Validity and Reliability of the Turkish Version of Western Ontario Osteoarthritis of the Shoulder Index

Şeyda Özal, PT[1] ID, Nevin Atalay Güzel, PT[1] ID, Ahmet Yiğit Kaptan, MD[2] ID, Toygun Kağan Eren, MD[3] ID, Nihan Kafa, PT[1] ID

[1]Department of Physiotherapy and Rehabilitation, Gazi University, Faculty of Health Sciences, Ankara, Turkey
[2]Department of Orthopedics and Traumatology, Harran University, Faculty of Medicine, Şanlıurfa, Turkey
[3]Department of Orthopedics and Traumatology, Ankara Training and Research Hospital, Ankara, Turkey

Shoulder osteoarthritis occurs as a result of progressive wear of the glenohumeral joint cartilage. It causes pain, stiffness, inflammation in surrounding soft tissues, and muscle weakness in the shoulder joint.[1,2] The range of motion (ROM) of the shoulder joint is greater than the hip and knee joints, where osteoarthritis is more common, and a decrease in ROM as a result of osteoarthritis affects the psychological state of the patient more severely.[3] These symptoms also affect adversely the functional level and quality of life of the patient. As the number of patients with shoulder osteoarthritis increases in the elderly population, it becomes more important to use disease-specific and patient-related outcomes to compare treatment modalities and patient satisfaction.[4]

ABSTRACT

Objectives: This study aims to adapt the Western Ontario Osteoarthritis of the Shoulder (WOOS) index specific to shoulder osteoarthritis into Turkish and to evaluate its validity and reliability.

Patients and methods: The WOOS index was translated and culturally adapted into Turkish, systematically. It was applied to a total of 68 patients (17 males, 51 females; mean age: 61.5±8.7 years; range, 45 to 80 years) with osteoarthritis of the shoulder treated conservatively. The reliability of the scale was checked through internal consistency and test-retest methods. Internal consistency was analyzed with Cronbach alpha value. Test-retest reliability was assessed using an intraclass correlation coefficient (ICC) with 25 patients. The Western Ontario Rotator Cuff (WORC), the Shoulder Pain and Disability Index (SPADI), and the Society of American Shoulder and Elbow Surgeons Standardized Shoulder Assessment (ASES) scores were used to conduct concurrent validity.

Results: The Cronbach alpha value of the scale was found to be excellent as 0.92 (p<0.001). The ICC value was also excellent as 0.97 (p<0.001). There was an excellent positive correlation with WORC (0.847; p<0.001) and a very good positive correlation with SPADI (0.788; p<0.001). It was also negatively very good to correlate with the ASES (-0.754; p<0.001). Additionally, subsections of WOOS had a good correlation with the corresponding subsections of WORC (0.779-0.664; p<0.001).

Conclusion: The Turkish version of the WOOS index is a valid and reliable tool and is recommended for use in the assessment of patients with osteoarthritis of the shoulder.

Keywords: Osteoarthritis of the shoulder, Turkish version, validation, Western Ontario Osteoarthritis of the Shoulder.

Various clinical scales are available to investigate shoulder diseases. The Oxford Shoulder Score,[5] Society of American Shoulder and Elbow Surgeons Standardized Shoulder Assessment (ASES) score,[6] Long Head of Biceps (LHB) score,[7] and Constant-

Murley score,[8] which are used in various pathologies of the shoulder, have been developed and tested in different languages. Furthermore, the Turkish validations were made and culturally adapted in the Turkish population.[5-7] However, none of them are specific for osteoarthritis of the shoulder. Therefore, Lo et al.[4] developed the Western Ontario Osteoarthritis of the Shoulder (WOOS) index, which is specific for shoulder osteoarthritis. This scale is based on clinical functions of the shoulder joint, as well as sports/recreation/work, lifestyle, and emotions.[4] Although the WOOS index has been used as a valid and reliable tool in native English-speaking countries for the last two decades, its Turkish adaptation has not been carried out yet. Therefore, in the present study, we aimed to translate the WOOS index into the Turkish language and investigate the validity and reliability of the scale in the Turkish population.

