İzmir Kâtip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2023; 8(3): 963-968
DOI: 10.61399/ikcusbfd.1245472

İKÇÜSBFD

ARAŞTIRMA / RESEARCH

The 6-item Self-Efficacy Scale in the Management of Chronic Disease in Individuals with Multiple Sclerosis (MS-CHOYO): Validity and Reliability Study

Multipl Sklerozlu Bireylerde Kronik Hastalık Yönetiminde 6 Maddelik Öz-Yeterlilik Ölçeği (MS-KHÖYÖ): Geçerlik ve Güvenirlik Çalışması

Nermin EROGLU[1], Gamze TEMIZ[2]

[1]*Fenerbahçe University, Faculty of Health Sciences, Department of Nursing, Istanbul, Türkiye*
[2]*Health Sciences University Hamidiye Faculty of Nursing, Istanbul, Türkiye*

Geliş tarihi/Received: 01.02.2023
Kabul tarihi/Accepted: 28.05.2023

Sorumlu Yazar/Corresponding Author:

Nermin EROGLU, Asst. Prof.
Nursing Department, Faculty of Health Science, Fenerbahce University, Istanbul, Turkey.
E-mail: nermin.guduloglu@hotmail.com
ORCID: 0000-0003-4780-3049

Gamze TEMIZ, Asst. Prof.
ORCID: 0000-0002-0681-0595

Abstract

Objective: The research was methodologically planned and applied to adapt the 6-item self-efficacy scale in chronic disease management of individuals with multiple sclerosis to Turkish society.

Material and Method: The research was carried out between January 2021 and March 2021 by using the online questionnaire method with individuals with Multiple Sclerosis registered to the Turkish MS Society. To establish the validity and reliability of the self-efficacy for managing chronic disease six item scale (SEMDC-6S), the study was carried out with a sample consisting of n=104 individuals, which was more than 10 times the number of items on the scale(six items).For test-retest reliability, the scale was administered to 20 patients twice at a two week interval.

Results: The validity of the SEMDC-6S was evaluated with language validity, construct validity, and content validity. The internal consistency coefficient (Cronbach's Alpha) was 0.95, as which was very high.The item-total correlation was examined, and accordingly, no items were excluded from the scale. According to the test-retest results, it was determined that repeated measurements did not differ significantly, and retests had a high correlation.

Conclusion: The SEMDC-6S, which was adapted to Turkish society, is a valid and reliable tool. We recommend that it should be applied in different groups and cultures to increase its evidence value.

Keywords: Chronic diseases, self-efficacy, self-managing, validity, reliability, scale, multiple sclerosis.

Öz

Amaç: Araştırma, multipl sklerozlu bireylerin kronik hastalık yönetiminde 6 maddelik öz- yeterlilik ölçeğinin Türk toplumuna uyarlanması için metodolojik olarak planlandı ve uygulandı.

Gereç ve Yöntem: Araştırma Türkiye MS Derneğine kayıtlı Multipl Sklerozlu bireylerle online anket yöntemi kullanılarak Ocak 2021-Mart 2021 tarihleri arasında gerçekleştirildi. Kronik Hastalık Yönetiminde 6 Maddelik Öz-Yeterlilik Ölçeği (KHÖYÖ) geçerlik ve güvenirliği için örneklem sayısı madde sayısının 10 katının üzerinde (6 madde) n=104 birey ile gerçekleştirildi, test-tekrar test güvenirliği için 20 hastaya 2 hafta ara ile ölçek tekrar uygulandı.

Bulgular: KHÖYÖ geçerliği, dil geçerliği, yapı geçerliği ve kapsam geçerliği ile değerlendirildi. Güvenirliği iç tutarlılık analizi (Cronbach's Alpha) 0.95 olarak oldukça yüksek bulundu, madde toplam korelasyonu incelendi ve herhangi bir maddenin ölçekten çıkarılmamasına karar verildi. Test tekrar test sonuçlarına göre tekrarlı ölçümlerin anlamlı farklılık göstermediği ve tekrar testlerin yüksek korelasyona sahip olduğu saptandı.

Sonuç: KHÖYÖ Türk toplumuna uyarlanan geçerli ve güvenilir bir araçtır. Kanıt değerinin arttırılması için farklı gruplarda ve kültürlerde uygulanması önerilir.

