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## The Validity and Reliability Study of Self-Efficacy Scale on the People with Chronic Diseases\*

### Kronik Hastalıklarda Öz-Etkililik Ölçeğinin Geçerlik ve Güvenirlilik Çalışması

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Original Research

#### Abstract

**Objective:** The purpose of the study is to define the validity and reliability of Self-Efficacy Scale on the people with chronic diseases.

**Method:** The patients diagnosed with Chronic Heart Failure, Chronic Obstructive Pulmonary Disease, Diabetes Mellitus, Arthritis and Chronic Kidney Failure composed the population in the research. The sample consisted of 350 patients with 10 times of the total item numbers in the scale. The data were collected by Self-Efficacy Scale on Chronic Diseases.

**Results:** The Cronbach's  $\alpha$  value of the scale was 0.95 and the item-total score correlation coefficients were between 0.55-0.96 in proper limits. It was defined that Kaiser-Meyer-Olkin Measure of Sampling Adequacy=0.91, Barlett's Test of Sphericity=1287.32 and the two test results were significant ( $p<0.001$ ). The factor loadings of scale items are at the appropriate limits between 79% and 98%. The test-retest correlation value was 0.98. Correlations between pre-test ( $4.96\pm 1.41$ ) and post-test ( $4.95\pm 1.42$ ) were not significantly different when compared to t test in dependent groups ( $t=1.19$ ;  $p>0.05$ ). Having no differences and similar results after repeated measurements showed that the scale was reliable.

**Conclusion:** It was concluded that the Turkish form of the scale had high validity and reliability so it could be utilized for Turkish society. At the same time, it is recommended that the scale be used in various studies involving individuals with different chronic diseases in Turkish society. Accordingly, it is suggested that the scale may be applied on wider groups and different cultures.

**Keywords:** Self-Efficacy, Chronic Disease, Reliability, Validity.

#### ÖZ

**Amaç:** Çalışmanın amacı; kronik hastalığı olan bireylerde Öz-etkililik ölçeğinin geçerlik ve güvenilirliğini belirlemektir.

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**Yöntem:** Araştırmanın evrenini, Kronik Kalp Yetmezliği, Kronik Obstrüktif Akciğer Hastalığı, Diabetes Mellitus, artrit ve Kronik Böbrek Yetmezliği tanılarını almış olan hastalar oluşturmuştur. Örnekleme ise, ölçek toplam madde sayısının 10 katı olacak şekilde toplam 350 hasta birey oluşturmuştur. Veriler; Hasta Tanıtım Formu ve Kronik Hastalıklarda Öz-etkililik Ölçeği Orijinal Formu ile toplanmıştır.

**Bulgular:** Ölçeğin Cronbach's  $\alpha$  değeri 0,95, madde-toplam puan korelasyon katsayıları ise 0,55-0,96 arasında uygun sınırlardadır. Kaiser-Meyer-Olkin Measure of Sampling Adequacy=0,91, Barlett's Test of Sphericity=1287,32 olarak saptanmıştır ve iki test sonucu anlamlı bulunmuştur ( $p<0,001$ ). Ölçek maddelerinin faktör yükleri, %79 ve %98 arasında uygun sınırlardadır. Test-tekrar test korelasyon değeri 0,98'dir. Ön uygulama ( $4,96\pm 1,41$ ) ve son uygulama ( $4,95\pm 1,42$ ) arasındaki korelasyonlar bağımlı gruplarda t testi ile karşılaştırıldığında anlamlı bir fark yoktur ( $t=1,19$ ;  $p>0,05$ ). Tekrarlanan ölçümler sonrası farkın olmaması ve benzer sonuçların bulunması ölçeğin güvenilir olduğunu göstermektedir.

**Sonuç:** Ölçeğin Türkçe formunun yüksek geçerlilik ve güvenilirliğe sahip olduğu dolayısıyla da Türk toplumunda kullanılabileceği sonucuna ulaşılmıştır. Aynı zamanda ölçeğin Türk toplumunda farklı kronik hastalıklara sahip bireyleri kapsayan çeşitli çalışmalarda kullanılması önerilir.