PATIENTS AND METHODS

Prior to the study, written permission was obtained via electronic mail from the author who developed the WOOS index. Later, the study protocol was approved by the Gazi University, Faculty of Health Sciences Ethics Committee (No: 91610558-604.01.02-05.12.2019/12). Finally, the WOOS index was adapted into Turkish according to systematic translation rules[9] and, then, the validity and reliability studies of the translated scale were performed.

Translation and cross-cultural adaptation process

The translation and cultural adaptation of the scale were performed according to the procedure of Beaton et al.[9] In the first stage of adaptation, two native Turkish speakers, one from the medical sector and the other from outside the field, translated the original scale into Turkish. Two translation outputs were synthesized. The synthesized Turkish scale was translated back to English by two independent professional bilingual translators via a translation company. The working committee compared the translated document and the original scale in terms of meaning and usage of language and decided on the new version of the scale. As the final stage of the adaptation process, a pretest was done for the comprehensibility of the new product to be ensured its conceptual and semantic equivalence. For this purpose, a comprehensibility form was created by placing a checklist containing "fully understood", "partially understood", and "not understood" options for each item in the index. It was pretested in 30 native Turkish speakers (patients with osteoarthritis of the shoulder) and the results were evaluated. They did not report any ambiguity or confusing meaning in the Turkish version. Therefore, no changes were required and the latest Turkish version of the WOOS index was created successfully (Appendix 1).

Participants

A total of 67 adult native Turkish speakers (17 males, 51 females; mean age: 61.5±8.7 years; range, 45 to 80 years) with shoulder osteoarthritis were included in the study. They were diagnosed by orthopedists based on specific symptoms, physical examination findings, and changes in the bone visible on radiography. Patients with illiteracy, cognitive impairment, and shoulder circumference fractures or had any other accompanied shoulder pathology were excluded. A written informed consent was obtained from each patient. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Testing protocol

The patients diagnosed at the hospital were oriented to Gazi University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation. The patients were asked to complete the prespecified questionnaires under the supervision of a physical therapist. The demographics of the patients were recorded. After the examination, in addition to the medical treatment given by the physicians, an individual home-based treatment program was created by the physiotherapist for each patient. In 25 patients, the WOOS index was repeated two days later.

Questionnaires

Literature research was conducted to determine the correct evaluation criteria. The scales used in the development of the original WOOS index and the other adaptation studies were analyzed. Scales that have higher consistency with the WOOS index and also adapted in Turkish previously were preferred. Finally, it was decided to use Western Ontario Rotator Cuff (WORC),[10] Shoulder Pain and Disability Index (SPADI),[11] and ASES[6] questionnaires to evaluate the concurrent validity of the WOOS index.

The WOOS index is a self-administrated, disease-specific questionnaire for the measurement of the quality of life for patients with osteoarthritis of the shoulder. This scale consists of four subsections and 19 items as SECTION A: Physical Symptoms (6 items), SECTION B: Sports/Recreation/Work (5 items), SECTION C: Lifestyle (5 items), and SECTION D: Emotions (3 items). All items are rating with a 10-cm

Visual Analog Scale (VAS). "0" indicates no pain, while 10 indicates extreme pain. Therefore, the sum of the points is within the range of 0 to 1,900 points. The percentage value of the total score can be also used as a raw score.[4]

The WORC index is a self-assessment instrument that has been developed to measure the quality of life of patients with rotator cuff disease. It has five subsections (physical symptoms, sports, and recreation, work, lifestyle, emotions) and 21 items. Each question is rating with a 10-cm VAS. The total score changes between 0 and 2,100 points. A score of 0 implies no symptoms, while a score of 2,100 is the worst score possible.[10]

The SPADI was developed to measure current shoulder pain and disability. We preferred the Numerical Rating Scale (NRS) version of SPADI. Each question is rating in the range of 0 to 10 points. The percentage of the total point is recorded for each domain. The total score was calculated in the same way.[11]