Anahtar Kelimeler: Kronik hastalıklar, öz yeterlilik, geçerlik, güvenirlik, ölçek, multipl skleroz.

1. Introduction

Today, with the developments in the field of health, life expectancy has increased, but the incidence of chronic diseases has escalated, as well (1). A chronic illness is defined as a condition that lasts for one or more years, requires continuous medical support, and/or restricts daily life. Chronic diseases are among the leading causes of death all over the world and account for a large part of health expenditures (2). The rapid increase in their incidence brings about a burden on countries' health systems and economies, thereby reducing productivity and the quality of life of individuals. According to the World Health Organization data, 407,300 individuals died of chronic diseases in our country in 2019, which made up 89% of the causes of death (3). In the management of chronic diseases, which have become an important public health problem, drug therapy and education alone are not sufficient. For this reason, self-management strategies that give the individual responsibility for the management of their disease and ensure their integration with health services are important for the prevention and elimination of symptoms related to their chronic diseases (3,4).

Most common chronic diseases, such as diabetes, cardiovascular diseases, and multiple sclerosis (MS) can be prevented by healthy lifestyle behaviors (4-8). It has been shown that self-management strategies make important contributions to the successful management of common chronic diseases, such as asthma, chronic obstructive pulmonary disease (COPD), stroke, diabetes, epilepsy, and cancer, which lead to disability and death (9-11).

The self-management of individuals with chronic diseases aims to have the individuals determine their needs when they have problems related to their illness they encounter in daily life and develop multidimensional strategies to meet their needs. The self-management process is a dynamic, interactive, and repetitive process (12-14). It is expected that the individual with a chronic disease will be able to manage lifestyle changes, treatment, and disease symptoms together with their family, social environment, and health professionals in this process. Self-management is affected by internal and external factors, such as disease knowledge, self-efficacy, and self-regulation. Therefore, planning the interventions to include these factors will lead to more successful outcomes (14).

2. Material and Methods

2.1. Aim and Type of the Study

This study was conducted to adapt the self-efficacy for managing chronic disease 6-item scale (SEMDC-6S) to the Turkish society by using a methodological research approach.

Research Question:

1. Is the SEMDC-6S a valid tool for the Turkish society?

2. Is the SEMDC-6S a reliable tool for the Turkish society?

2.2. The Setting of the Study

The study was carried out with individuals with multiple sclerosis who were registered white the Turkish MS Society between 1 January and 1 March 2021.

2.3. Population and Sample of the Study

The population of the study consisted of individuals who were registered white the MS Society and lived in İstanbul. The sample consisted of individuals who were diagnosed with multiple sclerosis and met the inclusion criteria of the study. To determine the validity and reliability of the self-efficacy for managing chronic disease 6-item scale (SEMDC-6S), the study was carried out with a sample consisting of n=104 individuals, which was more than 10 times the number of items on the scale (six items). For the test-retest, the questionnaire was applied to 20 individuals with MS with an interval of 2 weeks. The test is applied to the same group twice at a certain interval. First application and the second application scores. The relationship/correlation between them is calculated. Correlation coefficient (Pearson Product of Moments Correlation Coefficient "r") between -1.00 and +1.00 is a value. For reliability, the coefficient approaches +1.00 must. The correlation coefficient in the study has a very high reliability as 0.959-0.997 (15).

Inclusion Criteria

The study consisted of patients who

- Had confirmed diagnosis of multiple sclerosis,
- Had no communication problems,
- Volunteered to participate in the study, and
- Were aged over 18 years old.

Exclusion Criteria

- Patients who had severe psychological disorders were not included in the study.

2.4. Data Collection Tools

The Descriptive Information Form: This form was developed by the researchers following a literature review. It consists of 13 questions about the participants' age, gender, marital status, education, employment, social security, habits, people living together, accompanying chronic diseases, the time of diagnosis, difficulty in accessing treatment, smoking, alcohol use, and presence of chronic disease in the family.