**Anahtar Sözcükler:** Öz-Etkililik, Kronik Hastalıklar, Geçerlik, Güvenirlik.

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## **Introduction**

Chronic diseases are the diseases that progress slowly, last three months or more, result from more than one risk factor, generally have a complicated process and require long term care.<sup>1</sup> World Health Organization (WHO) describes chronic cases as the health problems that need constant care for a few years or ten years.<sup>2</sup> According to 2010 Non-Communicable Disease (NCD) Global Status Report of World Health Organization, in 2008 NCD composed 63% of global death (approximately 36 million people) and it is foreseen that in 2020 this situation will compose 63% of all death in the world.<sup>3</sup> In 2013-2020 global action plan, WHO described NCD as the biggest killer of the world.<sup>3</sup> In a research done in Europe it is stated that by year 2012 in European Union (EU) one or more chronic diseases occur in half of all the adults (approximately 117 million people) and one out of four adults lives with two or more chronic diseases.<sup>4</sup>

The reason for dying of chronic diseases both in the world and Turkey are respectively known as cardiovascular diseases, cancers, chronic airway diseases and diabetes.<sup>5</sup> Among these diseases taking place near the top Chronic Heart Failure (CHF), Chronic Obstructive Pulmoner Disease (COPD), Diabetes Mellitus (DM), Arthritis and Chronic Kidney Failure (CKF) affect people's life quality and disease management negatively. When looked at the death rates happening because of these diseases it makes us think that with today's high numbers the rates will increase more in the future.<sup>6-11</sup> Therefore, it is quite essential for the course of disease that the people with these diseases have information about their diseases and learn disease management.

For the first time in 1980s Bandura an American psychologist described Self-Efficacy (SE) perception, one of the important components of health promotion behaviors for chronic diseases, as "one's beliefs about his own capabilities of organizing required activities and doing it successfully to produce a certain performance."<sup>12,13</sup> The increase of a person's SE perception provides showing positive health behaviors.<sup>14</sup> As this term is changeable and developable it makes nurses necessary to examine their SE perceptions and provide necessary support within the scope of holistic care. Within this support by easing the adaptation of the person and his family to the process nurses are expected to help them to direct the chronic status.<sup>15</sup> Due to the symptoms that occur in individuals chronic diseases reduce the person's ability to cope with the illness and sometimes cause the illness to progress more easily. The individual in this situation may feel weaker and gradually decrease the SE

perception. Especially the differences between the symptoms of chronic diseases may cause the individual's perception of SE to be different. For example, the ability to cope and manage the symptoms may change for individuals with COPD who are short of breath and lose their independence on majority of daily work over time and the individuals with arthritis arising from joint involvement and pain in some joints. In this case, the patients should be approached with the awareness that both the care and support to the individuals with different chronic diseases will vary according to the diseases and the characteristics of the individual. Here, the main duty falls on the nurses who spend most time with patients<sup>1</sup>.

When planning patient care, nurses must make an effort to strengthen the perception of the SE, a concept that can be changed and improved. When the nurses diligently examine this perception of the individuals, the patients should be aware of their capacity and abilities. While these abilities sometimes come out spontaneously, sometimes awareness can be created by external support or directing.<sup>16</sup> Particularly, the planned activities can be successfully concluded as a result of evaluating this concept together with the experiences of the individuals.<sup>13</sup> Nurses can positively influence the healthy individuals' SE perception of health-related behaviors. Also, in their communication with the patients they can take steps to develop the concept of SE and can try to strengthen the individual's perception of his/her own success for situational behavior change.<sup>17</sup>

Nurses need to take a primary role in raising the SE of individuals with chronic illness. The development of the SE perception affects the individual's behavior, motivation, way of thinking and well-being positively.<sup>18</sup> Nurses are members of the health team who know how to manage every chronic disease and who in this regard show the rightest approach to the patient.<sup>19</sup> Therefore, the nurses should educate the patient about the disease management and inform them about their disease. Thus, the nurse encourages the individual to better understand his/her illness and cope better with his/her illness. Thus, it is ensured that the SE perception develops positively.<sup>20</sup> The individual can have a growing SE perception by acquiring positive experiences in this regard. The effective and quality time spent with the patient allows the individual to receive sufficient information about his/her illness and to increase his/her ability to cope with the adverse conditions.<sup>21</sup> For this reason, the nurses' encouragement of patients in this regard is necessary for positive SE perception. Some studies made in this area in our country clearly show that SE is a concept that can be changed and improved.<sup>22-24</sup>

Although there happen to be a lot of studies about the evaluation of SE perception on chronic diseases abroad<sup>25-29</sup> in Turkey no studies about the evaluation of SE perceptions on chronic diseases are happened. Even though forms are translated into Turkish to evaluate SE perceptions on some specific areas there isn't any proper form that can be used for chronic diseases.<sup>23,24,30-33</sup>

This research is done to define the validity and reliability of SESCD methodologically.

