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ARAŞTIRMA Açık Erişim

Adaptation of The Academic Resilience Scale (ARS-30): Turkish Version Validity and Reliability Study

Akademik Yılmazlık Ölçeğinin (ARS-30) Uyarlanması: Türkçe Geçerlik ve Güvenirlik Çalışması

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ABSTRACT

The present study aims to adapt the "Academic Resilience Scale-30" (ARS-30) into Turkish and examine its validity and reliability. The Ars-30 consists of a three-factor structure: perseverance, reflective and adaptive help-seeking, negative affectivity, and emotional response. The study sample consisted of 687 students. As a result of the CFA analysis, it was determined that the scale was in good agreement with the three-factor structure determined in its original form. Similar scale validity analyzes of the scale were made with the general self-efficacy scale and significant positive relationships were determined between both scales. The overall reliability Cronbach Alpha coefficient of the ARS-30 is.89; The Cronbach's alpha coefficients of the ARS-30 subscales varied from .71 to .85, thus indicating an acceptable level. As a result, it can be said that ARS-30 is a valid and reliable measurement tool for university students in Turkey.

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ÖZET

Araştırmada, "Akademik Yılmazlık Ölçeğinin (ARS-30)" Türk kültürüne uyarlanması, geçerlik ve güvenirlik çalışmasının yapılarak envanterin Türk literatürüne kazandırılması amaçlanmıştır. ARS-30, azim, yansıtıcı ve uyarlanabilir yardım arayışı, olumsuz duygulanım ve duygusal tepki olmak üzere 3 alt boyuta sahiptir. Çalışmaya gönüllü 687 öğrenci katılmıştır. DFA analizi sonucunda, ölçeğin özgün formunda belirlenen 3 boyutlu yapıyla iyi uyum gösterdiği tespit edilmiştir. Ölçeğin benzer ölçek geçerliği analizleri genel öz yeterlik ölçeğiyle yapılmış ve her iki ölçek arasında anlamlı pozitif ilişkiler belirlenmiştir. ARS-30'un genel güvenirlik Cronbach Alpha katsayısı .89; alt boyutlarının Cronbach alfa katsayılarının .71 ile .85 arasında değiştiği ve kabul edilebilir düzeyde olduğu görülmüştür. Sonuç olarak, ARS-30'un Türkiye'deki üniversite öğrencileri için geçerli ve güvenilir bir ölçme aracı olduğu söylenebilir.

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Ethical Statement: The research was reviewed by Atatürk University Scientific Research and Publication Ethics Committee and was given permission.

INTRODUCTION

Resilience is the positive adaptation and development of individuals despite situations and risky conditions that have negative consequences (Cetrez Iscan & Makoc, 2017). The concept of resilience which entered the field of positive psychology in the 1980s was often used in studies on overcoming traumatic lives and subsequent normalization (Taskırmaz & Bal, 2020). According to positive psychology, to talk about resilience, a dangerous situation and protective factors are required in addition to this risk situation. The lack of active and dynamic processes between these two causes negative results at the level of resilience (Masten, 2014). According to the positive approach, resilient people are those who demonstrate the capacity to stay well, recover and even improve in the face of adversity. People who focus on their strengths continue their lives stronger even if they are shaken by difficulties. Focusing on strengths instead of the negative mental state contributes to the prevention of emotional disorders and helps to maintain psychological well-being (Kuiper et al., 2019).

Rapid development in technology and changes in living conditions are often found exciting for students. However, this can be challenging in terms of personal adjustment. (Parker et al., 2017). In addition, student groups may face different problems based on many socio-cultural and economic differences. Studies have shown that young people experience emotional problems due to obstacles at the administrative, academic, and financial levels, such as not being able to find what they expect at universities, the inadequacy of the education they receive at universities, anxiety about not being able to find a job, and not being able to communicate with academics (Gao et al., 2020; Reddy et al., 2018).

The difficulties experienced by university students are more intense in underdeveloped and developing countries compared to developed countries (Yasmin et al., 2018). As of 2020, there are 203 universities and approximately 8 million university students in Turkey (Kalyoncuoğlu, 2020). In studies examining the problems experienced by university students in Turkey, the most frequently encountered problems are adjustment problems, academic problems, problems with finding a job and future anxiety, economic problems, and conflicts with family (Eryılmaz & Deniz, 2018; Küçüker, 2017; Topkaya & Meydan, 2013).

