

# VALIDITY AND RELIABILITY OF THE TURKISH VERSION OF THE SELF-CARE ACTIVITIES SCREENING SCALE DURING COVID-19 LOCKDOWN

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## ABSTRACT

**Purpose:** The aim of this study was to adapt the Self-Care Activities Screening Scale in Turkish and to determine its validity and reliability.

**Material and Methods:** The sample of this methodological study conducted during Covid-19 lockdown consists of 140 individuals. For the adaptation of the Self-Care Activities Screening Scale in Turkish, it was translated into Turkish and culturally adapted. Then, the psychometric properties of the scale were evaluated by exploratory factor analysis and confirmatory factor analysis.

**Results:** The Self-Care Activities Screening Scale consists of 14 items and four dimensions. The fit indices were found to be satisfactory in the confirmatory factor analysis. The intraclass correlation coefficient of the test-retest reliability was 0.81 and the Cronbach's alpha coefficient was 0.85.

**Conclusion:** The Turkish version of the Self-Care Activities Screening Scale is a valid and reliable tool that can be used to screen self-care activities in the general population.

**Keywords:** Reliability, scale, self-care activities, validity

## INTRODUCTION

The self-care concept is defined as activities initiated and performed by individuals to promote health and well-being. According to another definition, self-care is all behaviors learned and experiences gained in terms of education and health (1). While the first definitions of the self-care concept date back to the mid-1800s, today the self-care concept is attributed to

Orem (2001). Orem defines self-care as an individual's care through the maturation of controlled, continuous, effective, and intentional behaviors. According to Orem, when basic human needs are met effectively, self-care shows that an individual is healthy (2).

Orem (2001) defines all self-care activities that an individual must perform to maintain and promote

health as therapeutic self-care requisites. Therapeutic self-care requisites consist of developmental self-care requisites, universal self-care requisites, and health deviation self-care requisites. When universal self-care requisites are met effectively, self-care supports health and well-being concepts. Eight universal self-care requisites were defined as air, water, food, elimination, activity and rest, solitude and social interaction, hazard prevention, and promotion of normality for an individual to maintain life and well-being (3). Self-care requisites and activities of individuals are affected by the epidemic, endemic and pandemic events. A pandemic occurs when an infectious disease spreads quickly to more people than expected across continents (4).

Covid-19 infection caused by SARS-CoV-2 first broke out in China's Wuhan city with a population of 11 million at the end of December 2019 and quickly spread through other countries (5). On March 11, 2020, the World Health Organization has declared the outbreak a global pandemic (6). The Turkish Ministry of Health has declared the first Covid-19 case in the country on March 11, 2020. Various measures have been taken in Turkey on January 22 based on suggestions of the Scientific Advisory Board (7). Lockdown measures taken due to the pandemic involved working from home, online education, and curfew, which restricted the physical activities of people. It is believed that increased stay-at-home during the lockdown, continuous media coverage of the pandemic, increased fear, stress, and anxiety affect the physical and psychological health of individuals (8).

Common reactions of people affected by Covid-19 may include, both directly and indirectly, feelings of loneliness and depression, fear of getting sick and dying, and fear of losing loved ones due to the virus (9). In summary, all these fears and concerns lead to changes in sleep patterns or diet, difficulties falling asleep or concentrating, exacerbation of chronic health problems (if any), and increased use of alcohol, tobacco or other drugs (10). Covid-19 infection and the treatment process may negatively affect the quality of life and vital functions of individuals who cannot meet their self-care needs and perform self-care activities. Therefore, it is important to improve the quality of life and maintain self-care during the Covid-19 process.

Studies show that the age range of Covid-19 patients is 30 to 79 years with a median age of 59 years.

Therefore, it is believed that the use of self-care activities could be a useful solution to cope with Covid-19 infection (11). It is usually recommended to maintain a healthy lifestyle as a protective factor against Covid-19 complications and to engage in self-care activities to relieve stress during the pandemic (12).