## **Method**

### ***Design and Participants***

All the patients applying to cardiology, chest diseases, internal medicine, physical therapy and rehabilitation and orthopedics clinics and the policlinics of dialysis unit of Ahi Evran University Training and Research Hospital in 2014 and those staying in these services and getting treatment composed the population of the research. Sampling method was not used in the research. In the

alteration of a scale to another culture it is necessary that the number of scale item must reach at least 5-10 times samples.<sup>34-37</sup> Accordingly, for the scale with 33 items the study was completed with 350 people. The people that could be communicated in Turkish, had the ability to answer all the questions, did not have any psychiatric diseases, were diagnosed with one or more diseases of CHF, COPD, DM, arthritis, or CKF at least for 6 months and accepted to participate in the study were joined the research.<sup>23,24,30,32</sup>

#### ***Data Collection and Scoring***

In the research, the data were collected with the Self-Efficacy Scale on Chronic Diseases (SESCD), which was obtained by adapting the original form of the Chronic Diseases Self-Efficacy Scale (CDSSES) to Turkish. The scale developed by Lorig et al in America in 1996 was composed of 33 questions and ten sub dimensions. The original dimensions of the scale consist of Exercise Regularly Scale (3 item), Get Information About Disease Item (1 item), Obtain Help from Community, Family, Friends Scale (4 item), Communicate With Physician Scale (3 item), Manage Disease in General Scale (5 item), Do Chores Scale (3 item), Social/Recreational Activities Scale (2 item), Manage Symptoms Scale (5 item), Manage Shortness of Breath Item (1 item), Control/Manage Depression Scale (6 item) titles respectively. The likert type scale was created in a way to define SE perception, increasing from 1 (I have not trust) to 10 (I completely have trust).<sup>26</sup>

In scoring the scale each sub dimension is assessed separately. Total scale score is not calculated. The average score of a sub dimension is obtained by summing up the scores the individual gets from each item in that sub-dimension and by dividing the number of item in the sub dimension. For example, If an individual gets a total of 12 scores from Exercise Regularly Scale which has 3 items, the average score of this sub dimension is found to be 4 by dividing this score into 3, the number of scale item. If this score for each sub dimension is below 7, it shows the result that strategies and problem solving are necessary to be reevaluated in order to prevent failure; if the score is 7 or above, Self-Efficacy of a person about his disease is high and he can manage his thoughts.<sup>26</sup>

#### ***Ethical Considerations***

Ethical principles were conformed in every phase of the research. First, permission from the scale owner, Kate Lorig, for the scale to be used in this investigation was obtained via mail. Later, ethics committee approval with the decree no 25/03 was gotten from Kirikkale University Clinical Research Ethics Committee on 27.10.2014. Before starting the study, the state of being voluntary of the individual participating in the study was taken verbally and in writing.

#### ***Statistical Analyses***

The data obtained from the research were evaluated in computer with an expert statistician. In the statistical analysis of the scale, respectively linguistic equivalence, construction validity and reliability test were examined.

#### ***Linguistic Equivalence***

For the linguistic equivalence, the scale was translated into Turkish by two English linguists who knew both languages well and the most appropriate expressions were determined. Both Turkish and English forms of the scale were sent to a total of 15 nurse academicians and physicians working in different areas. The experts were asked to evaluate each expression in the scale as; Very suitable, Suitable, Not Suitable, Not at all suitable. As a result of evaluation; if the option chosen by the experts was 'very suitable', the expressions were accepted as they were, but the expressions they wanted to correct or did not find appropriate were revised. After the expert opinion, the scale was reversed by

an English Language and Literature Department linguistic scientist who had been abroad for a long time. It was determined whether there was a meaning change in the expressions of the re-translated scale. Finally, Turkish form of the scale was controlled by three Turkish Linguistic Scientists from Turkish Language Literature Department. The linguistic validity of the scale was provided in the light of 21 expert opinions.