The Self-Efficacy for Managing Chronic Disease 6-Item Scale (SEMDC-6S): This scale was developed by the Stanford Patient Education Research Center. The scale consists of six items and a single dimension covering general symptom control, role function, emotional function, and communication with the doctor, which are common in many chronic diseases. Cronbach's alpha reliability coefficient of the original scale was 0.910. In our study, the coefficient was found to be 0.950, which was very high. To evaluate the scale, the marked score of each item is marked. If two consecutive numbers are marked, the smaller number is coded. If the numbers are not consecutive, the item is not scored. The scale is not scored if more than two items are missing. The scale is likert type and is evaluated over 10 points, it is evaluated as I am not sure of myself at all (1 points) or completely confident of myself (10 points). Increased scores on the scale show increased self-efficacy (16).

2.5. Data Collection Method

The online survey method was used to collect the research data. Before starting to answer the questions, individuals were first informed about the study, and their informed consent was obtained.

2.6. Data Analysis

The construct validity of the scale was established through confirmatory factor analysis using the AMOS software package. The test-retest measurements of the scale were tested using the paired sample t-test and correlation analysis. Cronbach's alpha was used for the reliability of the scale, and each item was subjected to the item analysis.

3. Results

In this section, the findings of the study data are discussed. Of the participants, 39% (n=41) were 50 years old, 84.6% (n=88) were female, 59.6% (n=62) were married, 83.7% (n=87) had social security, 74.0% had (n = 77) middle school or below education, 86.5% (n = 90) did not work, 34.6% (n = 36) lived alone, 78.8% (n = 82) had no comorbidities, 45.2% (n=47) had been receiving treatment for 6-10 years, 53.8% (n=56) had difficulty coming to treatment, 83.7% (n=87) did not smoke, 92.3% (n=96) did not use alcohol, and 64.4% (n=67) had family members with chronic diseases (Table 1).

Table 1. General characteristics of the individuals

Groups	Frequency (n)	Percentage (%)
Age		
≤40	32	30.8
41-50	31	29.8
>50	41	39.4
Gender		
Female	88	84.6
Male	16	15.4
Marital status		
Married	62	59.6
Single	42	40.4
Social security		
Yes	87	83.7
No	17	16.3
Level of education		
Middle school and below	77	74.0
High school and above	27	26.0
Employment		
Yes	14	13.5
No	90	86.5
People living together		
Alone	36	34.6
Spouse	16	15.4
Children	35	33.7
Others	17	16.3
Accompanying diseases		
Yes	22	21.2
No	82	78.8
Duration of treatment (years)		
1-5	18	17.3
6-10	47	45.2
>10	39	37.5
Difficulty coming to treatment		
Yes	56	53.8
No	48	46.2
Smoking status		
Yes	17	16.3
No	87	83.7
Alcohol use		
Yes	8	7.7
No	96	92.3
Presence of chronic diseases in the family		
Yes	67	64.4
No	37	35.6

3.1. The Validity of the SEMDC-6S

3.1.1. Linguistic Validation

The back-translation method was used for the linguistic validity of the SEMDC-6S. The scale was translated into Turkish by three people who were proficient in both languages. The appropriateness of the Turkish translation of each item was examined by the researchers. Then, the Turkish version of the scale was translated back into English. The items of the original scale and the translated scale were compared, and inappropriate items were re-evaluated. The Turkish version of the translated scale and the English of the original scale were evaluated semantically, and the linguistic validity was established.

3.1.2. Content Validity

A scale presentation form was created for the content validity index (CVI) of the SEMDC-6S, and it was submitted to the opinions of experts including nine academicians. Seven of the academicians provided feedback. The experts had been asked to score each item between 1 and 4 points to evaluate the fit of the items and the intelligibility of the statements. Following the feedback received from the experts, necessary corrections were made in the scale items, and it was decided that the content of the Turkish form of the scale was appropriate. The expert opinions were evaluated with the Davis Technique. The CVI of the scale was 0.927, generally accepted standard your level (0.80 and above) was found to be high (17). The experts reached an agreement on all of the items of the scale.

3.1.3. Construct Validity

Confirmatory factor analysis (CFA) was used to evaluate the construct validity of the SEMDC-6S. In our study, the results of the CFA indicated that the factor structure of the scale was similar to that of the original scale (Figure 1).

