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Validity and Reliability of the Turkish Version of the Sleeping Pills Receptivity and Involuntariness Scale-6 to Assess Acceptance of Hypnotics Use

Çiğdem Müge Haylı, MSc, PhD[1], Mehmet Zeki Avcı, MSc, PhD[2], Dilek Demir Kösem, MSc, PhD[3]

[1]Department of Nursing, Hakkari University, Faculty of Health Sciences, Hakkari, Türkiye
[2]Department of Nursing, Cyprus Aydın University, Faculty of Health Sciences, Kyrenia, Cyprus
[3]Department of Nursing, Balıkesir University, Faculty of Health Sciences, Balıkesir, Türkiye

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Corresponding Author
Çiğdem Müge Haylı, MSc, PhD
Department of Nursing,
Hakkari University,
Faculty of Health Sciences,
Hakkari 30000, Türkiye
Tel +90-5345801736
E-mail mugehayli@windowslive.com

ORCID iDs
Çiğdem Müge Haylı
https://orcid.org/0000-0001-7630-9619
Mehmet Zeki Avcı
https://orcid.org/0000-0001-6614-9447
Dilek Demir Kösem
https://orcid.org/0000-0001-9914-8299

Background and Objective This study aimed to evaluate the validity and reliability of the Turkish version of the Sleeping Pills Receptivity and Involuntariness Scale-6 (SPRIS-6) for assessing acceptance of hypnotic use.

Methods A methodological-descriptive-correlational study was conducted with 350 individuals aged 18 years and older from August 15, 2025 to October 10, 2025. Data were collected using a socio-demographic form, the SPRIS-6 to measure acceptance of hypnotics, and the Troy Sleep Scale. Statistical analyses were performed using SPSS 27.0 and AMOS 24.0, including exploratory and confirmatory factor analysis, Cronbach's alpha, McDonald's omega coefficients, and correlation analysis.

Results The correlation coefficient, applied as a test-retest reliability method, revealed moderate to high positive and significant correlations between scores from the first and second administrations (0.74). Criterion validity results showed a moderately positive and significant correlation between overall scores from the SPRIS-6 and acceptance of hypnotic medications ($p<0.01$, n=50).

Conclusions The analyses and evaluations conducted in this study demonstrated that the SPRIS-6 is a valid and reliable measurement tool for the Turkish population.

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Keywords Sleep; Hypnotics; Pills; Turkish; Validity.

INTRODUCTION

Insomnia is a complex disorder influenced by physiological, psychological, and environmental factors [1]. The 3P model of insomnia posits that chronic insomnia arises from persistent triggers that remain even after the initial causes are addressed [2]. To help patients manage these triggers, Cognitive Behavioral Therapy for Insomnia (CBT-I) was developed. The insomnia practice guide recommends administering CBT-I prior to considering hypnotics [3]. If insomnia symptoms continue despite addressing triggers and utilizing CBT-I, hypnotics may be effective in managing the condition [4].

In some instances, insomnia symptoms may stem from the cognitive decline associated with aging. Research indicates a reduction in slow-wave sleep as people age [5], along with notable atrophy in the medial prefrontal cortex [6]. These findings support the hypothesis that insomnia could be linked to diminished brain function. Consequently, some patients may require long-term hypnotic treatment to alleviate insomnia.

Clinical practice guidelines suggest that hypnotics should be used short-term (up to 4 weeks), while Prolonged-Release Melatonin can be used for a maximum of 13 weeks [7,8]. However, many patients may need extended periods of medication to achieve sufficient

sleep. This inconsistency often results in physicians pressuring patients to discontinue medications without considering whether their sleep quality could improve without them. The evidence suggesting that insomnia may be related to brain dysfunction indicates that the effectiveness of nonpharmacological treatments may be limited [9].

This study seeks to address this gap by measuring psychological responses to hypnotics among both the general population and individuals experiencing insomnia symptoms. This approach will help capture beliefs regarding the involuntary nature of insomnia and the perceived need for medication for improved sleep. Notably, no standardized scale with established validity and reliability for assessing acceptance of hypnotics has been found in Turkey, particularly the Sleeping Pills Receptivity and Involuntariness Scale-6 (SPRIS-6). Therefore, this study aims to adapt the SPRIS-6 to evaluate acceptance of hypnotic use, translating it from English to Turkish and conducting validity and reliability studies.