The ASES score consists of two sections. One of them is the 10-item functional section (Likert type) rated by a physician and the other one 1-item pain section (VAS type) rated by the patient. A patient gets a minimum of 0, a maximum of 100 scores. Higher scores indicate a better medical condition of the patient.[6]

Statistical analysis

Statistical analysis was performed using the IBM SPSS for Windows version 22.0 software (IBM Corp., Armonk, NY, USA). The variables were investigated using visual (histograms, probability plots) and analytical (Shapiro-Wilk test) methods to determine the normality of variables. The quantitative variables were expressed in mean ± standard deviation (SD) or median (interquartile range [IQR]) by normality properties.[12] The reliability of the scale was evaluated with internal consistency and test-retest methods. Test-retest studies are usually conducted in two- or 14-days interval. This time is sufficient both to minimize the bias associated with the recollection of previous responses and to ensure to keep stable the clinical state of the patient. We preferred retesting before starting treatment to keep the patients' clinical condition stable. As not to delay the treatment, we preferred the two-day interval.[13,14] Internal consistency was calculated with the Cronbach alpha value.[13] Test-retest reliability was assessed using the intraclass correlation coefficient (ICC).[14] To eliminate the systematic bias and interpret the

correlation results accurately, a Bland-Altman plot was depicted.[15]

The validity of the scale was evaluated in terms of construct validity and concurrent validity.[14,16] A factor analysis was carried out for construct validity. The Kaiser-Meyer-Olkin (KMO) test was used to verify the adequacy of the sample, while the Bartlett test of sphericity was used to evaluate the factored data. A value higher than 0.5 of KMO was considered good sampling adequacy. The maximum likelihood extraction method with oblique rotation was conducted to determine the latent factor structure of the Turkish version of the WOOS. Factor loads below 0.30 were suppressed and not taken into account. Eigenvalues above the 1 were accepted as admissible factors.[17] To assess the concurrent validity, total WOOS scores were compared with total scores of WORC, SPADI, and ASES. The subsections of the WOOS index were also compared with subsections of WORC. As all variables were non-parametric, the Spearman correlation coefficient method was used. A *p* value of <0.05 was considered statistically significant.

RESULTS

The demographic and clinical characteristics of the patients are presented in Table I. The outcome scores are shown in Table II.

Internal consistency

The Cronbach alpha value of the scale was found to be 0.92.

TABLE I			
Demographic and clinical characteristics of patients			
	n	%	Mean±SD
Age (year)			61.5±8.7
Sex			
Female	51	75	
Male	17	25	
Dominant/involved side			
Right dominant	66	97.1	
Left dominant	2	2.9	
Involved right	40	50.58	
Involved left	24	35.3	
Involved both side	4	5.9	
Education level			
Primary education	48	70.6	
High School	18	26.5	
Graduate education	2	2.9	
Symptom duration			21.2±8.5
SD: Standard deviation.			

TABLE II
Outcome scores

Scale	Subsections	Scores	
		Median	IQR
WOOS	Physical symptoms	24.50	17.75
	Sports/recreation/work	30.00	21.08
	Lifestyle	25.80	22.35
	Emotions	15.45	9.00
	Total	104.10	51.75
R-WOOS	Physical symptoms	25.00	18.25
	Sports/recreation/work	25.50	19.90
	Lifestyle	23.00	17.50
	Emotions	14.00	12.25
	Total	95.00	58.65
WORC	Physical symptoms	31.50	13.50
	Sports and recreation	23.50	12.25
	Work	27.50	16.22
	Lifestyle	20.00	12.50
	Emotions	17.50	8.00
	Total	129.65	63.85
SPADI	Pain	70.00	30.00
	Disability	60.00	21.25
	Total	61.53	19.81
ASES	Pain	20.00	15.00
	Activity	25.83	17.92
	Total	47.49	26.67

IQR: Interquartile range; WOOS: Western Ontario Osteoarthritis of the Shoulder; R-WOOS: Retest of WOOS; WORC: Western Ontario Rotator Cuff Index; SPADI: Shoulder Pain and Disability Index; ASES: The Society of American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form.