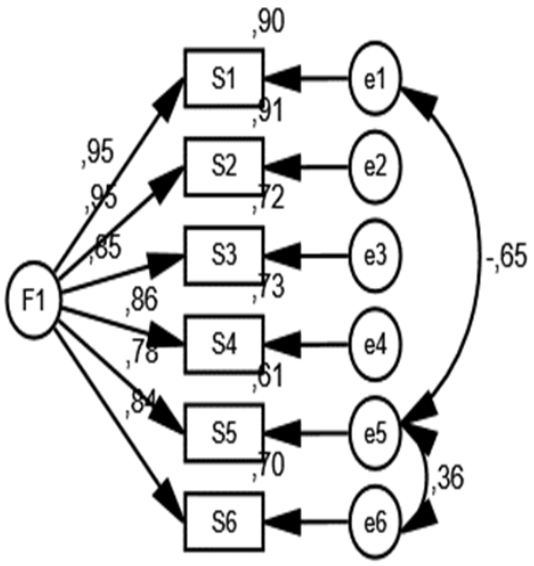

Figure 1. PATH Diagram

The most frequently used goodness-of-fit criteria for confirmatory factor analysis in the literature were employed in the present study. The diagram of confirmatory factor analysis is given above (Table 2).

Table 2. The Fit Index Values of the Confirmatory Factor Analysis

Index	Normal value*	Acceptable value**	Value
χ2/sd	<2	<5	0.94
GFI	>0.95	>0.90	0.98
AGFI	>0.95	>0.90	0.94
CFI	>0.95	>0.90	1.00
RMSEA	<0.05	<0.08	0.00
RMR	<0.05	<0.08	0.08
HOELTER	<200	<200	289

**. ** References: (Şimşek, 2007;Schumacker and Lomax. 2010; Waltz,Strcikland and Lenz, 2010; Wang and Wang, 2012; Sümer, 2000; Tabachnick and Fidel, 2007)*

According to the results of the analysis, it was determined that the fit statistics obtained through CFA were acceptably consistent with the factor structure of the scale that was determined before. The t values of the standardized factor loadings and the explanatory (R2) values of the items are given below (Table 3).

Table 3. Factor Loadings

Items		Factors	β	Std. β	S. Error	t	p	R^2
S1	<---	F1	1.000	0.946				0.703
S2	<---	F1	0.920	0.955	0.044	20.840	<0.001	0.615
S3	<---	F1	0.787	0.850	0.056	13.997	<0.001	0.732
S4	<---	F1	0.754	0.856	0.053	14.258	<0.001	0.722
S5	<---	F1	0.765	0.784	0.081	9.405	<0.001	0.911
S6	<---	F1	0.762	0.839	0.057	13.450	<0.001	0.895

Table Description: p<0.05*

When standardized coefficients were examined, it was determined that factor loadings were high, standard error values were low, and t values were significant. These results confirmed the construct validity of the factor structure determined before.

3.2. Reliability

3.2.1. Internal Consistency

The scale was subjected to the reliability analysis and Cronbach's alpha coefficient was found to be 0.95.

3.2.2. Item-total correlation

The item analysis for the effect of the items on internal consistency is presented below. The item-total correlation values of the items of the scale ranged from 0.765 to 0.920. The internal consistency coefficients (Cronbach's Alpha) obtained when an item was deleted varied between 0.937 and 0.950, and these values did not deviate from the general internal consistency coefficient of 0.950 more. Based on the results of the item analysis, no items were excluded from the scale (Table 4).

Table 4. Item Analysis

	Scale score when an item is deleted	Variance when an item is deleted	Item-total correlation	Cronbach's alpha when an item is deleted
S1	26.875	115.877	0.880	0.937
S2	27.019	118.932	0.920	0.932
S3	26.375	124.547	0.839	0.941
S4	26.856	127.193	0.833	0.942
S5	25.846	125.996	0.765	0.950
S6	26.260	125.184	0.846	0.940

Table Description: p<0.05*

3.2.3. Retest

The test-retest reliability of the scale items was tested using paired samples t-test and correlation analysis. According to the results obtained, it was determined that the retest values did not differ significantly and that they had a high correlation. According to this finding, the scale items showed internal consistency based on the responses received (Table 5).