In Turkey, students get the opportunity to study at a university at the end of a difficult race. Both families and students have many expectations during college. At the top of all expectations comes the desire to find a good job after graduation. Students have to take the personnel selection exam to have a job in the field they graduated from. However, thinking about the personnel selection exam and other problems experienced during the time spent at the university increases stress and anxiety (Doğan, 2020; Donat, et al., 2019). High academic demands, stress risk, and limited time for socialization can negatively affect student academic resilience. Therefore, it can be said that academic resilience is closely related to personality traits such as the student's socio-emotional structure, self-perception, and confidence in their abilities. Academically resilient students can achieve academic success despite adverse socioeconomic conditions. Understanding academic resilience can help students improve and support their academic performance.

Academic resilience is the capacity to effectively deal with academic decline, stress, difficulties, and other pressures (Martin & Marsh, 2009). Academic resilience is one of the characteristics that ensure academic success. Indeed, academic indomitability helps a person to maintain motivation and focus despite stressful and negative events in academic studies. Academically resilient students tend to express higher levels of achievement despite current academic challenges (Ahmed, et al., 2018). Individuals with lower

academic endurance are reluctant to make efforts in the face of stress, to regulate goals, compared to individuals with high academic resilience (Choo & Prihadi, 2019). On the other hand, academically resilient students can successfully overcome stressful conditions related to school. These students can maintain optimal levels of motivation in academic work and achieve high performance despite challenges. Especially in the university context, resilience levels can be seen as very important for students' interactions and academic participation.

However, it is necessary to be more resilient to achieve success by taking decisions, struggling, and initiative at the university level (Munro & Pooley, 2009). Jowkar et al. (2014) categorized the outcomes of academic resilience in college students as associated with social support, high expectations, encouragement to participate in meaningful activities, and positive developmental outcomes. Munawaroh et al. (2020) determined that university students with high academic resilience manage themselves, especially in stressful times, and constantly try to finish their homework on time. Recently, Wulandari (2021) observed the effect of academic indomitability on undergraduate students in improving their ability to overcome difficulties and adapt when completing courses.

A growing number of studies have encouraged college students to focus on their academic frustrations and develop interventions that will provide the support they need by measuring students' levels of academic resilience. Notable examples of resilience scales in the literature include Wagnild and Young's (1993) resilience scale, the Connor-Davidson resilience scale (Connor & Davidson, 2003), the adult resilience scale developed by Friborg et al. (2003), and developed by Smith et al. (2008) short endurance scale. These scales provide attitudinal statements based on characteristics generally associated with resilience. Cassidy (2015) criticized the structure that focuses on academic resilience by defining general resilience scales. In particular, he criticized that the academic resilience scale developed by Martin and Mars (2006) focuses only on the failures in an academic environment and is used in all age groups. Therefore, Cassidy (2016) developed a scale to investigate the academic resilience of university students. This scale is used in different countries such as Iran (Ramezanpour et al., 2019), Indonesia (Kumalasari et al., 2020), and Spain (Trigueros et al., 2020), and Ecuador (Zumarraga et al., 2021).

Currently, there is no scale used to determine the academic resilience levels of university students in Turkey. The research is mainly aimed at measuring the academic resilience of high school students (Kapıkıran, 2012; Morsünbül & Yazar, 2021). In addition, the relationship between the academic achievements of university students and their academic decadence status is examined with general resilience scales (Besim & Çetin, 2011; Yaşar & Özbek, 2019). But, it is very difficult to evaluate success and gain in-depth information with general resilience scales in the education process. This study aimed to adapt ARS-30 developed by Cassidy (2016a) to Turkish culture.

Providing a tool to measure the academic resilience of Turkish university students and measuring their resilience levels can help increase their academic performance. Having a reliable and valid tool to measure academic resilience in university students can support the evaluation of psychological factors to ensure stability in academic achievement. This scale may be one of the tools used by academic advisors at the university to promote positive academic outcomes. In this way, the academic resilience of students can be determined and students with lower resistance levels can participate in courses and activities that increase resilience. Likewise, academics can monitor students' progress by using the academic resilience scale in their courses. In addition, the use of a valid scale measuring academic resilience in psychological counseling and guidance practice and research centers of universities may increase academic adjustment

and success in students with low resilience. Studies using the academic resilience scale can contribute to the literature focusing on academic persistence and positive academic outcomes.