#### *Construction Validity*

Factor analysis was conducted to determine the Construction Validity of SESCO. Before factor analysis, sample adequacy of the scale was tested with "Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)", and its sample size was tested with "Barlett's Test of Sphericity". In order to determine the factorial structure of the scale, "Principal Component" method was used with the aim of examining whether the changes in factor loadings were collected together and the analysis was made according to varimax rotation.

#### *Reliability Test*

In the reliability testing of SESCO, test-retest measurements were made to determine its time-invariance. In order to determine the scale homogeneity the internal consistency was examined.

The Test-retest analysis was conducted twice to a total of 60 patients, 12 from each disease group, with 15 days intervals to determine the time-invariance of the scale. The test-retest reliability coefficient of the scale was determined using the Pearson Product-Moment Correlation technique. The difference between test-retest point average was compared with t test in dependent groups. For internal consistency analysis, Cronbach's  $\alpha$  value and item-total score correlation coefficient were examined.

#### *Limitations of the study*

This study provides evidence for semantic, construct, and conceptual equivalence of the English and Turkish versions of the CDSES, but some limitations are worth noting as additional directions for future research. First, as other chronic diseases such as cancer, endocrine diseases cannot be included sample number may not be fully representative of the Turkish chronic diseases population. The number of cancer cases that can be followed in the province the study conducted is insufficient to include in this study. Because these patients go to big hospitals in the vicinity for treatment. This situation is considered as a limitation in terms of not being able to include different chronic diseases. Therefore, larger samples probability could improve the external validity of the study. Second, cultural differences in scale adaptation studies are occurrence. For this reason, the original scale with 33 items was reduced to 30 items.

## **Results**

#### *Linguistic Equivalence*

Opinions from a total of 21 experts were evaluated for the linguistic equivalence of the scale. After expert suggestions were carefully examined, necessary corrections were made. After the scale questions were finalized the survey was made ready to be used for patients.

#### *Construction Validity*

KMO Measure of Sampling Adequacy test was conducted for the scale's sample adequacy and it was decided that it had enough samples (0.913). Barlett's Test of Sphericity values were calculated for

the sample size and the result was found as 1287.32. As a result of both tests it was seen that  $p < 0.001$  with the significance level.

Factor analysis was made to define the construct validity of scale. Principal Component method was used to investigate if the scale's factor load changes came together and the analyses were made according to varimax rotation. In the analyses as the second and ninth sub dimension were composed of one item explained variance percentage could not be found. When looked at the variances other sub dimensions were explained it was determined that the first sub dimension was 94.03%, the third sub dimension was 70.26%, the fourth sub dimension was 94.95%, the fifth sub dimension was 61.01%, the sixth sub dimension was 95.40%, the seventh sub dimension was 94.83%, the eighth sub dimension was 88.07% and the tenth sub dimension was 88.83%. In scoring this scale, each sub dimension is scored within itself. There is not a total scale score. In the variance analysis, each construction was evaluated separately. Therefore, there isn't anything such a total variance (Table 1).

#### ***Reliability Testing***

To identify the time invariance of the scale test-retest measurements were made. In that analysis, being 12 from every disease groups the scale was conducted to 60 patients in total twice with 15 days apart. At that stage, Pearson Product-Moment Correlation method was used. The correlation value of the results between two measurements of the scale conducted bimonthly was found 0.98 and it was determined that there was a statistically significant relation. When the difference between test-retest point averages were compared with dependent samples t-test it was determined that there was not a statistically significant difference between the measurement results of the scale conducted bimonthly ( $t=1.19$ ;  $p>0.05$ ). Having no differences and finding similar results after repetitive measurements show that the scale is reliable.

To identify the scale homogeneity internal consistency was looked. Therefore, Cronbach's  $\alpha$  value and item-total score correlation coefficient were calculated. With the analyses results it was seen that when the analyses were done again by extracting the third item of the third sub dimension, second item of the fifth sub dimension and fifth item of the sixth sub dimension, the item-total score correlations and Cronbach's  $\alpha$  values of the other items increased. Therefore, it was decided that by extracting those items the scale with 33 items had 30 items. The overall Cronbach's  $\alpha$  value of the scale measured according to those items was found 0.95. As it is seen in Table 1 Cronbach's  $\alpha$  value of the sub dimensions were changing between 0.78-0.97. And, it was found out that the scale's item-total score correlation coefficients were in proper limits between  $r=0.55$  and  $r=0.96$ .