4. Discussion

The back-translation method was used for the linguistic validity of the scale. The Turkish of the translated scale and the English of the original scale were evaluated semantically, and the linguistic validity was established.

Content validity means that a measurement tool is free from the effects of its factors. It is conducted to evaluate whether the total scale and its sub-dimensions measure what is intended and whether they express different concepts. Expert opinion is consulted to calculate content validity (18). The quality and number of experts (between 5 and 40) are of great importance in obtaining objective results when calculating the content validity (19). Seven academicians provided feedback for the content validity index (CVI) of the SEMDC-6S. The CVI value was calculated by dividing the number of experts who scored each item of the scale with three or four points by the total number of experts, and it was decided that the content of the Turkish version of the scale was appropriate. The CVI of the scale was found to be 0.920, which was higher than the generally accepted standard level (0.800 and above). Experts reached an agreement of all of items on the scale.

The confirmatory factor analysis (CFA) was employed to evaluate the construct validity of the SEMDC-6S. It is a type of structural equation model (SEM) that can measure the relationship between observed variables and latent variables (20). It explains the result obtained from the scale and what this result is related to (21). It is related to how accurately the designed scale items measure the determined features. In scale adaptation studies, the factor structure of the scale is compared to the factor structure of the original scale, and similarities and differences are evaluated. In adapting a scale to another language, it should be expected that the factor structure of the scale does not change much. It has been determined as a method in which the fit indices showing the model and data fit in CFA are evaluated (18,22). In the study, the most frequently used goodness-of-fit indices in studies in the literature were employed. In our study, the factor structure of the scale evaluated as a result of CFA was found to be similar to the original scale with one sub-dimension. The fit index values obtained showed that the model and the data obtained from the sample generally had the goodness of fit.

Table 5. Retest reliability results

	Test	Retest	Mean difference	S.S	t	p	r	p
S1 - T1	5.600±2.328	5.570±2.285	0.033	0.182g	1.000	0.326	0.997	<0.000
S2 - T2	5.300±2.120	5.170±2.052	0.133	0.571	1.278	0.211	0.963	<0.000
S3 - T3	5.867±1.570	5.830±1.487	0.033	0.182	1.000	0.326	0.994	<0.000
S4 - T4	5.567±1.906	5.630±1.847	-0.066	0.365	-1.000	0.326	0.982	<0.000
S5 - T5	6.067±1.911	6.030±1.956	0.033	0.556	0.328	0.745	0.959	<0.000
S6 - T6	5.800±2.041	5.870±1.907	-0.066	0.365	-1.000	0.326	0.985	<0.000

Table Description: $p<0.05$*

The internal consistency of the scale was determined using the reliability analysis. This analysis shows whether the items of the scale are consistent with each other and the overall scale. At the same time, it determines whether the statements of the scale are understood by the individuals in the same way. Reliability is the consistency between the answers given by the participants to the scale items (23). In the literature, the reliability (internal consistency) of the scale is commonly determined by Cronbach's alpha coefficient. The evaluation of Cronbach's alpha coefficient regarding the reliability of the scale is as follows: $0.000 \leq \alpha < 0.400$, not reliable; $0.400 \leq \alpha < 0.600$, low reliability; $0.600 \leq \alpha < 0.800$, quite reliable; $0.800 \leq \alpha < 1.000$, highly reliable (24). In our study, the scale was subjected to the reliability analysis, and Cronbach's alpha coefficient was found to be highly reliable (0.880). One another research Confirmatory factor analyses (CFA) were used to investigate the underlying structure (dimensionality) of the item bank using Mplus version 7.11. The residual correlation matrix from the single-factor CFA was used to evaluate local independence of the item bank. The criterion for the violation of the local independence was defined as a residual correlation greater than 0.2 with any of the remaining test items (25).

Item-total correlation is used to examine the relationship between each item of the scale and the total score. It explains the relationship between the scores obtained from the items on the test and the score obtained from the total test (26). Responses to the items are expected to have a positive correlation with the items and the total scale. This shows that the participants understand the statements correctly and give objective answers. When the correlation coefficient of an item of the scale with the item-total is 0.3 or above, it indicates a high discriminating power (23). The high correlation of each item with the total scale score indicates the consistency of the measurement tool. The correlation coefficient is determined by "r", and its values vary between 0 and 1. As the correlation value gets closer to 1 (±1.00), it shows higher reliability (22,27). Based on the results of the analysis of all items, no items were removed from the scale.