METHOD

This research, aimed at the adaptation of ARS-30 for adult individuals and the study of its psychometric properties, is a relational search study. A screening model is a research approach that aims to describe the existing situation as it is (Karasar, 2015).

Participants

In the 2021 academic year, 687 students at Atatürk University participated in the study. The study group consisted of 482 female (70.2%) and 205 male (29.8%) students aged between 18 and 41 with a mean age of 21.68 (Sd = 2.96).

Table 1. Demographic characteristics of the participants

Variables	Category	N	%
Gender	Kadın	482	70,2
	Erkek	205	29,8
Age	18-23	594	86,5
	24-29	72	10,5
	30-35	16	2,3
	36-41	5	.73
Faculty	Faculty of Education	229	33,33
	Nursing	26	3,78
	Health Service	266	38,86
	Faculty of Economics	30	4,37
	Faculty of Arts	22	3,20
	Engineering	85	12,37
	Fine Arts	7	1
	Faculty of Law	11	1,60
	Architecture	11	1,60
Grade	1	259	37,7
	2	161	23,4
	3	162	23,6
	4	105	15,3
	Total	687	100

Ethical Statement

The study procedures were approved by the Atatürk University Scientific Research and Publication Ethics Committee (Date: 09/04/2021, Number of Meetings: 04, Decision No: 09). In addition, the purpose of the research was explained to the students and the students who agreed to participate in the research voluntarily were included in the study. Also, verbal and written informed consent was obtained from the students.

Data Collection Tools

Academic Resilience Scale. ARS-30 was developed by Cassidy (2016). The scale consists of 30 items in total. The measurement tool consists of perseverance, reflective and adaptive help-seeking, negative affectivity, and emotional response. As a result of the exploratory factor, the scale sub-dimensions explain

a total of 42.4% of the variance. The general total score of the scale with the general self-efficacy scale is r=. 49; It was determined that there were positive and significant relations between r= .48, .35, and .31 with sub-dimensions, respectively. The Cronbach alpha internal consistency reliability coefficient values for the sub-dimensions of the scale were .83, .78, and .80, respectively; The total score of the scale was found to be .90. Item-total correlations range from .41 to 63. Scale questions are in five-point Likert type. The highest score that can be obtained from the scale is 150. The high scores obtained from the scale indicate a high level of academic resilience.

General Self-Efficacy Scale. The general self-efficacy scale was developed by Schwarzer and Jarusalem (1979). The scale consisting of ten items was adapted into Turkish by Aypay (2010). As a result of the factor analysis, the scale of four Likert types (1 = completely wrong, 4 = completely correct) showed a two-factor structure as "effort and resistance", "ability and confidence". These factors explained 47% of the total variance. The Cronbach Alpha internal consistency coefficient was calculated as .79 for the "effort and resistance" dimension, and .63 for the "ability and confidence" dimension. The Cronbach Alpha coefficient calculated in total is .83. Getting high scores on scale items means an increase in general self-efficacy. For example, an item is "I can solve many problems if I put in the necessary effort".

Procedure

For the adaptation study of the scale, Cassidy was contacted via e-mail and the necessary permission was obtained for the scale to be adapted. The process of translating the scale into Turkish consists of certain stages. First of all, the scale was translated into Turkish by 3 linguists who graduated from the Department of English Language and Literature and Philology. Later, the Turkish forms were translated back into English. The consistency between the two forms was examined by applying it to 25 people who knew both English and Turkish. After the language arrangements were made for the scale, a trial Turkish form was obtained. After making arrangements about the language related to the scale, the experimental Turkish form was obtained. In the last stage, this form was examined by 3 faculty members in the psychological counseling and guidance department and their opinions were taken. The prepared Turkish form was duplicated and applied to university students and the data was transferred to the computer environment.