#### **Discussion**

Firstly, after completing the linguistic equivalence phase of the scale validity and reliability studies were done to analyze the psychometric features. It was found out that Lorig et al.<sup>26</sup> developing CDESES found the test-retest correlations between minimum 0.72 and maximum 0.89. The scale was adapted to the Korean version in 2012 by Kim et al. but the test-retest measurements were not examined.<sup>29</sup> In this study, the Turkish form of the scale's test-retest score correlation was found as 0.98 and it was defined that there was a statistically significant relation between the measurements done biweekly ( $p < 0.001$ ). As a result, it was found that biweekly done test-retest score correlations of both the original<sup>26</sup> and Turkish form of the scale were interrelated.

*Table 1. Item-Total Correlation, Cronbach's  $\alpha$  Values, Factor Loads, and Explained Variance Percentages of the Self-Efficacy Scale on the People with Chronic Diseases (n=350)*

SUB DIMENSIONS	ITEMS	Arithmetic Mean $\pm$ SD			Total $\alpha$	Factor Load	Variance Explained in Sub Dimensions %
			r	$\alpha$			
Doing Sports Regularly	1. Item	4.10 $\pm$ 2.26	0.91	0.96	<b>0.968</b>	0.961	<b>94.03</b>
	2. Item	4.34 $\pm$ 2.26	0.92	0.95		0.966	
	3. Item	4.22 $\pm$ 2.18	0.95	0.93		0.982	
Getting Information about the Disease	4. Item	4.91 $\pm$ 2.20	-	-	-	-	-
Getting Help from Society, Family and Friends	5. Item	6.05 $\pm$ 1.89	0.70	0.62	<b>0.784</b>	0.884	<b>70.26</b>
	6. Item	5.97 $\pm$ 1.98	0.58	0.74		0.815	
	7. Item	5.49 $\pm$ 2.17	0.58	0.75		0.814	
Communication with Doctor	8. Item	7.09 $\pm$ 1.82	0.93	0.96	<b>0.973</b>	0.973	<b>94.95</b>
	9. Item	6.98 $\pm$ 1.85	0.92	0.97		0.964	
	10. Item	7.04 $\pm$ 1.77	<b>0.96</b>	0.94		0.987	
General Disease Management	11. Item	5.31 $\pm$ 2.08	<b>0.55</b>	0.75	<b>0.786</b>	0.751	<b>61.01</b>
	12. Item	4.31 $\pm$ 1.99	0.64	0.70		0.820	
	13. Item	4.70 $\pm$ 2.08	0.58	0.73		0.772	
	14. Item	3.63 $\pm$ 2.06	0.59	0.73		0.782	
Doing Housework	15. Item	5.78 $\pm$ 1.93	0.90	-	<b>0.952</b>	0.977	<b>95.40</b>
	16. Item	5.87 $\pm$ 1.98	0.90	-		0.977	
Social/ Recreation Activities	17. Item	5.49 $\pm$ 2.24	0.89	-	<b>0.945</b>	0.974	<b>94.83</b>
	18. Item	5.42 $\pm$ 2.27	0.89	-		0.974	
Coping with the Symptoms	19. Item	4.25 $\pm$ 2.09	0.71	0.98	<b>0.963</b>	0.799	<b>88.07</b>
	20. Item	3.96 $\pm$ 1.96	0.94	0.94		0.967	
	21. Item	3.92 $\pm$ 1.86	0.95	0.94		0.977	
	22. Item	3.92 $\pm$ 1.93	0.93	0.94		0.967	
	23. Item	3.85 $\pm$ 1.92	0.94	0.94		0.971	
Coping with Asthma	24. Item	5.31 $\pm$ 2.87	-	-	-	-	-
Managing Depression/Control	25. Item	5.10 $\pm$ 2.07	0.91	0.97	<b>0.975</b>	0.945	<b>88.83</b>
	26. Item	5.10 $\pm$ 2.04	0.94	0.96		0.959	
	27. Item	5.18 $\pm$ 2.07	0.89	0.97		0.930	
	28. Item	5.31 $\pm$ 2.05	0.88	0.97		0.921	
	29. Item	5.19 $\pm$ 2.10	0.93	0.96		0.957	
	30. Item	5.21 $\pm$ 2.11	0.91	0.97		0.943	

In the literature, comparing a scale's point averages of test-retest measurements and not having any significant differences between both measurements showed that the results were similar.<sup>40-42</sup> In this study, when the point averages of the scale done biweekly were compared the results were found similar ( $p>0.05$ ). Having no differences and finding similar results after repetitive measurements show that the scale is reliable.