FIGURE 1. Bland-Altman plot for the test and retest results of the WOOS index.
WOOS: Western Ontario Osteoarthritis of the Shoulder; UL: 95% Confidence interval upper limit; LL: 95% Confidence interval lower limit.

TABLE III
Correlation values of WOOS with the other questionnaires

	WOOS	
	r	p
WORC	0.847	<0.001
SPADI	0.788	<0.001
ASES	-0.754	<0.001

WOOS: Western Ontario Osteoarthritis of the Shoulder; WORC: Western Ontario Rotator Cuff Index; SPADI: Shoulder Pain and Disability Index; ASES: The Society of American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form.
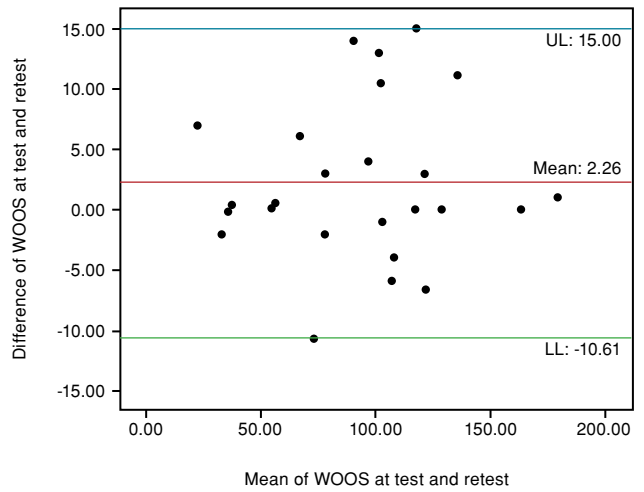
TABLE IV
Correlation values of the corresponding subsections of WOOS and WORC-WOOS (subsections) WORC (subsections) correlation values

WOOS (subsections)	WORC (subsections)	Correlation values	
		r	p
Section A: Physical symptoms	Section A: Physical symptoms	0.664	<0.001
Section B: Sports/recreation/work	Section B: Sports and recreation	0.779	<0.001
Section B: Sports/recreation/work	Section C: Work	0.701	<0.001
Section C: Lifestyle	Section D: Lifestyle	0.776	<0.001
Section D: Emotions	Section E: Emotions	0.669	<0.001

WOOS: Western Ontario Osteoarthritis of the Shoulder; WORC: Western Ontario Rotator Cuff Index.

Reproducibility

The ICC value of the scale was found to be excellent (0.972; p<0.001). Beyond the correlation, we also searched the repeatability of the WOOS with the Bland-Altman plot. A high percentage of agreement between test and retest results of 25 patients is shown in Figure 1.

Construct validity

The KMO measure of sampling adequacy was found to be 0.89 and the Barlett chi-square was found to be 531.13 (p<0.001). Four factors were identified with eigenvalues above the 1 and item factor loadings above 0.30. The variance rate explained by four factors was 72.30%.

Concurrent validity

To analyze concurrent validity, Spearman correlation analysis was conducted between the WORC, SPADI, ASES, and WOOS. The total score of the WOOS had an excellent positive correlation with WORC (0.847; p<0.001) and a very good positive correlation with SPADI (0.788; p<0.001). It was also negatively very good to correlate with the ASES (0.754; p<0.001), (Table III). Additionally, the subsections of WOOS had a good correlation with the corresponding subsections of WORC (0.779-0.664; p<0.001) (Table IV).

