Psychometric properties of the Turkish version of the Patient Health Questionnaire–Somatic, Anxiety, and Depressive Symptoms

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Abstract

Objective: In this study, we examined the psychometric properties of the Turkish version of the Patient Health Questionnaire–Somatic, Anxiety, and Depressive Symptoms (PHQ-SADS) developed by Kroenke, Spitzer, and Williams.
Method: This study sample consisted of 200 outpatients admitted to Erenköy Mental Health Training and Research Hospital, Erenköy Physiotherapy and Rehabilitation Hospital, and Kartal Training and Research Hospital and 240 graduate students in Karadeniz Technical University. Participants were administered the 90-item Symptoms Checklist (SCL-90R) and the 7-item Whiteley Index, along with the PHQ-SADS. A month later, the PHQ-SADS was readministered to 60 of the students. To investigate the internal consistency of the scale and its subscales, corrected item-total correlations were examined to establish the effect on the Cronbach coefficients and internal consistency of each item of the subscales. Test-retest correlations were also analyzed for reliability. Factorial structure was investigated using principal component analysis. The validity of distinguishing congruent and specific groups was also investigated for validity.
Results: Total scores on the scale showed an adequate test-retest consistency ($r = 0.54$, 0.52, and 0.76, respectively). All items showed adequate correlations ($r > 0.26$) in the test-retest analysis. Cronbach α values were 0.86 (control), 0.93 (patient), and 0.92 (total) on the test of internal consistency. When the questions were analyzed individually, the item-total correlation for item 7 of the PHQ somatization subscale was found to be inadequate in the control group. Exploratory factorial analysis and varimax rotation results showed that the scale provided a 4-factor structure. In the validity analysis, a significant difference between the patient and the control group mean values was determined. The SCL-90R, 7-item Whiteley Index, and SCL-90R somatization subscales were found to be sufficiently related to the number of symptoms to establish criterion-related validity.
Conclusion: Findings with respect to internal consistency, test-retest consistency, item-total correlation, factorial structure, distinguishing validity for specific groups, and criterion-related validity for the PHQ-SADS show that the scale is acceptable in terms of validity and reliability for the Turkish population.
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1. Introduction

It is well known that in clinical practice, somatic, anxiety-related, and depressive symptoms are commonly seen together [1]. This has been proven by large epidemiologic research studies showing that in primary care settings, these syndromes mostly overlap and are rarely observed in pure forms [2]. Moreover, somatic, anxiety, and depressive symptoms have distinguishing and also additive effects on different areas such as health-related quality of life, functional status, disability, and health care use [2-4].

It is noteworthy that most medical patients with mental disorders are never seen by psychiatrists. Familiarity with the manifestations of these common disorders and access to effective guidance for treatment are problematic for primary care clinicians. Considering the difficulties faced in diagnosing and treating disorders in primary care clinics, Goldberg [5] suggested 3 major approaches to the problem: (1) improvement of the interview techniques in primary care clinics, (2) use of the screening tools, and (3) the addition of mental health care services to primary care clinics. The second of these 3, screening, was found to be most cost-effective and feasible in the related studies.

Given the time restrictions, brief self-test scales are very effective tools for clinicians with small patient groups to distinguish between screen-negative and screen-positive patients in a limited time. Scales are also important in monitoring response to treatment. Benefits were shown in follow-up assessments for depression and also for anxiety and somatization [6]. In clinical practice, using scales facilitates planning treatment, monitoring treatment response, avoiding undertreatment and overtreatment, evaluating the quality of treatment, and ensuring standard communication among clinicians regarding severity of disorder [6]. Finally, scales are helpful for discerning comorbidities in patients with depression who may also be experiencing somatization or in mixed anxiety-depression. Recognizing this situation may be especially important in patients who are not responding to treatment and in patients with persistent pain or anxiety complaints who need additional drugs [7].