In the next phase, for the internal consistency analysis Cronbach's  $\alpha$  value and item-total score correlation were looked. In those analyses it was seen that when some original items were deleted the

values of other items increased. A higher correlation and Cronbach's  $\alpha$  values were obtained when the tests were repeated by extracting the scale's third item of the third sub dimension 'Getting Help from Society, Family and Friends, second item of the fifth sub dimension 'General Disease Management' and the first item of the sixth sub dimension 'Doing Housework'. The Item-Total Score Correlations and Cronbach's  $\alpha$  values of the items extracted from the scale before and after extraction are given in Table 2.

**Table 2. The Item-Total Score Correlations and Cronbach's  $\alpha$  values of the items in some sub dimensions before and after extraction**

Sub dimensions	Before Item Extraction		After Item Extraction		
	Item-total score correlation	Cronbach's $\alpha$	Item-total score correlation	Cronbach's $\alpha$	
Getting Help from Society, Family and Friends	1. Madde	0.619	0.606	0.705	0.624
	2. Madde	0.657	0.579	0.585	0.746
	<b>3.Madde*</b>	0.295	0.784	-	-
	4. Madde	0.513	0.664	0.588	0.751
General Disease Management	1. Madde	0.584	0.728	0.555	0.754
	<b>2.Madde*</b>	0.425	0.786	-	-
	3. Madde	0.652	0.706	0.646	0.708
	4. Madde	0.573	0.731	0.584	0.739
	5. Madde	0.557	0.737	0.591	0.735
Doing Housework	<b>1.Madde*</b>	0.528	0.952	-	-
	2. Madde	0.823	0.667	0.908	-
	3. Madde	0.795	0.692	0.908	-

\* The items suitable for extracting from the scale.

While it was decided that the sub dimensions of the scale, originally with 10 sub dimensions and 33 questions, stayed same it was found suitable to extract some expressions from the items. Therefore, the scale was composed of 10 sub dimensions and 30 questions in the Turkish form. In the Korean version of the scale as a result of the analysis, while it was decided to reduce 10 sub dimensions into 8 the number of items remained the same. The items of Social/Recreational Activities scale and Manage Shortness of Breath sub dimensions are concentrated in other sub dimensions.<sup>29</sup>

The final Cronbach's  $\alpha$  value of the scale was found 0.95. In the literature, Cronbach's  $\alpha$  value of the scale's being between  $0.80 \leq \alpha < 1.00$  shows it is highly reliable.<sup>43</sup> Therefore, the scale's being between this confidence interval shows it is highly reliable.

The Cronbach's  $\alpha$  coefficients of the scale's sub dimensions in the study of Lorig et al.<sup>26</sup> changed between the limits of 0.77 – 0.92. The total Cronbach's  $\alpha$  value of the scale was found to be 0.93 in Kim et al.'s study. Cronbach's  $\alpha$  values of the sub dimensions are between 0.68 and 0.94.<sup>29</sup> The values of two studies<sup>26,29</sup> being quite similar to each other revealed that the scale items had a high internal consistency and reliability with each other.

Besides, because item-total score correlation was above 0.30 showing that it could distinguish people in terms of the measured feature, it was defined as the expected limits to approve the internal consistency of the scales.<sup>40,42,44,45</sup> It was seen that during scale development Lorig et al.<sup>26</sup> did not look at the item-total score correlation coefficient. Similarly, that value was not looked in another study in



which the scale was adapted to Korean culture.<sup>29</sup> However, in this study it was found out that item-total score correlation coefficients were in proper limits between  $r=0.55$  and  $r=0.96$ .

The most common method to have the construction validity in the validity and reliability studies is factor analysis. The purpose of this analysis is to reduce the number of numerous but interrelated variables to less numerous independent variables. In this study before examining the factor structure of the scale, KMO values to evaluate if the samples were enough for factor analysis and Barlett's Test of Sphericity values for the sample size were calculated. The scale's sample adequacy test result was found as 0.91 and sample testing size test result was found as 1287.327, and as a result of both tests it was seen that  $p<0.001$  with the significance level. While KMO values' being below 0.50 meant samples were not enough for the factor analysis, its being above 0.90 showed it was at very good level.<sup>40,42,44</sup> KMO value of the scale's being 0.91 showed the sample was at very good level, enough and proper for the factor analysis.