The evaluation of self-care activities is extremely important for the improvement of care services. The scales identified in the literature review are as follows: Self-Care Assessment Tool to measure cognitive and functional skills in self-care of individuals with the spinal cord injury (13), Self-Care Behaviours Scale to measure self-care behaviours in patients receiving chemotherapy (14), Self-Care Management Process in Chronic Disease to determine self-care management process in chronic diseases (15), Adolescent Dysmenorrhoea Self-Care Scale (16), Mindful Self-Care Scale (17) and Self-Care Agency Exercise Scale (18). However, there is no specific scale to assess self-care activities in the general population in Turkey.

The aim of this study was to adapt the Self-Care Activities Screening Scale in Turkish and to determine its validity and reliability.

## MATERIAL AND METHODS

### Design and Participants

This methodological study was conducted on individuals residing in a city in northwestern Turkey in April-May 2021. In the literature, it is stated that a sample size equivalent to 10 times higher than the number of items is ideal for scale validity and reliability studies (19). The Self-Care Activities Screening Scale, which will be adapted in this study, consists of a total of 14 items. Therefore, a sample size corresponding to at least 10 participants for each scale item was calculated for the present study. Accordingly, a sample of 140 participants was selected. The researchers randomly sent the online data collection tools to 152 individuals from their contacts who used the WhatsApp application. Since ten individuals wanted to withdraw from the study and two individuals could not speak or understand Turkish, the study was completed with 140 individuals.

Individuals who can speak, read and understand Turkish, have a smartphone, use the WhatsApp application, and have agreed to participate were included in the study. Individuals with psychiatric

diseases or physical disability were excluded from the study.

### **Instrument**

Data were collected through online data collection instruments (Participant Description Questionnaire and Self-Care Activities Screening Scale) created using the software "Google Forms".

#### **Participant Description Questionnaire**

The Participant Description Questionnaire was developed by the researchers in line with the literature to determine the individuals' sociodemographic, medical, and Covid-19-related characteristics (20,21). The form consists of 11 questions questioning the characteristics of individuals such as age, sex, education, family type, chronic disease, and Covid-19 diagnosis.

#### **Self-Care Activities Screening Scale (SASS-14)**

The SASS-14 was developed by Martín Martínez et al. in 2021 to screen self-care activities in the general population, and a study on its validity and reliability was conducted (22). The scale consists of 14 items and 4 dimensions. Its dimensions are "Health Consciousness" (HC, items 1, 2, 3, 4, and 5), "Nutrition and Physical Activity" (NPA, items 6, 7, 8, and 9), "Sleep" (SLP, items 10 and 11) and "Interpersonal and Intrapersonal Coping Skills" (IICS, items 12, 13 and 14). The scale items are scored from 1 to 6. The total score on the scale is 14 to 84 (HC=5-30, NPA=4-24, SLP=2-12, IICS=3-18). While each dimension is scored individually, the sum of all items in the scale gives a "total scale score". Higher total scale scores indicate higher participation in self-care activities (22). Cronbach's alpha value was found to be 0.80 in the original study (20). In this study, Cronbach's alpha value of the SASS-14 was calculated as 0.85.

### **Process of Translation and Cultural Adaptation of SASS-14**

For the adaptation of the SASS-14 scale in Turkish, its translation into Turkish and its cultural adaptation was performed. Language validity, content validity, and a pilot study were conducted for the scale's translation into Turkish and cultural adaptation.

#### **Language validity**

The adaptation of a scale in a different language differentiates the nature of that scale. Thus, it is necessary to examine the scale items in detail and make sure that the post-translation version of the

scale is the same as the original version in order to minimise the differences. Otherwise, the validity and reliability of the scale may be low. In adaptation studies, there are "one-way translation, group translation and back translation" methods. "Back translation method" is mostly used to ensure cultural equality of the scale (23). In this study, back translation method was used to ensure the language validity of SASS-14. During the adaptation of the SASS-14 in Turkish, the original scale was translated into Turkish by three academic members who were fluent in both Turkish and English. Then, these translations were combined by a faculty member who was fluent in English and specialization in nursing and a single translation was obtained. In the back translation stage, the scale was back-translated into the original language, English, by an specialist faculty member in the field of nursing who was bilingual, native English speaker and had no prior knowledge of the SASS-14 scale. The back-translated version was compared with the original SASS-14 scale to assess conceptual equivalence. As a result of the comparison, it was found that the translation of the SASS-14 scale was similar to the original English version and accurately conveyed the original meaning in the English version. Accordingly, no changes were required for the final translation. Then, the final translation of the SASS-14 was reviewed by three faculty members specialised in the field of nursing to eliminate any possibility of inconsistency.