Analysis

The data collected online were analyzed in a computer environment. There was no missing data in the study because one question mark was not passed from one question mark to another in the online application. As a result, 687 people filled out the scales. Before the analysis of the data, outlier and normality values were examined. Skewness and kurtosis values were examined for the normality values of the data. As a result of these processes, it was determined that the data of 5 individuals violated the parametric conditions and were removed from the data set. Normality values were re-examined after these data were removed from the data set. At the last stage, it was observed that the assumption of normality of the data was confirmed. As a result of all these processes, analyzes were carried out on 687 data.

Cronbach's alpha coefficient was used to determine the internal consistency of the scale and its sub-dimensions. Confirmatory factor analysis (CFA) was used to determine whether the items and sub-dimensions explained the structure of the original scale. As is generally the case for fit indices, $\chi 2/sd \leq 5$, $> .90$ for GFI, CFI, NFI, and RFI, and $p< .05$ for RMR were taken as criteria (Hu & Bentler, 1999).

To measure the scale representation power of the items, item-total correlations were calculated based on sub-dimensions. Then, the means of the upper and lower 27% groups were compared according to the lower dimensions to provide evidence for item discrimination. The significance level was accepted as .05. SPSS-24 was used for all analyses.

RESULTS

Relationships with The Sub-Dimensions of The Scale

Correlation analysis was performed to determine the relationships between the determined structures of ARS-30 both with the total score and its sub-dimensions. The results of this analysis are shown in Table 2.

Table 2. Relationships between academic resilience scale sub-dimensions

Butler	1	2	3	4
1. Perseverance	1	.75*	.57*	.50*
2. Reflecting and Adaptive Help-Seeking		1	.51*	.50*
3. Negative Affectivity and Emotional Response			1	.43*
4. Total				1

*p<.05

As seen in Table 2, the correlations between the sub-dimensions of the ARS-30 ranged from .43 to .75.

Confirmatory Factor Analysis

Thirty items were included in the analysis to test the three dimensions of perseverance, reflective and adaptive help-seeking, negative affect, and emotional reaction which was defined in the original form of the scale. In this case, items 1, 2, 3, 4, 5, 8, 9, 10, 11, 13, 15, 16, 17, 30 perseverance; items 18, 20, 21, 22, 24, 25, 26, 27, 29 reflective and adaptive help-seeking; items 6, 7, 12, 14, 19, 23, 28 were included in the negative affect and emotional reaction factor. However, items 1, 3, 6, 7, 12, 14, 15, 19, and 28 are scored reversely.

As a result of CFA, it was seen that the 3-dimensional structure of the scale was confirmed. The fit values of the scale showed that the CFA results of the scale were acceptable (x2/sd= 4.06; NFI = .94; CFI = .96; RFI = .94; GFI= .90; SRMR = .063; RMSEA = .069). The factor loads of the perseverance sub-dimension of the scale ranged from .21 to .73, the factor loads of the reflective and adaptive help-seeking sub-dimension ranged from .38 to .70, and the factor loads of negative affect and emotional response ranged between .48 and .80 (Table 3 For RMSEA, ".08" was accepted as acceptable fit and ".05" was accepted as perfect fit value. (Brown & Cudeck, 1993). The t and standardized solution values of the ars-30 scale are shown below.

Table 3. t values of the ARS-30

Items	Factor 1	Factor 2	Factor 3
1	5.64		
2	8.46		
3	15.21		
4	14.16		
5	5.78		
8	12.68		
9	19.08		
10	13.80		

11	21.24		
13	18.28		
15	12.05		
16	16.99		
17	14.53		
30	12.48		
18		19.11	
20		10.09	
21		16.01	
22		24.32	
24		14.03	
25		21.20	
26		14.59	
27		21.20	
29		9.75	
6			13.29
7			4.65
12			19.48
14			19.94
19			16.61
23			10.03
28			19.64

Note: Factor 1: Perseverance; Factor 2: Reflecting and adaptive help-seeking; Factor 3: Negative affect and emotional response

Table 4. Standardized solution values of the ARS-30

Items	Factor 1	Factor 2	Factor 3
1	.22		
2	.33		
3	.55		
4	.52		
5	.23		
8	.11		
9	.67		
10	.51		
11	.72		
13	.64		
15	.45		
16	.74		
17	.53		
30	.47		
18		.67	
20		.74	
21		.04	
22		.79	
24		.64	
25		.72	
26		.04	
27		.03	
29		.05	
6			.05
7			.06
12			.05
14			.74
19			.62
23			.05