When the factor loadings in the study were examined; the factor loadings of the second sub dimension 'Get Information About Disease', consisting of one item, and the ninth sub dimension 'Manage Shortness of Breath' were not calculated.

The factor loadings of the scale items were found between 0.75 and 0.98. The variances that sub dimensions were explained were between 61-95%. In the study of Kim et al., while the factor loadings were found to be between 0.41-0.90 the variances that the sub dimensions were explained were between 15-72%.<sup>29</sup> It is seen that both the factor loadings and the explained variance percentages of this study are better than the other study done. Moreover; according to the literature, factor loadings of 0.60 and higher are high; the load value between 0.30-0.59 is defined as medium.<sup>45</sup> In this study, the lowest factor load's being 0.75 indicates that the items represent the sub dimensions they are in with a high level.

Low correlations of the items in the sub dimensions may lead to lower factor loads.<sup>45</sup> For this reason, the number of items in this scale has been reduced from 33 to 30 by extracting 3 items with low correlations.

After all these calculations, it has been seen that item loadings and item explanation rates in the factor matrix were found sufficient.

### **Conclusion**

Coinciding SESCD original factor structure rather well with the factors of this study and depending on the results of validity and reliability analyses done it is thought that SESCD can be used for Turkish society. The Turkish Form of the scale is given as an appendix.

### **Author Contribution**

**Design of this study:** YŞ C, A Ü

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## Appendix

### Kronik Hastalıklarda Öz-Etkililik Ölçeği Türkçe Formu

*Biz sizin belirli eylemleri icra etmede kendinize ne kadar güven duyduğunuzu bilmek istiyoruz. Aşağıdaki her bir soru için, lütfen şu anda düzenli bir şekilde altta yazılı görevleri yerine getirme öz güveninize karşılık gelen numarayı daire içine alın.\**

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#### ÖZ-YÖNETİM DAVRANIŞLARINI GERÇEKLEŞTİRMEK İÇİN ÖZ-ETKİLİLİK

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##### Düzenli Bir Şekilde Spor Yapma

1. Aktif-pasif egzersiz, ağırlık kullanma gibi hafif bir şekilde kas güçlendirme veya esnetme çalışmalarını haftada 3 ya da 4 kez yapmada kendinize ne kadar güveniyorsunuz?
2. Yürüme, yüzme veya bisiklete binme gibi aerobik egzersizlerini haftada 3 veya 4 kez yapmada kendinize ne kadar güveniyorsunuz?
3. Semptomları daha kötü hale getirmeden, egzersiz yapmada kendinize ne kadar güveniyorsunuz?

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##### Hastalık Hakkında Bilgi Alma

4. Hastalığınız hakkında toplum kaynaklarından bilgi almada kendinize ne kadar güveniyorsunuz?

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##### Toplum, Aile ve Arkadaşlardan Yardım Alma

5. Alışveriş yapma, yemek pişirme ve ulaşım gibi günlük ihtiyaç duyduğunuz ev işlerinde, aile ve arkadaşlarınızdan yardım almada kendinize ne kadar güveniyorsunuz?
6. Birinin size dinlemesi ya da sorunlarınız üzerine konuşmada, aile ve arkadaşlarınızdan duygusal destek almada kendinize ne kadar güveniyorsunuz?
7. Bahçe işleri, yemek hazırlama veya kişisel temizlik gibi günlük işlerinize ilişkin, ihtiyaç duyduğunuzda aileniz veya arkadaşlarınız dışındaki kaynaklardan yardım almada kendinize ne kadar güveniyorsunuz?

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##### Doktorla İletişim

8. Hastalığınız hakkında doktora bir şeyler sormada kendinize ne kadar güveniyorsunuz?
9. Hastalığınızla ilgili olabilecek kişisel bir sıkıntınızı açık bir şekilde doktorunuzla paylaşmada kendinize ne kadar güveniyorsunuz?
10. Hastalığınızın seyrinde farklılıklar yaşadığınızda bunları doktorunuzla çözümlemede kendinize ne kadar güveniyorsunuz?