#### **Content validity**

The scale was assessed by 13 faculty members specialized in nursing to evaluate the equivalence of the original items of the SASS-14 and items of the translated scale. Lawshe technique was used to assess specialist opinions (24). According to this technique, each item is assessed as "essential", "useful but not essential" and "not necessary". The Content Validity Ratio (CVR) and Content Validity Index (CVI) were calculated after obtaining specialist opinions. The minimum CVR value required for 13 specialist is 0.54 in the Lawshe technique. A CVI value higher than CVR (CVI>CVR) shows that the content validity of the remaining scale items is statistically significant (24,25). In this study, the CVI value of the scale was calculated as 0.79.

#### **Pilot study**

After the content validity analysis, a pilot study was conducted to determine whether scale items are

comprehensible. A range of 5–15 interviews is considered ideal for a pilot study (19). Accordingly, a pilot study was conducted on eight individuals. The SASS-14 was sent to these individuals via WhatsApp and they were asked to complete the scale and provide feedback on the comprehensibility of scale items in Turkish. No revision was made to the scale items at the end of the pilot study. This group was not included in the main study.

### **Process of Psychometric Properties of SASS-14**

Validity and reliability analysis of the SASS-14 scale was performed at this stage.

#### **Validity**

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) was administered to evaluate the structural validity of the scale. Kaiser-Mayer-Olkin (KMO) and Bartlett Sphericity Test were administered to test the suitability of the sample size for factorization in EFA. For a data set to be suitable for factor analysis, the KMO value must be over 0.50 and the  $\chi^2$  value after Bartlett's test of sphericity must be lower than 0.05 (26). Principal Component Analysis and Varimax Rotation were used to examine the factor structure of the SASS-14 scale. According to the literature, each factor should have at least 1 eigenvalue, the factor load should be a minimum of 0.50, and the explained variance ratio should be above 32% in a rotated principal component analysis (27).

CFA performs the processes of testing the constructs determined by EFA and reviewing their validity or checking/verifying the previous scale results with new data structures. The fit indices of CFA should be at the desired level.  $\chi^2/sd \leq 3$  is considered a good fit. In addition,  $GFI \geq 0.90$ ,  $CFI \geq 0.95$ ,  $TLI \geq 0.95$  and  $RMSEA \leq 0.05$  values also indicate a good fit. However, values of  $0.90 < NFI < 0.94$  and  $0.06 < SRMR < 0.08$  indicate an acceptable fit (28-30).

#### **Reliability**

The reliability of the SASS-14 was reviewed by calculating Cronbach's alpha internal consistency coefficient and test-retest reliability coefficient. Considering the calculated internal consistency coefficient,  $0.00 < \alpha \leq 0.40$  shows that the scale is not reliable;  $0.40 \leq \alpha \leq 0.60$  shows that the scale has low reliability;  $0.60 \leq \alpha \leq 0.80$  shows the scale is very reliable;  $0.80 \leq \alpha \leq 1.00$  shows the scale is highly reliable (31). In the test-retest technique, while the

correlation value between two measurements must be at least 0.70 and above,  $>0.80$  is the preferred value (32).

#### **Procedure**

Since the study was conducted during Covid-19 lockdown, face-to-face interviews could not be conducted. Therefore, the data collection instruments link was sent to individuals via WhatsApp. An informed consent form was added to the introduction section of this link, and individuals who agreed to participate in the study were able to continue with the survey. It took approximately 10 to 15 minutes for each participant to complete the data collection instruments.