The Primary Care Evaluation of Mental Disorders (PRIME-MD) scale was developed and validated in the early 1990s for the purpose of diagnosing 5 common mental disorders: depression, anxiety, somatoform disorders, alcohol abuse, and eating disorders [8]. First, patients are administered a 27-item scale; after this initial screening for disorders, they are asked several questions in a structured interview to confirm the diagnosis. Structured psychiatric interviews are taken as a basis for these additional questions. Although it takes an average of only 5.6 minutes to properly administer PRIME-MD to patients without mental disorders, it takes 11.4 minutes in patients with mental disorders. Given operational time constraints, this kind of structured interview is useful in research but not in clinical practice [7].

Patients with acute or chronic medical conditions need preventive treatment and accurate record keeping, and the restricted appointment times of general practitioners, usually 15 minutes, may present an obstacle to this process. Therefore, the Patient Health Questionnaire (PHQ) was developed and validated based on the PRIME-MD in 2 large studies with 6000 participants (3000 patients from general internal medicine and family practitioner clinics, 3000 from obstetrics and gynecology clinics) [9,10]. The PHQ is a 3-page questionnaire that can be entirely self-administered by the participant. Clinicians then scan the completed questionnaire, verify positive responses, and apply diagnostics algorithms that are abbreviated at the bottom of each page.

The PHQ-9 is a 9-item depression module taken from the full PHQ. Major depression is diagnosed if 5 or more of the 9 symptom criteria have been present for an adequate period. The original anxiety module includes 15 items focused on 2 diagnoses and uses a dichotomous answering system. Because, the yes/no response format does not allow for the calculation of a severity score, a 7-item scale was developed for assessing generalized anxiety disorder (GAD) with a response protocol similar to that for the PHQ-9; the scale establishes a probable diagnoses of GAD and grades its severity [11,12]. The PHQ-15 was developed following original studies of the PHQ to evaluate the severity of somatic symptoms and the presence of somatization and somatoform disorders, and its use has steadily increased [3]. According to Kroenke [13], several characteristics make the PHQ-15 an excellent measure of somatic symptom burden and potential somatization: (1) 10% of patients score 15 or more, which matches incidence figures from important clinical somatization studies; (2) scores are correlated with loss of function, disability, and use of health services; (3) it overlaps with other somatization scales that overlap with one another; (4) it is an efficient way to determine the use of health care services; (5) it is highly correlated with a number of symptoms identified by clinicians; and (6) it is sensitive to changes in primary and secondary outcomes [13].

The PHQ scales have been developed to evaluate these common mental disorders separately and to evaluate the disorders together with a tool called Somatic, Anxiety, and Depressive Symptoms (SADS) [7]. The scales have become important tools in primary care and general medical practice for diagnosing and evaluating these disorders. They are also important in psychiatry because the 3 conditions we focus on here (depression, anxiety, and somatization) often overlap in clinical practice. In addition to their being easy to implement, the scales have similar answer formats, providing measures of severity of the various disorders by cutoff scores. The scales have also been shown to be helpful for clinical follow-up [7].

Dimensional assessment is supported in the development of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*, as a categorical diagnostic complementary. The PHQ scales have been translated into more than 60 languages to improve clinical outcomes globally and for use in mental health research. Standardization of the Turkish versions of PRIME-MD [14] and revised Brief-PHQ (Brief-PHQ-r) [15] has also been reported previously. There are 13 items in the somatic module, 9 items in the depression module, and 7 items for panic disorder in the depression module of the Brief-PHQ-r scale [15].

The operating characteristics of a study of 1387 patients of primary health care were as follows: for any diagnosis, $k\_/0.567$, sensitivity 79.0%, and specificity 82.9%; for major/minor depressive disorder, $k\_/0.536$, sensitivity 76.0%, and specificity 85.3%; for panic disorder, $k\_/0.640$, sensitivity 74.4%, and specificity 98.4%; and for somatoform disorder, $k\_/0.476$, sensitivity 61.9%, and specificity 92.5%. Diagnostic performance of the Brief-PHQ-r was found to be quite good in the diagnosis of major/minor depressive disorder, panic disorder, and somatoform disorder in primary health care settings. The authors recommended its use in routine clinical practice to help primary physicians and also in field surveys of psychiatric disorders [15].

