledge. Cervical and lumbar disc herniation is a musculoskeletal pain disorder that affects a large part of the population as a result of exposure to certain risk factors.¹⁹ According to the results of a comprehensive study conducted in

2021, poor sitting posture was associated with musculoskeletal pain.²⁰ The first step in the treatment of disc herniation is the evaluation of the patient. This scale can be used to evaluate pain and posture in disc herniation.²¹ Neck and back pain in cervical and lumbar disc herniation can be solved by providing education on pain-related factors that can be changed. Awareness training and postural exercises given to patients with cervical and lumbar disc herniation to protect spine health can reduce the pain-related factors related to the progression of disc herniation. According to the results obtained from the study, the use of BackPEI was found to be reliable for the evaluation of pain and posture in cervical and lumbar disc herniations.

CONCLUSION

The BackPEI-TR was found to be a valid and reliable questionnaire in patients with lumbar or cervical disc herniation. Using this scale in patients with disc herniation could be important in evaluating the pain and postural habits that increase their pain.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Ayşenur Gökşen; **Design:** Ayşenur Gökşen, Hikmet Kocaman; **Control/Supervision:** Ayşenur Gökşen, Hikmet Kocaman; **Data Collection and/or Processing:** Hikmet Kocaman, Hasan Yıldırım; **Analysis and/or Interpretation:** Ayşenur Gökşen, Hikmet Kocaman; **Literature Review:** Ayşenur Gökşen; **Writing the Article:** Ayşenur Gökşen; **Critical Review:** Hikmet Kocaman, Hasan Yıldırım; **References and Fundings:** Ayşenur Gökşen; **Materials:** Ayşenur Gökşen, Hikmet Kocaman.

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