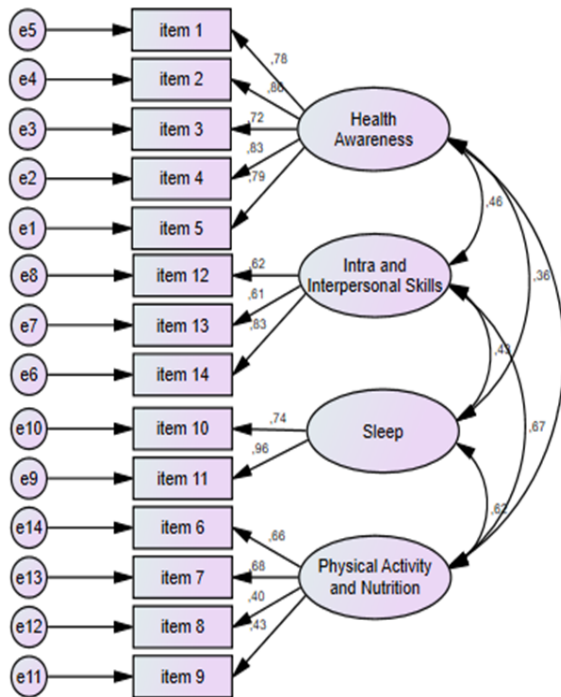
The participants were asked to write nickname to assess the reliability of SASS-14's test-retest. It was stated that the same scale would be administered again, therefore, they had to use the same nickname in the second administration of the scale. The scale was readministered to 70 individuals who were selected randomly from the sample two weeks after the first data collection.

#### **Data Analysis**

SPSS for Windows Version 26.0 (SPSS Inc., Chicago, IL, USA) statistical software was used for data analysis. Descriptive data included numbers, percentages, and mean with standard deviations. Varimax Rotation and Principal Component Analysis were used for exploratory factor analysis in the statistical assessment of data obtained. Confirmatory Factor Analysis was administered to confirm the original structure of the scale through AMOS 21 software. Cronbach's Alpha and intraclass correlation values were calculated for the reliability analysis and test-retest results, respectively. The margin of error was determined to be 0.05 for all analyses.

#### **Ethical Considerations**

Scientific research permission to carry out the research was obtained from the Ministry of Health of the Republic of Turkey. Afterward, an application was made to the Istinje University Human Research Ethics Committee for ethical compliance approval and application permission, and the ethics committee approval was obtained (Date: 28.02.2021/Protocol Number:21-13). The study was conducted in line with the principles of the Declaration of Helsinki. Consent was obtained from the participants before the study



**Figure 1.** Measurement model of Self-Care Activities Screening Scale

through an online subject consent form after information was provided.

**RESULTS**

**Sociodemographic, medical, and COVID-19-related characteristics of individuals during the Covid-19 lockdown**

The distribution of the sociodemographic, medical, and Covid-19 related characteristics of individuals is given in Table 1. The mean age of the individuals in the study was 26.52±11.59 and 62.9% of them were female. Of the individuals, 77.1% were university graduates, 46.4% were employed (56.3% on an online basis, 28.2% on a hybrid basis, 15.5% on an office basis) and 43.6% had an income lower than expenditures. 70.7% of the individuals were single and 81.4% had a nuclear family. It was determined that 22.9% of the individuals had a chronic disease. Furthermore, 24.3% of the individuals reported that they were diagnosed with Covid-19 and 32.9% stated that they neglected the health check-ups during the Covid-19 lockdown (Table 1).

**Validity**

The SASS-14 was found to have a KMO value of 0.83 and a p-value of <0.001 according to Bartlett’s test

(X<sup>2</sup>: 818.598, SD: 92). These values indicate that data can be used to administer the factor analysis.

EFA results of the scale are shown in Table 2. As a result of the Principal Component Analysis, the scale had four dimensions and no item needed to be removed from the 14-item scale. Furthermore, it was determined that factor loadings of the scale ranged from 0.54 to 0.90, and the scale had an explained variance of 66.44% (Health Consciousness (25.21%), Nutrition and Physical Activity (14.57%), Sleep (13.81%) and Interpersonal and Intrapersonal Coping Skills (12.84%)) and a minimum eigenvalue of 1.80 (Table 2).