28	.04

Note: Factor 1: Perseverance; Factor 2: Reflecting and adaptive help-seeking; Factor 3: Negative affect and emotional response

Criterion Validity

The general self-efficacy scale was used for the criterion validity study of the scale. The results were between the total score of the general self-efficacy scale, and the academic resilience scale (r= .55), perseverance (r=.50), reflective and adaptive help-seeking (r= .50), negative affect, and emotional reaction (r=.50). .43) proved the relationships. Correlation coefficients related to criterion validity are presented in Table 5.

Table 5. Criterion validity results

ARS-30	General Self-Efficacy Scale
Perseverance	.50*
Reflecting and Adaptive Help-Seeking	.50*
Negative Affectivity and Emotional Response	.43*
Total	.55*

*p<.05

Reliability

The overall reliability of the scale, Cronbach Alpha internal consistency coefficient was.89; The Cronbach Alpha internal reliability coefficient of the sub-dimensions was determined as .71 for perseverance, .85 for reflective and adaptive help-seeking, and .79 for negative affect and emotional reaction. We determined the McDonald ω value of the scale to be .88 for the whole scale and .73, .85, and .75 for the sub-dimensions, respectively. The overall two-half Spearmen Brown coefficient of the scale was found to be .85. The two-half Spearmen Brown coefficients of perseverance, reflective and adaptive help-seeking, and negative affect and emotional response sub-dimensions were determined as .67, .84, and .75. For the test-retest reliability of the academic resilience scale, 38 students were administered twice with an interval of four weeks. The correlation between the two applications was found to be .55. In addition, the test-retest correlation coefficients for the sub-dimensions were calculated as .50, .49, and .57, respectively. The reliability results of the ARS-30 are presented in Table 6.

Tablo 6. ARS-30 reliability analysis results

ARS-30	Item No	Cronbach Alpha	Split-Half Reliability	Test-Retest	McDonald ω
Perseverance	14	.71	.67	.50	.73
Reflecting and Adaptive Help-Seeking	9	.85	.84	.49	.85
Negative Affectivity and Emotional Response	7	.79	.75	.57	.75
Total	30	.89	.85	.55	.88

Item Analysis

The Item-Total correlation of the academic resilience scale, which was tried to be adapted, was calculated. As a result of the item analysis, the corrected item-whole correlations of the scale were ranked between .30 and .70. This result showed that the relationship between the attitude score obtained from each item and the total attitude score was significant (Büyüköztürk, 2020). In addition, to measure internal consistency, the averages of the 27% lower and upper groups should be compared on an item basis. The test values for independent samples regarding the differences in the item scores of the 27% lower and upper groups determined according to the total scores ranged from -1.97 to -12.86. This result showed

that the differences between the groups were statistically significant ($p < .05$). The findings are shown in table 7.

Table 7. ARS-30 item analysis results

Items	Item-Total Correlation	T (27% lower and upper groups)
a1	.30	-1.97
a2	.31	-4.01
a3	.52	-9.10
a4	.55	-6.38
a5	.31	-3.08
a6	.44	-4.13
a7	.55	-8.06
a8	.30	-1.98
a9	.62	-8.32
a10	.46	-6.75
a11	.65	-9.67
a12	.52	-7.30
a13	.59	-10.04
a14	.44	-7.44
a15	.48	-5.83
a16	.67	-12.86
a17	.48	-8.39
a18	.58	-9.36
a19	.52	-6.45
a20	.65	-10.58
a21	.50	-7.11
a22	.70	-11.55
a23	.46	-6.54
a24	.57	-9.60
a25	.64	-10.45
a26	.45	-4.50
a27	.61	-9.60
a28	.57	-9.04
a29	.33	-6.96
a30	.42	-9.43