DISCUSSION

Currently, the use of more specific and faster supportive materials has been rapidly gaining importance for the evaluation of patients' conditions. The use of disease-specific questionnaires, instead of the general questionnaires referring to the general condition of the individual, increases the accuracy of the measurement.[4,7,10] The increasing rate of shoulder osteoarthritis and the variety of methods applied for this condition have increased the need for useful and rapid pathology-specific tools.[4] We believe that the use of WOOS in Turkey would provide some benefits to patients and clinicians to appoint the level of disability of osteoarthritis patients, to determine the method to be used in the treatment, and to show the results of the treatment applied practically and easily.

The WOOS is available in Swedish,[18] Danish,[19] Italian,[20] and Chinese.[21] In our study, we carried out multi-step systematic translation stages as in all other version studies. The Cronbach alpha value of Swedish, Italian, and Danish versions of WOOS has been determined in the literature. A high coefficient alpha value (0.95) was reported by the Swedish version which was conducted by Klintberg et al.[18] Similarly, the high coefficient alpha value

was also reported in Danish (0.98) and Italian (0.91) versions.[19,20] In this study, as in the other versions in literature, the Cronbach alpha value of WOOS was excellent (0.92, p<0.001).

Test-retest reliability was very high (ICC=0.972; p<0.001), indicating the presence of a high correlation.[14] However, a plot of the difference between the test and retest results against their mean is more informative.[15] As illustrated by the Bland-Altman plot, this high correlation did not occur by chance. It was a natural output of the agreement between the measurements. All these results suggest that WOOS is stable over time, unless the clinical situation changes. These findings are also similar to those in previous studies. Correlation coefficients in Swedish, Danish, Italian and Chinese versions were κ=0.649, r=0.96, r=0.99, and r=0.98, respectively.[18-21]

The KMO measure of sampling adequacy and Barlett chi-square value were found to be satisfactorily high. These values showed that our sample size was both suitable and sufficient for the analysis. Four factors were identified according to results, indicating that the Turkish version of the WOOS index consists of four different subsections, as in the original index. Besides, this four-factor structure of the WOOS is able to explain the majority of the total variance, proving that it has a sufficient sample size for validation.

In the studies of other versions, correlation of the WOOS with the Shoulder Rating Questionnaire,[18] Oxford Shoulder Scale,[19-21] Constant Murley Score,[19] Disability of Arm Shoulder and Hand Questionnaire,[20] and Short Form-36[19] was investigated. Findings were 0.83, 0.82, 0.82, 0.73 and 0.48, respectively. When the contents of the scales and the results are evaluated, the correlation decreased, as we went from specific to general.

In our study, we chose SPADI, ASES, and WORC, since they are region-specific scales. The correlation coefficients between the total values of SPADI, ASES, and WOOS were high. The strongest correlation was found with the WORC. Also, relevant subsections of the WORC and WOOS were highly correlated.

We preferred to use WORC in our study, since it was developed by the same institution, accepted to be valid and reliable, and similar to WOOS in terms of content, subsections, and questions. Our results showed that this was an appropriate approach. However, although WORC and WOOS item titles are similar, their contents differ from each other due to the different pathology they are specific to. Considering the effects of these two diseases on the quality of life, the rotator cuff lesions are found to

cause more functional disability, while pain comes into prominence for osteoarthritis patients even at rest. In general, patients with shoulder osteoarthritis are older and lesser active. Therefore, the situation and needs of these two groups are similar, but not the same. This situation reveals the importance of choosing the appropriate scale for the target population and pathology to obtain the most accurate results.

Since our patient population is in a large range and the treatment method required for each one is different, a responsiveness study could not be performed. Further studies are needed to investigate the responsiveness, clinical sensitivity, and specificity of WOOS.

In conclusion, the WOOS translated into Turkish according to the international standardized guidelines and culturally adapted has substantial psychometric properties. The Turkish version of WOOS can be used as a valid and reliable tool to evaluate patients with shoulder osteoarthritis in Turkish-speaking countries.

REFERENCES

1. Petersson CJ. Degeneration of the gleno-humeral joint. An anatomical study. Acta Orthop Scand 1983;54:277-83.

2. Özer M, Ataoğlu MB, Çetinkaya M, Ayanoğlu T, Kaptan AY, Kanatlı U. Do intra-articular pathologies accompanying symptomatic acromioclavicular joint degeneration vary across age groups? Eklem Hastalik Cerrahisi 2019;30:2-9.