In this study, the adaptation of an enlarged and revised form of the Brief-PHQ-r, the PHQ-SADS, into the Turkish language was investigated. We aimed to investigate the factorial structure, validity, and reliability of the test rather than its diagnostic performance, which had already been assessed in previous studies [14,15]. The PHQ-SADS

comprises the PHQ-9 depression, GAD-7 anxiety, and PHQ-15 somatic symptom scales, and we investigated the psychometric properties of the scales when used in clinical and nonclinical groups, especially in primary health care settings, for nonpsychiatric and psychiatric patients.

2. Method

2.1. Participants and process

This study was performed as a part of a project investigating the somatization characteristics of patients with major depressive disorder diagnosed during the period of August 2010 to January 2011 throughout Turkey. Patients from Erenköy Mental Health Training and Research Hospital outpatient clinic, Erenköy Physiotherapy and Rehabilitation Hospital outpatient clinic, and Kartal Training and Research Hospital Cardiology outpatient clinic participated in the study. In addition, 240 graduate students from Karadeniz Technical University were recruited as a healthy control group for the study.

The inclusion criteria were as follows: aged at least 18 years; having no medical illness that affects general health or quality of life; having no neurologic or psychotic disorders; and having no history of serious suicide intent or attempts. Patients were not examined or given structured interviews to assess their situation but were accepted based on their own statements about their health.

We contacted Kurt Kroenke, one of the team who developed the scale, via e-mail and obtained permission to adapt the PHQ-SADS for Turkish use. The scale was then translated from English into Turkish by a researcher competent in both languages. A professional translator then translated the translation back into English, and discrepancies were reassessed.

One month later, the scale was given to 60 healthy graduate students, and the test-retest analysis was performed. We investigated internal consistency in relation to the total score and score for each item and calculated the Cronbach α for the total scale. If the item-total correlation was high, then the item was used for factorial analysis and principal component analysis. We investigated the internal consistency of outputs of varimax rotation and calculated Cronbach αs for each factor. The validity of discriminating power for special groups was found by comparing the mean scores of the patient and healthy groups. Criterion-related validity was calculated by investigating the correlation between the number of symptoms from the Beck Depression Inventory, the 7-item Whiteley Index (WI-7), and the revised version of the 90-item Symptoms Checklist (SCL-90R) and the number of the symptoms from the SCL-90R somatization subscale.

Ethical committee approval for the study was given by the Faculty of Medicine Ethical Committee, Kahramanmaraş Sütçü Imam University. All participants were fully informed about the purpose of the study and gave written consent.

2.2. Data-collecting tools

The PHQ-SADS were designed to address the needs of primary health care providers resulting from the high frequency of somatic, depressive, and anxiety symptoms among their patients. The scales can be applied together, or each subscale can be applied separately as PHQ-15 (somatization), GAD-7 (anxiety), PHQ-9 (depression), and 5-item panic modules. A positive answer to the first panic question has 93% sensitivity and 78% specificity. Positive answers to the remaining 4 questions minimally show a lower sensitivity and a greater specificity. Eleven somatic symptoms in the original PHQ increase the usability of the panic module minimally, and they were therefore removed from PHQ-SADS to shorten the scale. The last item in PHQ-SADS identifies disability in the respondent and addresses treatment decisions. Scores of 5, 10, and 15 on each of the 3 scales reflect increased severity, and high scores on 2 or 3 modules point to comorbidity. The average time clinicians need to evaluate the PHQ scores is less than 2 minutes once the patient has completed the scale. Because the full PHQ contains 2 more disorders (eating and substance abuse), PHQ-SADS requires even less time. Clinicians find the PHQ practical in managing and planning treatments. Most patients (88%-93%) feel comfortable completing the PHQ, and 89% to 93% of the patients believe that the questions help physicians understand their conflicts better and provide them with better treatments [7].