DISCUSSION

This research aimed to adapt and validate Cassidy's (2016) ARS-30 to the Turkish context. In this context, CFA was performed for the scale adaptation study. In the scale adaptation processes, it is recommended to perform EFA if a relationship between the scale items is unknown, and if a tested relationship, determining factors, and items collected under them are identified, CFA is recommended (Kline, 2011; Orcan, 2018). Cokluk et al. (2012) suggested starting the analysis with CFA in scale adaptation studies to examine whether the original scale structure, whose validity has been proven, is preserved in the target culture. Therefore, CFA was applied to examine the construct validity of the ARS-30 and to verify the three-factor structure in the original form of the scale in the Turkish sample. CFA results; $\chi 2/sd = 4.06$; NFI = .94; CFI = .96; RFI = .94; GFI = .90; SRMR = .063; RMSEA = .069 detected. The analysis results show that it is compatible with Cassidy's original scale and the three-factor structure is confirmed. In the internal consistency method, the correlation coefficients between the sub-dimensions of the scale and with the whole scale were found to be positive and significant. In addition, the criterion validity results of the academic resilience scale showed that there was a moderately positive and significant relationship

between the academic resilience scale and its subscales and the general self-efficacy scale, and this result confirmed the criterion validity of the scale ($r= .55$; $p <0.01$). This result is consistent with previous research findings that there is a positive relationship between academic resilience and self-efficacy (Hayat et al., 2021; Rajan et al., 2017).

We used Cronbach Alpha and test-retest methods to determine the reliability of the scale. The total ARS-30 Cronbach Alpha coefficient was .89; sub-dimensions were .71 for perseverance, .85 for reflective and adaptive help-seeking, and .79 for negative affect and emotional response. Since the value of .70 is generally taken as a criterion for the reliability coefficient (Kılıç, 2016; Polit, 2014), it can be said that the reliability coefficients calculated with the Cronbach Alpha method for ARS-30 are sufficient. The results of the test-retest analysis made to reveal the invariance over time are .55 for the overall scale; .50 for the perseverance subscale, .49 for reflective and adaptive seeking, and .57 for negative affect and emotional response. Reliability coefficients calculated by the test-retest method may be affected more by subjective judgments than the reliability coefficients obtained by the Cronbach Alpha method. Yang and Green (2011) state that the reliability coefficients obtained with the test-retest method can be below .70 because beliefs that develop with thought are structures that are shaped over a long time and resist change.

In the academic resilience scale, the correlation coefficients of the items belonging to each factor with the total score of that factor and the correlation coefficients of the items with the total scale score were found to be significant. As a result of the analysis, the scale item-total correlation was .30 and above, and the significance of the t-values for the difference between the upper and lower groups of 27% supported that the scale items were sufficiently distinctive (McMillan & Schumacher, 2010).

As a result, the findings obtained by reliability, validity, and item analysis methods show that ARS-30 can be accepted as a valid and reliable scale and can be used to measure the academic resilience of university students in Turkey. The scale can be calculated as three dimensions separately or as a total score. Increasing scores indicate higher academic resilience. In this respect, ARS-30 can be used as a valid and reliable diagnostic criterion in determining maladaptive responses to distress and academic difficulties in practice and research in Turkey.

Limitations & Suggestions

The first of the limitations of the study is that it used the nonprobability sampling method. In future research, the factor structure of the scale can be reanalyzed in different student populations. Secondly, the participants are only Atatürk University students. This may present the problem of low sample variability. Therefore, research can be applied again in universities located in different regions. Third, the construct validity of the ARS-30 was limited to CFA. To further strengthen the construct validity of the scale, it may be useful to examine the results of EFA analysis in future studies. The fourth limitation is the low test-retest reliability coefficient of the ARS-30. For this, it can be analyzed how the variables that may be related to the participants' beliefs about evaluation may affect academic resilience. Finally, to verify the predictive capacity of the scale, the predictability of the scale with academic concepts and psychological variables can be analyzed in future studies. Apart from the mentioned limitations, no measurement tool has been found in the Turkish literature that can be used to determine the beliefs of university students to evaluate their academic resilience. Therefore, this study, in which the reliability-validity analyzes were made by adapting the ARS-30 to Turkish, is expected to fill this gap in the literature.

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Author Contributions

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It has been reported by the authors that there is no conflict of interest.

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This study was completed in accordance with the Helsinki Declaration. Accordingly, the research was reviewed by Atatürk University Scientific Research and Publication Ethics Committee was given permission.

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