METHODS

This research is methodological, descriptive, and correlational. It aimed to determine the reliability and validity of the SPRIS-6, which was developed in English in South Korea by Chung and Shahrier [10] in 2025, for adaptation to a Turkish sample.

Research Universe and Sample

The research focused on individuals aged 18 years and older from the general population who exhibit symptoms of insomnia. When adapting a scale for a different culture, it is essential to have a group size of at least 5–10 times the number of items on the scale [11]. The statistical analysis of the scale in this study relied on factor analysis, which requires a sample size of 100 or more. For more reliable results, it is recommended to have at least 10 subjects per scale item, and some studies suggest 20 subjects [12]. Since the scale used in this study comprised 10 items, a sample size of 100 to 450 individuals aged 18 years and over with insomnia symptoms was deemed sufficient. Literature indicates that a sample of 300 is considered acceptable, 500 is very good, and 1,000 is excellent [12]. Ultimately, the study included a sample of 350 individuals using the SPRIS-6.

The study took place between August 15, 2025 and October 10, 2025, following approval from the Ethics Committee of Cyprus Aydın University. Participants were recruited from the central district of Hakkari, and those aged 18 years and over who exhibited insomnia symptoms and consented to participate were asked to complete a sociodemographic data form and the SPRIS-6 online via social media platforms like WhatsApp. Initially, participants completed the sociodemographic data form along with the SPRIS-6 scale. In the subsequent phase, the SPRIS-6 and the TSS were administered twice to 50 nurses during a single session, spaced 15 days apart. Data from the 350 individuals who fully completed both the sociodemographic form and scale questions were analyzed.

Data Collection Tools

The sociodemographic data form, the SPRIS-6 to assess acceptance of hypnotic use, and the Troy Sleep Scale (TSS) were used to collect research data.

Sociodemographic data collection form

This form consists of five questions regarding gender, age, marital status, and psychiatric history (Do you have insomnia? Have you experienced depression, anxiety, or insomnia, or have you received treatment?) for individuals aged 18 years and over.

SPRIS-6 to assess the acceptance of hypnotic use

The scale was designed to measure individuals' psychological sensitivity to hypnotic use and was developed by Chung and Shahrier [10] in 2025. The authors reviewed existing literature and collected items for this purpose. Clinical interviews were conducted with insomnia patients, during which a psychiatrist and a sleep specialist gathered the patients' expressions regarding the acceptability of hypnotic use. The authors, who are psychiatrists and psychologists, discussed and selected suitable items to assess psychological sensitivity to hypnotics, ultimately creating a final list of 10 items. Responses to these items were recorded on a Likert scale from 0 to 10, with six items ranging from 0 (strongly disagree) to 10 (strongly agree). To refine the scale, exploratory factor analysis (EFA) was performed using Sample I, followed by confirmatory factor analysis (CFA) with Sample II. The CFA results yielded a χ of 0.84, indicating that the two-factor structure of the SPRIS-6 measures psychological sensitivity to sleeping pills consistently, regardless of whether participants reported insomnia. Additionally, a McDonald's coefficient of 0.80 confirmed that the two-factor structure of the SPRIS-6 exhibited good internal consistency.

A translation and back-translation method was employed to ensure language validity. Initially, five experts translated the scale from English to Turkish. The researcher and her advisor evaluated these translations to identify the most appropriate wording, resulting in the creation of a draft Turkish scale form [11,12]. Subsequently, three faculty members from the Turkish Language and Literature department reviewed the wording for clarity and spelling.

The draft scale was then submitted to five experts specializing in sleep quality, scale validity, reliability, and ethical practices [12]. These experts scored each item on a 1–5 scale, which included both the English items and their Turkish equivalents. The scoring criteria were as follows: "1" for not appropriate, "2" for somewhat appropriate (revision needed), "3" for quite appropriate (minor changes needed), "4" for appropriate, and "5" for extremely appropriate. Based on their feedback, 76% of the

items received scores of 4–5 from all experts, 20% received scores from nine experts, and 4% received scores from two experts.

Following this evaluation, necessary corrections were made to the scale, and the Turkish version was sent to three English language experts for back-translation. This back-translation aimed to address any potential semantic shifts resulting from the initial translation. A pilot study was then conducted to assess the clarity of the scale items and the overall wording, as well as to evaluate the scale's reliability through internal consistency calculations. The scale was administered online to 50 participants aged 18 years and over who volunteered for the study. Participants reported that the wording of the scale was clear and understandable.