Hypochondriacal worry was assessed with a modified version of the WI-7 [16]. Factor analysis of the WI yields 3 separate factors: disease fear, disease conviction, and bodily preoccupation. However, a recent study could not confirm the internal validity or homogeneity of the Whiteley Index in its original 14-item version, and the authors produced a reduced 7-item version, which demonstrated good psychometric properties [16,17].

The SCL-90R is aimed at screening ongoing mental symptoms. It is a 90-item self-assessment test with a Likert-type scale ranging from 1 to 5. The scale includes subscales for somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid thought, and psychoticism [18,19]. In addition, general symptom level scores were used. Moreover, the total number of symptoms in the somatization subscale was examined in this study.

2.3. Statistics

For the sociodemographic data, measured data were assessed using the t test, and categorical data were assessed using the χ^2 test. The scale was administered again to 60 of the graduate students 1 month later to examine the test-retest consistency. The total score consistency was then calculated using the Spearman r, and consistency for each question was calculated using the Pearson correlation. All participant groups were examined using the Cronbach α test for internal consistency. To assess validity, the t test was used, as total

scale scores of both groups were normally distributed, and subscale scores were evaluated using the Kolmogorov-Smirnov test to assess the discrimination of special groups. Congruent validity was assessed by examining the relationships among the SCL-90R, the WI-7, and the number of symptoms from the SCL-90R somatization subscales. The statistical program SPSS.9 was used to assess the study data (SPSS, Chicago, IL).

3. Results

A total of 200 patients and 240 healthy graduate students were recruited to investigate the validity and reliability of the scale. In the control group, 111 students were women (46.3%), the age range was 18 to 23 years, and the mean age was 18.67 ± 1.15 years. The education duration range was 11 to 15 years, and the mean was 11.05 ± 0.43 years. One hundred twenty-three (61.7%) patients were women, the age range was 18 to 56 years, and the mean age was $38.98 \pm$

Table 1
PHQ-SADS test-retest consistency examination (Pearson correlation analysis; n = 60)

Item no.	Correlation value
Total S score	0.54
S1	0.54**
S2	0.37**
S3	0.32*
S4	0.54**
S5	0.27*
S6	0.51**
S7	0.52**
S8	0.30*
S9	0.54**
S10	0.38**
S11	0.26*
S12	0.28*
S13	0.34**
S14	0.44**
S15	0.63**
Total A score	0.52**
A1	0.51**
A2	0.26*
A3	0.38**
A4	0.30*
A5	0.42**
A6	0.33*
A7	0.33*
Total D score	0.76**
D1	0.28*
D2	0.55**
D3	0.51**
D4	0.39**
D5	0.46**
D6	0.73**
D7	0.32*
D8	0.57**
D9	0.26*

* $P < .05$.
** $P < .01$.

Table 2
PHQ-SADS internal consistency evaluation: the impact of each item on the scale and α values