3. Millett PJ, Gobezie R, Boykin RE. Shoulder osteoarthritis: Diagnosis and management. Am Fam Physician 2008;78:605-11.

4. Lo IK, Griffin S, Kirkley A. The development of a disease-specific quality of life measurement tool for osteoarthritis of the shoulder: The Western Ontario Osteoarthritis of the Shoulder (WOOS) index. Osteoarthritis Cartilage 2001;9:771-8.

5. Tuğay U, Tuğay N, Gelecek N, Özkan M. Oxford Shoulder Score: Cross-cultural adaptation and validation of the Turkish version. Arch Orthop Trauma Surg 2011;131:687-94.

6. Celik D, Atalar AC, Demirhan M, Dirican A. Translation, cultural adaptation, validity and reliability of the Turkish

7. Najafov E, Özal Ş, Kaptan AY, Ulucaköy C, Kanatlı U, Ataoğlu B, et al. Validity and reliability of the Turkish version of LHB score. J Sport Rehabil 2021;30:30-6.

8. Çelik D. Turkish version of the modified Constant-Murley score and standardized test protocol: Reliability and validity. Acta Orthop Traumatol Turc 2016;50:69-75.

9. Beaton D, Bombardier C, Guillemin F, Ferraz MB. Recommendations for the cross-cultural adaptation of health status measures. Am Acad of Orthop Surg 2002;12:1-9

10. El O, Bircan C, Gulbahar S, Demiral Y, Sahin E, Baydar M, et al. The reliability and validity of the Turkish version of the Western Ontario Rotator Cuff Index. Rheumatol Int 2006;26:1101-8.

11. Bumin G, Tuzun EH, Tonga E. The Shoulder Pain and Disability Index (SPADI): Cross-cultural adaptation, reliability, and validity of the Turkish version. Journal of Back and Musculoskeletal Rehabilitation 2008;21:57-62.

12. Royston P. Approximating the Shapiro-Wilk W-test for non-normality. Stats Comp 1992;2:117-9.

13. Snyder CF, Aaronson NK, Choucair AK, Elliott TE, Greenhalgh J, Halyard MY, et al. Implementing patient-reported outcomes assessment in clinical practice: A review of the options and considerations. Qual Life Res 2012;21:1305-14.

14. Weir JP. Quantifying test-retest reliability using the intraclass correlation coefficient and the SEM. J Strength Cond Res 2005;19:231-40.

15. Bland JM, Altman DG. Statistical methods for assessing agreement between two methods of clinical measurement. Lancet 1986;1:307-10.

16. Arafat SY, Chowdhury HR, Qusar MS, Hafez MA. Cross cultural adaptation & psychometric validation of research instruments: a methodological review. J Behav Health 2016;5:129-36

17. Flora DB, Curran PJ. An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. Psychol Methods 2004;9:466-91.

18. Klintberg IH, Lind K, Marlow T, Svantesson U. Western Ontario Osteoarthritis Shoulder (WOOS) index: A cross-cultural adaptation into Swedish, including evaluation of reliability, validity, and responsiveness in patients with subacromial pain. J Shoulder Elbow Surg 2012;21:1698-705.

19. Rasmussen JV, Jakobsen J, Olsen BS, Brorson S. Translation and validation of the Western Ontario Osteoarthritis of the Shoulder (WOOS) index - the Danish version. Patient Relat Outcome Meas 2013;4:49-54.

20. Corona K, Cerciello S, Morris BJ, Visonà E, Merolla G, Porcellini G. Cross-cultural adaptation and validation of the Italian version of the Western Ontario Osteoarthritis of the Shoulder index (WOOS). J Orthop Traumatol 2016;17:309-13.