Test-retest reliability is conducted to evaluate the time-dependent invariance of the test. In other words, re-administering a test to the same group after a certain period is a method used to determine the reliability of this test (26,28,29). In the retest, there should be a minimum of two and a maximum of four weeks between the first and the second measurements. It is recommended to conduct a test-retest reliability study with at least 30 people (22,30,31). In our study, the scale was re-administered to 30 subjects at a two week interval to examine the inter-rater consistency. Test-retest reliability of scale items was tested with paired sample t-test and correlation analysis. According to the results obtained, it was determined that the retest results did not differ significantly and they had a high correlation. According to this finding, the scale items showed internal consistency based on the responses received.

5. Conclusions and Recommendations

It was found that the SEMDC-6S, which was originally in English and adapted to Turkish society, consisted of the same six items and a single sub-dimension as the original scale. The SEMDC-6S is a highly valid and reliable tool for evaluating the self-efficacy for chronic disease management in Turkish society with six items. We recommend that it should be applied in different cultures and groups to increase its evidence value.

6. Contribution to the Field

It can be used as a valid and reliable measurement tool in the evaluation of self-management of chronic diseases.

Ethical Aspects of the Research

For the validity and reliability study of the self-efficacy scale for chronic disease management, first, the permission of the author who developed the scale was obtained. Then, the approval of the ethics committee of a university (FBU/2020-24) and the permission of the institution where the study would be conducted was obtained. Also, the individuals' consent showing voluntary participation was obtained.

Conflict of Interest

This article did not receive any financial fund. There is no conflict of interest regarding any person and/or institution.

Acknowledgements

We would like to thank all individuals with MS who participated in the study and our colleagues who provided expert opinions.

Authorship Contribution

Concept: NE, GT; **Design:** NE, GT; **Supervision:** NE, GT; **Funding:** NE, GT; **Materials:** NE, GT; **Data Collection/ Processing:** NE, GT; **Analysis/Interpretation:** NE, GT; **Literature Review:** NE, GT; **Manuscript Writing:** NE, GT; **Critical Review:** NE, GT.

References

1. Kasper J, Köpke S, Mühlhauser I, Heesen C. Evidence-Based Patient Information About Treatment of Multiple Sclerosis: A Phase One Study on Comprehension and Emotional Responses. PEC J. 2006; 62:56-63.

2. Koşar C, Besen D. Kronik Hastalıklarda Hasta Aktifliği: Kavram Analizi. Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi. 2015; 8(1):45-51.

3. World Health Organization (WHO). Non communicable diseases progress monitor 2020. 2020a. Erişim linki: https://www.who.int/ publications/i/item/ncd-progress-monitor-2020. (Date of Access:10.10.2021).

4. Schulman-Green D, Jaser S, Martin F, Alonzo A, Grey M, McCorkle R, et al. Processes of self-management in chronic illness. J Nurs Scholarsh. 2012; 44(2):136-144.

5. Barlow J, Sturt J, Hearns Haw H. Self-management interventions for people with chronic conditions in primary care: Examples from arthritis, asthma and diabetes. Health Education Journal. 2002a; 61:365-378.

6. Dufour SP, Graham S, Friesen J, Rosenblat M, Rous C, Richardson J. Physiotherapists supporting self-management through health coaching: a mixed methods program evaluation. Physiother Theory Pract. 2014; 1:1-10.

7. Fortin M, Haggerty J, Almirall J, Bouhali T, Sasseville M, Lemieux M. Life style factor sand multimorbidity: a cross sectionalstudy. BMC Public Health. 2014; 14:686.

8. Dorstyn D, Black R, Mpofu E, Kneebone I. Utilizingthe ICF to understand depressive symptomology in multiple sclerosis: An exploratory systematic review. Rehabil Psychol. 2017; 62(2):143-64.

9. Hodkinson A, Bower P, Grigoroglou C, Zghebi SS, Pinnock H, Kontopantelis E, et al. Self-management interventions to reduce health care use and improve quality of life among patients with asthma: systematic review and network meta-analysis. BMJ. 2020; 18:370:m2521.