Item no.	Control[a]		Patient[b]		Total[c]	
	Corrected item-total correlation	α, if the item was deleted	Corrected item-total correlation	α, if the item was deleted	Corrected item-total correlation	α, if the item was deleted
S1	0.33	.86	0.28	.93	0.42	.92
S2	0.25	.86	0.33	.93	0.34	.92
S3	0.18	.86	0.36	.93	0.26	.92
S4	0.48	.86	0.52	.93	0.56	.92
S5	0.33	.86	0.44	.93	0.42	.92
S6	0.15	.87	0.29	.93	0.34	.92
S7	0.04	.87	0.33	.93	0.21	.92
S8	0.16	.86	0.46	.93	0.44	.92
S9	0.22	.86	0.50	.93	0.41	.92
S10	0.23	.86	0.55	.93	0.35	.92
S11	0.46	.86	0.57	.93	0.51	.92
S12	0.22	.86	0.44	.93	0.36	.92
S13	0.45	.86	0.49	.93	0.48	.92
S14	0.22	.86	0.49	.93	0.43	.92
S15	0.39	.86	0.58	.92	0.53	.92
A1	0.49	.86	0.63	.92	0.63	.91
A2	0.47	.86	0.66	.92	0.60	.91
A3	0.45	.86	0.54	.93	0.51	.92
A4	0.48	.86	0.69	.92	0.59	.92
A5	0.56	.86	0.59	.92	0.59	.92
A6	0.50	.86	0.69	.92	0.65	.91
A7	0.46	.86	0.59	.92	0.55	.92
D1	0.50	.86	0.69	.92	0.68	.91
D2	0.57	.85	0.68	.92	0.69	.91
D3	0.50	.86	0.60	.92	0.60	.91
D4	0.53	.86	0.42	.93	0.51	.92
D5	0.52	.86	0.55	.92	0.58	.92
D6	0.49	.86	0.50	.93	0.55	.92
D7	0.29	.86	0.48	.93	0.43	.92
D8	0.46	.86	0.67	.92	0.59	.92
D9	0.23	.86	0.48	.93	0.34	.92
PHQ-SADS Cronbach α	.86		.93		.92	

[a] PHQ-14 somatic (item 7 deleted)–standardized Cronbach α, .72; GAD-7 anxiety–standardized Cronbach α, .79; PHQ-9 depression–standardized Cronbach α, .82; PHQ-8 depression–standardized Cronbach α, .82.
[b] PHQ-15 somatic–standardized Cronbach α, .85; GAD-7 anxiety–standardized Cronbach α, .88; PHQ-9 depression–standardized Cronbach α, .88; PHQ-8 depression–standardized Cronbach α, .88.
[c] PHQ-15 somatic–standardized Cronbach α, .82; GAD-7 anxiety–standardized Cronbach α, .84; PHQ-9 depression–standardized Cronbach α, .86; PHQ-8 depression–standardized Cronbach α, .86.

9.33 years. The education duration range was 5 to 15 years, and the mean was 7.41 ± 3.37 years.

Table 1 shows the test-retest reliability of the scale. The scale was readministered 1 month later to 60 of the graduate students, and the consistency of the total score and of the score on each question was examined using the Spearman and Pearson correlation analyses, respectively. These results showed that the somatization, anxiety, and depression subscales of the Turkish version of the PHQ-SADS had

Table 3
Principal component analysis of the Turkish version of the PHQ-SADS

	Control				Patient				Total			
	1F	2F	3F	4F	1F	2F	3F	4F	1F	2F	3F	4F
S1			0.58					0.67			0.53	
S2		0.35		−0.48		0.63					0.64	
S3				−0.63		0.70					0.52	
S4	0.49			−0.31		0.37		0.41	0.38		0.50	
S5	0.55					0.33	0.54				0.33	
S6								0.64			0.54	
S7					0.38			0.39				
S8			0.43				0.42	0.44			0.43	0.40
S9			0.43	0.35		0.63						0.66
S10			0.55	0.33		0.34	0.50					0.66
S11	0.35		0.57			0.49	0.40					0.59
S12			0.31	0.63			0.62					0.63
S13	0.37		0.61				0.52	0.33				0.66
S14			0.53				0.43	0.59			0.56	
S15			0.61				0.42	0.51			0.60	0.31
A1		0.60				0.64				0.60		
A2		0.71			0.40	0.63				0.70		
A3		0.74				0.79				0.76		
A4		0.56		0.32		0.78				0.67		0.31
A5	0.35	0.50				0.51				0.53		
A6		0.64			0.37	0.52	0.36			0.59	0.32	
A7	0.32	0.51				0.61				0.55		
D1	0.66				0.81				0.74	0.33		
D2	0.60	0.48			0.82	0.32			0.73	0.41		
D3	0.68				0.59				0.60			
D4	0.73				0.51				0.67			
D5	0.51				0.71				0.69			
D6	0.47	0.38			0.63				0.64			
D7	0.43				0.60	0.31			0.56			
D8	0.44	0.33			0.70				0.55	0.38		
D9		0.45			0.58			0.35	0.47			
Eigenvalue	6.47	2.44	1.89	1.80	10.10	2.55	1.61	1.60	9.22	2.18	1.49	1.45
Total variance (%)	20.87	7.87	6.10	5.81	32.57	8.23	5.20	5.15	29.74	7.02	4.81	4.66