21. Jia ZY, Zhang C, Cui J, Xue CC, Xu WD. Translation and validation of the Simplified Chinese version of Western Ontario Osteoarthritis of the Shoulder Index (WOOS). Medicine (Baltimore) 2018;97:e8691.

APPENDIX 1

Hasta için açıklamalar: Aşağıdaki ankette verilen yatay çizgi üstüne eğik bir çizgi "/" koyarak soruları cevaplamanız istenmektedir. Sağ tarafa yakın "/" işaretini koyduğunuzda, o belirtiyi daha fazla yaşadığınızı, Sol tarafa yakın "/" koyduğunuzda o belirtiyi daha az yaşadığınızı gösterir.

Bölüm A: Fiziksel Belirtiler

1. Omuzunuzun hareketi sırasında ne kadar ağrı hissedersiniz?

Ağrı yok		Çok şiddetli ağrı

2. Omuzunuzda hissettiğiniz sürekli, rahatsız edici ağrının şiddeti ne kadardır?

Ağrı yok		Çok şiddetli ağrı

3. Omzunuzda ne kadar güçsüzlük hissedersiniz?

Güçsüzlük yok		Aşırı güçsüzlük

4. Omuzunuzda ne kadar tutukluk hissedersiniz?

Tutukluk yok		Aşırı derecede tutukluk

5. Omuzunuzda ne kadar sürtünme hissi yaşarsınız?

Hiç		Aşırı derecede

6. Omuzunuz hava durumundan ne kadar etkilenir?

Etkilenmez		Aşırı etkilenir

BÖLÜM B: Spor/Rekreasyon/İş

7. Çalışırken veya omuz seviyesinden yukarıya uzandığınızda ne kadar zorluk yaşarsınız?

Zor değil		Aşırı derecede zor

8. Omuz seviyesinin altındaki nesneleri (örn. market torbaları, çöp tenekesi vb.) kaldırmada ne kadar zorluk yaşarsınız?

Zor değil		Aşırı derecede zor

9. Omuz seviyesinin altında, bahçe tırmıklama, süpürme ya da yer silme gibi tekrarlayan hareketleri yapmakta ne kadar zorluk yaşarsınız?

Zor değil		Aşırı derecede zor

10. Güçlü (zorlu) itme ve çekme hareketlerinde omuzunuz nedeniyle ne kadar zorluk yaşarsınız?

Zor değil		Aşırı derecede zor

11. Aktivitelerden sonra omuzunuzdaki ağrı artışı ile ne kadar sıkıntı yaşarsınız?

Hiç		Aşırı derecede sıkıntılı

BÖLÜM C: Yaşam Tarzı

12. Omuzunuz nedeniyle uyumakta ne kadar zorluk çekersiniz?

Zor değil		Aşırı derecede zor

13. Omuzunuz nedeniyle saçınıza şekil vermede ne kadar zorluk yaşarsınız?

Zor değil		Aşırı derecede zor

14. Omuzunuz nedeniyle istediğiniz kondisyon düzeyinizi korumakta ne kadar zorluk çekersiniz?

Zor değil		Aşırı derecede zor

15. Gömleğinizi pantolonunuzun içine sokmak, arka cebinizden cüzdanı almak ya da giyinmek için arkaya uzandığınızda ne kadar zorluk yaşarsınız?

Zor değil		Aşırı derecede zor

16. Giyinip soyunurken omuzunuz nedeniyle ne kadar zorluk çekersiniz?

Zor değil		Aşırı derecede zor

BÖLÜM D: Duygular

17. Omuzunuz nedeniyle ne kadar hayal kırıklığına uğramış veya cesareti kırılmış hissedersiniz?

Hiç		Çok fazla

18. Gelecekte omzunuza ne olacağı konusunda ne kadar endişelisiniz?

Hiç endişelenmem		Aşırı endişelenirim

19. Başkalarına ne kadar yük olduğunuzu düşünürsünüz?

Hiç		Aşırı yük

20. Başkalarına ne kadar yük olduğunuzu düşünüyorsunuz?

Hiç		Aşırı yük