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#### GENEL ÖZ-ETKİLİLİK

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##### Genel Hastalık Yönetimi

11. Hasta olma, genellikle hastalığı yönetmek için farklı görev ve aktiviteleri yapmak anlamına gelir. Hastalığınızı düzenli bir şekilde yönetmek için ihtiyaç duyduğunuz tüm şeyleri yapabilmede kendinize ne kadar güveniyorsunuz?
12. Sağlık durumunuzu yönetmek adına bir doktora muayene olma ihtiyacınızı azaltmak için gereksinim duyduğunuz farklı görev ve aktiviteleri yapabilmede kendinize ne kadar güveniyorsunuz?
13. Günlük yaşantınızı etkilememesi için sağlık durumunuzdan kaynaklı duygusal gerginliğinizi azaltmada kendinize ne kadar güveniyorsunuz?
14. Hastalığınızın günlük yaşantınızı etkileme düzeyini azaltmak için sadece ilaç almanın dışında bir şeyler yapmada kendinize ne kadar güveniyorsunuz?

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#### SONUÇLARA ULAŞMAK İÇİN ÖZ-ETKİLİLİK

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##### Ev İşlerini Yapma

15. Sağlık sorunlarınıza rağmen getir götür işlerinizi yaptırmada kendinize ne kadar

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- güveniyorsunuz?  
16. Sağlık sorunlarınıza rağmen alışverişinizi yaptırmada kendinize ne kadar güveniyorsunuz?
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**Sosyal/Eğlence Aktiviteleri**

17. İlgi alanlarınız ve sizi eğlendiren etkinlikleri sürdürmede kendinize ne kadar güveniyorsunuz?  
18. Sosyal ziyaretler ve eğlence gibi arkadaşlarınız ve ailenizle birlikte yapmayı sevdiğiniz aktiviteleri sürdürmede kendinize ne kadar güveniyorsunuz?
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**Semptomlarla Başa Çıkma**

19. Fiziksel rahatsızlığınızı veya ağrınızı azaltmada kendinize ne kadar güveniyorsunuz?  
20. Hastalığınızdan kaynaklı yorgunluğunuzun yapmak istediğiniz şeylerden sizi alıkoymasını önlemede kendinize ne kadar güveniyorsunuz?  
21. Hastalığınızdan kaynaklanan fiziksel rahatsızlığınızın veya ağrınızın, yapmak istediğiniz şeyleri gerçekleştirmenize engel olmasını önlemede kendinize ne kadar güveniyorsunuz?  
22. Hastalığınızdan kaynaklı herhangi bir başka belirtinin veya sağlık sorununun yapmak istediğiniz şeyleri gerçekleştirmenize engel olmasını önlemede kendinize ne kadar güveniyorsunuz?  
23. Herhangi bir belirtinin veya sağlık sorununun, yapmak istediğiniz şeyleri gerçekleştirmenize engel olmasını kontrol edebilmede kendinize ne kadar güveniyorsunuz?
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**Nefes Darlığı İle Başa Çıkma**

24. Nefes darlığınızın, yapmak istediğiniz şeyleri gerçekleştirmenize engel olmasını önlemede kendinize ne kadar güveniyorsunuz?
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**Depresyonu Yönetme/Kontrol**

25. Yaptığınız herhangi bir şeyin herhangi bir farklılık yaratmadığını gördüğünüzde cesaretinizin kırılmasını engellemede kendinize ne kadar güveniyorsunuz?  
26. Üzgün veya moral yönünden çökmüş hissetmenizi engellemede kendinize ne kadar güveniyorsunuz?  
27. Kendinizi yalnız hissetmenizi engellemede kendinize ne kadar güveniyorsunuz?  
28. Yalnız hissettiğinizde kendinizi daha iyi hissettirecek bir şeyler yapmada kendinize ne kadar güveniyorsunuz?  
29. Cesaretiniz kırılmış hissettiğinizde kendinizi daha iyi hissettirecek bir şeyler yapmada kendinize ne kadar güveniyorsunuz?  
30. Üzgün veya moral yönünden çökmüş hissettiğinizde kendinizi daha iyi hissettirecek bir şeyler yapmada kendinize ne kadar güveniyorsunuz?
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\* Her bir alt boyut 0-10 arasında artan öz-etkililik algısını gösterecek şekilde puanlanmaktadır.

0; hiç güvenim yok, 10; tamamen güvenim var ifadesini temsil etmektedir.