F indicates factor.

moderate test-retest correlations (0.54, 0.52, and 0.76 for somatization, anxiety, and depression, respectively). The *r* value for each item on each subscale ranged from 0.26 to 0.63 for somatization, from 0.26 to 0.73 for depression, and from 0.26 to 0.51 for anxiety.

Table 2 shows the internal consistency of the scale, the item-total correlation, and Cronbach α (with 1 item deleted) values. Cronbach α values were .86 for the control group, .93 for the patient group, and .92 for the whole group. Item 7 on the somatization subscale showed a lower correlation when item-total score correlation was analyzed for each item individually. After the elimination of this item, the Cronbach α value for the PHQ somatization subscale was found to be .72. The results of the factor analysis examining the factorial structure and item load for structural validity are shown in Table 3. After varimax rotation, the items loaded on 5 factors, but after examination of the scree plot graphics, it was considered that 4 factors gave a better fit. Correlations between subscale scores and correlations between the number of symptoms on the SCL-90R somatization

Table 4
Relationship between the PHQ-SADS subscales and SCL-90R somatization (n = 320)

	PHQ-15		PHQ-9		GAD-7	
	r	*P*	*r*	*P*	*r*	*P*
PHQ-9	0.53	<.001	–	–	–	–
GAD-7	0.57	<.001	0.64	<.001	–	–
Beck Depression Inventory	0.13	.042	0.45	<.001	0.52	<.001
WI-7	0.33	<.001	0.30	<.001	0.35	<.001
n-Somatization symptoms	0.26	<.001	0.16	.011	0.16	.013
SCL-90R						
Somatization	0.38	<.001	0.32	<.001	0.27	<.001
Obsessive-compulsive	0.17	.009	0.32	<.001	0.44	<.001
IPS	0.14	.028	0.32	<.001	0.41	<.001
Depression	0.17	.011	0.46	<.001	0.56	<.001
Anxiety	0.16	.014	0.37	<.001	0.57	<.001
Hostility	0.01	NS	0.23	<.001	0.37	<.001
Phobic anxiety	0.18	.006	0.26	<.001	0.37	<.001
Paranoid ideation	0.07	NS	0.30	<.001	0.43	<.001
Psychosis	0.09	NS	0.29	<.001	0.41	<.001
Total	0.23	<.001	0.44	<.001	0.57	<.001

NS indicates not significant.

subscale, WI-7, and SCL-90R are shown with criterion-related validity values in Table 4. Differences between groups in scores on the PHQ-SADS were investigated; the mean score for the control group was 43.88 ± 9.81, and that for the patient group was 39.20 ± 16.63. The difference between these means was statistically significant ($t = -2.065$, $df = 234.551$, $P = .04$).

4. Discussion

This study investigated the factorial structure, reliability, and validity of the Turkish version of the PHQ-SADS scale. The results showed that the PHQ-SADS scale has good internal consistency and test-retest reliability, item-total correlation, factorial structure, and congruent and discriminating power for patient groups, healthy groups, and mixed groups, indicating that the PHQ-SADS scale can acceptably be used in Turkish populations.