χ<sup>2</sup>/sd was calculated as 1.379 based on the CFA results of the scale. As for the other fit indices, the following values were found: GFI 0.911, CFI 0.965, NFI 0.885, TLI 0.955, RMSEA 0.052, and SRMR 0.050. Accordingly, the four dimensions structure was confirmed. The path diagram of the confirmed model is given in Figure 1.

**Reliability**

While Cronbach’s alpha value calculated for the reliability of SASS-14 was 0.85, values of dimensions ranged from 0.61 to 0.89. The intraclass correlation coefficient was calculated through the SASS-14 total scores and the retest score was 0.81. The intraclass correlation coefficient was calculated through the dimensions and retest scores were 0.70-0.82. Furthermore, there was a positive, strong, and statistically significant correlation between the test-retest scores of the scale (p<0.001; Table 3).

The mean SASS-14 total score obtained by the participants in the study was calculated as 59.57±12.00. The mean SASS-14 dimension scores obtained by the participants were Health Consciousness 24.36±5.17, Nutrition and Physical Activity 14.25±4.33, Sleep 8.62±2.84 and Interpersonal and Intrapersonal Coping Skills 12.32±3.87.

**DISCUSSION**

Although there are measurement tools that assess self-care activities in specific areas, there is no measurement tool that assesses self-care activities in the general population in Turkey. In this study, it was aimed to adapt the SASS-14, which is used to screen self-care activities in the general population, in Turkish and to test its Turkish validity and reliability. The results regarding the construct validity of the scale were obtained by EFA and CFA. As a result of

**Table 1.** Sociodemographic, medical and Covid-19 related characteristics of individuals (n=140)

<b>Mean age ( <math>\bar{x}\pm SD</math>)</b>	26.52 $\pm$ 11.59 (min=18-max=73)	
	<b>n</b>	<b>%</b>
<b>Sex</b>		
Female	88	62.9
Male	52	37.1
<b>Level of education</b>		
Primary/secondary school	8	5.8
High school	24	17.1
University	108	77.1
<b>Working status</b>		
Working	65	46.4
Not working	75	53.6
<b>Way of working*</b>		
From home/online	40	56.3
Hybrid	20	28.2
In office	15	15.5
<b>Income status</b>		
Income less than expenses	61	43.6
Income more than expenses	41	29.3
Equal income and expenses	38	27.1
<b>Marital status</b>		
Single	99	70.7
Married	41	29.3
<b>Family type</b>		
Nucleus	114	81.4
Extended	7	5.0
Divorced family	11	7.9
Living alone	8	5.7
<b>Presence of chronic disease</b>		
No	108	77.1
Yes	32	22.9
<b>Covid-19 diagnosis</b>		
Was diagnosed	34	24.3
Not diagnosed	106	75.7
<b>Neglected health checks during Covid-19 lockdown</b>		
Yes	46	32.9
No	94	67.1

$\bar{x}$ =Mean; SD= Standard deviation, \* Working individuals responded.

EFA, it was found that the scale had four dimensions and there were no items that needed to be removed from the 14-item scale. In addition, it was observed

that the factor loadings of SASS-14 explained the variance and the item eigenvalues were in accordance with the standard values required for

**Table 2.** Exploratory factor analysis results of Self-Care Activities Screening Scale

		Factor loading	Eigenvalue	Explained variance ratio
Health Consciousness	I am usually aware of my health.	0.86	3.52	25.21
	I know my inner feelings about my health.	0.85		
	I am constantly examining my health.	0.81		
	I reflect about my health a lot.	0.77		
	I am alert to changes in my health.	0.75		
Nutrition and Physical Activity	I think I am eating better than I used to (less sugar, salt, fried snacks or pre-cooked food).	0.73	2.04	14.57
	I'm drinking an average of 8 glasses of water a day.	0.59		
	I do physical activity (some sport, yoga or dance) for at least 30 min a day.	0.57		
	I eat three servings of fruit and two of vegetables daily.	0.54		
Sleep	I sleep 7–8 h a day.	0.89	1.93	13.81
	I think that my rest is of quality.	0.85		
Interpersonal and Intrapersonal Coping Skills	I actively participate in the initiatives of my community (eg: clapping, singing, playing music, offering my support in what I could help, etc.).	0.81	1.80	12.84
	I am learning to do new things like: playing an instrument, practicing a new language, cooking, painting, new apps, video games, etc.	0.81		
	I am finding moments to be more connected to myself (I observe, write or reflect on my thoughts, emotions or behaviors).	0.65		