10. Coster S, Li Y, Norman IJ. Cochrane reviews of educational and self-management interventions to guide nursing practice: A review. Int J Nurs Stud 2020; 110:103, 698.

11. van Dongen SI, de Nooijer K, Cramm JM, Francke AL, Oldenmenger WH, Korfage IJ, et al. Self-management of patients with advanced cancer: A systematic review of experiences and attitudes. Palliat Med. 2020; 34(2):160-178.

12. Lorig KR, Holman H. Self-management education: history, definition, outcomes, and mechanisms. Ann Behav Med. 2003; 26(1):1-7.

13. Miller WR, Lasite S, Ellis RB, Buelow JM. Chronic disease self-management: a hybrid concept analysis. Nurs Outlook. 2014; 63(2):154-161.

14. Grey M, Schulman-Green D, Knafl K, Reynolds N. A revised self and family management frame work. Nurs Outlook. 2015; 63:162-170.

15. Ata S, Artan İZ. Ergen Prososyallik Ölçeği: Geçerlik ve Güvenirlik Çalışması. Turk J Child Adolesc Ment Health 2021; 28(1):38-44.

16. Lorig KR, Sobel, DS, Ritter PL, Laurent, D, Hobbs, M. Effect of a self-management program for patients with chronic disease. Effective Clinical Practice. 2001; 4:256-262.

17. Davis LL. "Instrument review: Getting the most from a panel of experts". Applied Nursing Research. 1992; 5:194-197.

18. Güzüm S, Aksayan S. Kültürlerarası ölçek uyarlaması için rehber II: Psikometrik özellikler ve kültürlerarası karşılaştırma. Hemşirelik Araştırma ve Geliştirme Dergisi. 2003; 1:3-14.

19. Yeşilyurt S, Çapraz C. Ölçek geliştirme çalışmalarında kullanılan kapsam geçerliği için bir yol haritası. Erzincan Üniversitesi Eğitim Fakültesi Dergisi. 2018; 20:251- 264.

20. Brown TA. Confirmatory Factor Analysis for Applied Research. The Guilford Press, New York, USA, 2006.

21. Karakoç FY, Dönmez L. Ölçek gelıştırme çalışmalarında temel ilkeler. Tıp Eğitimi Dünyası. 2014; 40:39-49.

22. Türkmen E, Badır A, Balcı S, Akkuş Topçu S. Hemşirelik iş indeksi hemşirelik çalışma ortamını değerlendirme ölçeği'nin Türkçe'ye uyarlanması: güvenilirlik ve geçerlilik çalışması. Hemşirelikte Araştırma Geliştirme Dergisi. 2011; 2:5-20.

23. Büyüköztürk Ş. Sosyal bilimler için veri analizi el kitabı. Ankara: Pegema Yayıncılık 2011.

24. Özdamar K. Paket programlar ile istatistiksel veri analizi. Eskişehir, Kaan Kitabevi 2004.

25. Gruber-Baldini AL, Velozo C, Romero S, Shulman LM. Validation of the PROMIS® measures of self-efficacy for managing chronic conditions. Qual Life Res, 2017; 26(7):1915–1924.

26. Aslan A, Kırık AM. Sosyal paylaşım ağlarında konum belirleme ölçeğinin geçerlik ve güvenirlik çalışması. Öneri. 2013; 10:223-231.

27. Tekeş B, Hasta D. Özgecilik ölçeği: geçerlik ve güvenilirlik çalışması. Nesne Psikoloji Dergisi (NPD), 2015; 3(6):3-6.

28. Schumacker RE, Lomax RG. A beginner's guide to structural equation modeling. New Jersey: Taylor & Francis; 2004;1-8.

29. Waltz CF, Strcikland OL, Lenz ER. Measurement in nursing and health research. New York: Springer Publishing Company. 2010; 176-8.

30. Wang J, Wang X. Structural Equation Modeling: Applications Using Mplus: methods and applications. West Susex: John Wiley&Sons. 2012; 5-9.

31. Tabachnick BG, Fidel LS. Using Multivariate Statistics. Pearson Education Inc. Boston 2007.