Test-retest reliability analysis of the PHQ-SADS scale was performed by administering the test to a sample of the same participants 1 month later. Total scores and subscale scores on the 2 tests were positively correlated (0.52-0.76). Only healthy subjects were used in the test-retest analysis, and it may be important to obtain results for patient groups, making this a potential limitation of our study. The range of interitem correlations was 0.26 to 0.73. We also examined internal consistency and item-total correlation to understand the reliability of the PHQ-SADS. The Cronbach α coefficient for internal consistency was .86 to .93. The study of Kroenke et al [20] on the development of the depression subscale in 6000 patients showed a test-retest score of 0.84 and Cronbach α coefficients of .86 to .89. The anxiety subscale development study by Spitzer et al [11] with 2740 patients showed a test-retest score of 0.83 and a Cronbach α coefficient of .92. The somatization subscale development study by Kroenke et al [3] with 6000 patients had a Cronbach α coefficient of .80. The study conducted by van Ravesteijn et al 21] with 906 patients demonstrated a test-retest score of 0.83 and a Cronbach α coefficient of .80. Our test-retest results showed values lower than those found in these other studies, but the internal consistency coefficient was at appropriate levels. The number of participants in the present study was quite low compared with the large-scale study of Kroenke et al, and this may explain the high internal consistency coefficient in that study. The internal consistency of each subscale of the PHQ-SADS was assessed to establish the reliability of each subscale when used separately. Analysis of the results showed that each subscale could be reliably used alone (Cronbach α coefficients between .72 and .78). The item-total correlation for 1 item (item 7 in the control group) was very low (0.04). When we excluded item 7, the Cronbach α coefficient was found to be .72. A 14-item version of the somatization subscale is therefore more appropriate to use in healthy group applications. The results from the factorial analysis showed that depression and anxiety were both loaded under one unique factor. Only item 9 of the depression subscale loaded under the anxiety factor. Large survey studies of depression have used the PHQ-8 rather than the PHQ-9. Our findings suggest that using the 9-item version may be appropriate for studying patient groups but that the use of an 8-item depression subscale is appropriate in healthy/survey groups. Items in the somatization subscale were observed to have differing loadings. Besides the grouping under separate factors, the fourth and fifth items loaded on the depression subfactor in the healthy control group. The first item loaded on the anxiety subfactor in the patient group. Each of these items loaded on 2 different factors simultaneously, which makes the items questionable. This situation again points to the limited number of participants, which is another limitation of the study, and the factorial structure should be examined using larger patient groups. It is worth remembering that this study forms a part of another study that continues and includes larger samples. The SCL-90R and the WI-7 scales were given to the control group for congruent validity analysis. There was a positive correlation between the WI-7 and the PHQ-9 subscales. Also, there was a positive correlation between the PHQ-SADS and the number of somatic symptoms (SCL-90 somatization subscale), SCL-90 total scores, and scores on each subscale. There was no relationship between the PHQ-15 and the SCL-90R irritability, paranoid idealization, and psychoticism subscales; a minimal relationship was found with the other scales. The total score of the SCL-90R was found in a relationship at the level of 0.23. Both the anxiety and depression subscales were moderately correlated with the SCL-90 subscales: 0.57, between GAD-7 and the anxiety subscale of the SCL-90R, and 0.44, between PHQ-9 and the depression subscale of the SCL-90R. In this context, it can be seen that the Turkish version of each of the subscales of the PHQ-SADS had high correlations with the total score and with each of the subscales of the SCL-90R (by r values, although we did not use comparative statistics). The distinctive validity of the scale for specific groups was examined using differences in mean scores on the PHQ-SADS subscales in the patient and the student groups. The patient group had a significantly higher mean total score and higher mean scores on all of the subscales. Another limitation of the study was that the sociodemographic characteristics, particularly the age and education parameters of the 2 groups, were not matched.

5. Conclusion

Our findings show that the PHQ-SADS is a valid and reliable tool for use in Turkish patient and healthy groups. The tool should prove to be very practical for both the general population and somatic patient groups, as it can be used as a whole scale or to investigate individual dimensions. At the same time, it is an important advantage for clinicians

and researchers that the scale can be used as a whole or separately in examining the phenomenology of overlapping syndromes seen in psychiatric patient samples. The scale provides important data for patient management and follow-up on changes in the course of these conditions, which show frequent comorbidities.

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