construct validity (Table 2; Figure 1). Similarly, Martínez et al. did not find a value below the lower limit for the factor loadings of the scale items (20). Likewise to the original scale, it can be said that the factor loadings in the Turkish scale support the construct validity of the scale. CFA was then applied to the items whose construct validity was proved by EFA. CFA is one of the methods that examines the compatibility of the theoretical structure and the data obtained. The fit indices obtained after the analysis show the fit of the model to the theory. As a result of the study,  $\chi^2/sd$ , GFI, CFI, TLI and RMSEA values were found to have good fit, while NFI and SRMR values were found to have acceptable fit. According to these results, the four-dimensional scale obtained from CFA has adequate fit index values.

The reliability of the scale was determined through internal consistency and test-retest methods. The internal consistency coefficient determines if all aspects of the scale have the same measuring ability. Cronbach's alpha reliability coefficient is one of the most common methods to determine internal consistency (32). A Cronbach's alpha coefficient of 0.70 obtained for all items has often been regarded as an acceptable threshold for reliability; however, 0.80 and 0.95 are preferred for the psychometric quality of scales (19). In this study, the scale is determined to be highly reliable. Furthermore, Cronbach's alpha coefficients of the scale dimensions ranged from very reliable to highly reliable. Similarly, Martínez et al. (2021) reported that the scale was highly reliable. However, Cronbach's alpha

**Table 3.** Review of reliability and test-retest results of Self-Care Activities Screening Scale and its dimensions

	Cronbach's alpha	Test-retest intraclass correlation coefficient (r)
Self-Care Activities Screening Scale	0.85	0.81*
Health Consciousness	0.89	0.73*
Nutrition and Physical Activity	0.61	0.82*
Sleep	0.83	0.81*
Interpersonal and Intrapersonal Coping Skills	0.74	0.70*

coefficients of the scale dimensions had low to high reliability (20). Accordingly, the Turkish scale had high consistency and reliability similar to the original scale. Furthermore, it can be suggested that the dimensions of the Turkish scale had higher consistency and reliability than the original scale.

The time invariance of the scale is tested through the test-retest method. In this method, the scale is administered to the same group at different times to assess the correlation coefficient after the measurements. The fit between the first test and repeat test administered in this study was high with statistical significance. These results suggest that the scale gave consistent results over time. Internal consistency coefficient and test-retest analyses showed that SASS-14 was a reliable measurement instrument.

The Covid-19 pandemic and associated lockdown practices may cause changes in the self-care activities of individuals. In this study, the mean score of SASS-14 was determined to be  $59.57 \pm 12.00$ . This situation could have been caused by disruptions in the supply chain such as food and medicine, restricted access to health services, increased sedentary lifestyle behaviors, and negatively affected motivation during the Covid-19 lockdown (33).

### Limitations

This study involves a sample from only a specific region of Turkey. Therefore, the results are specific to this sample group and cannot be generalized for individuals in other cities in Turkey.

### CONCLUSION

It was determined that the SASS-14 is a valid and reliable measurement tool that can be used to screen self-care activities in a general population of Turkey. The Turkish version of the scale consists of 14 items and four dimensions similar to the original scale. Accordingly, the SASS-14 can be used for different

studies on the general population. Furthermore, larger field studies can be conducted to assess the self-care activities of society. It is recommended to be administered to determine the individuals with low self-care activities in these studies and to plan training and counseling on self-care activities.

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**Conflict of interests:** The authors report no actual or potential conflicts of interest.

**Ethical approval:** Scientific study permission to carry out the research was obtained from the Ministry of Health of the Republic of Turkey. Afterwards, an application was made to the Istinye University Human Research Ethics Committee for ethical compliance approval and application permission, and the ethics committee approval was obtained (Date: 28.02.2021/Number:21-13). The study was conducted in line with the principles of the Declaration of Helsinki. Consent was obtained from the participants before the study through an online subject consent form after information was provided.

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