TSS

The TSS was developed by Akıncı et al. [13]. The TSS consists of 11 items with a three-factor structure and an eigenvalue greater than 2. It is a Likert-type scale and consists of 1–5 items (never, 1; rarely, 2; sometimes, 3; often, 4; always, 5). The factors provide information about (I) dysfunction due to sleep problems, (II) mood symptoms due to sleep problems, and (III) sleep quality. The reliability levels of all three subfactors and the overall scale scores are 0.82 and above. The test-retest reliability level has a correlation value of >0.80.

Statistical Analysis

As part of the study, various statistical analyses were conducted to evaluate the validity and reliability of the psychometric properties of the SPRIS-6 in Turkish. Data from a total of 350 participants were analyzed using SPSS 27.0 and AMOS 24.0 statistical packages (IBM Corp.).

To examine the construct validity of the scale, EFA was first applied. In this study, EFA was conducted using data from 175 participants to explore the scale's factor structure. To assess the accuracy of the EFA-derived factor structure and its validity in a different sample, CFA was performed on data from another group of 175 participants.

Various widely accepted fit indices were used in the CFA's goodness-of-fit assessment. Among these, Comparative Fit Index, Tucker-Lewis Index, and Incremental Fit Index values of 0.90 and above indicate a good model fit. Additionally, Root Mean Square Error of Approximation and Standardized Root Mean Square Residual values below 0.08 suggest an acceptable model fit. A chi-square/df ratio below 5 is another important criterion indicating model fit with the data [14,15]. To assess the scale's internal consistency, Cronbach's alpha and McDonald's omega coefficients were calculated. These findings support the scale's consistent and homogeneous composition. Test-retest reliability analysis was conducted to evaluate the scale's consistency over time. The same scale was administered to 50 participants 2 weeks apart, and the resulting correlation coefficient was examined. A high correlation indicates that the scale is stable and reliable over time.

Item analyses were conducted to determine the discriminatory power of the scale items. In this context, the responses from the lower 27% and upper 27% groups, based on total scale scores, were compared using an independent samples t-test (n=350). The finding of significant differences between the items indicates that each item possesses high discriminatory power [16]. Additionally, to assess criterion validity, the relationship between the SPRIS-6 and the TSS [13], which is believed to measure a similar construct, was examined. Both scales were administered to 50 participants in the same session, and the correlation between them was analyzed. The significant positive correlation obtained supports the validity of the SPRIS-6 in measuring similar constructs.

Ethics Committee Approval

Permission to use the scale was obtained from the researchers who developed it. The Ethics Committee of Cyprus Aydın University approved the study, granting it decision number IRB: 2025/09.004. Permission for use was also obtained via email from Chung and Shahrier [10] for the original SPRIS-6 scale, as well as from Akıncı et al. [13], who conducted the Turkish validity and reliability study of the TSS. The research adhered to the Principles of the Declaration of Helsinki. Before administering the data collection forms, individuals provided their informed consent online using an informed consent form.

RESULTS

Table 1 presents the demographic distribution of the 350 participants aged 18 years and over. Of these participants, 57.6% were women (n=220) and 42.4% were men (n=130), indicating a predominance of women in the sample. The age distribution showed that the largest group, 49.0%, was between the ages of 21 and 23. In terms of marital status, 62.6% of participants were married, and 55.0% (n=202) reported experiencing sleep problems. Additionally, the results indicated that 50.7% (n=229) experienced depression, anxiety, or insomnia, or were receiving treatment for these conditions.

Descriptive Analysis Results

Within the scope of the study, the scores obtained from the SPRIS-6 were examined through descriptive analyses before validity and reliability analyses were conducted. The lowest possible score on the scale is 2, while the highest is 95. The range of scale scores was calculated to be 93, with a mean of 48.21 and a standard deviation of 21.39. The coefficient of skewness for the distribution of scale scores was determined to be 0.59, and the coefficient of kurtosis was -0.32. These values indicate that the distribution of scale scores is close to a normal distribution.

EFA

To determine the factor structure of the scale, an EFA was conducted using data from 350 participants. Preliminary analyses included the Kaiser-Meyer-Olkin test of sampling adequacy and Bartlett's Test of Sphericity to evaluate the data's suitability for factor analysis. The Bartlett's Test of Sphericity was significant, $\chi^2(45)=6,392.04$, $p<0.001$, indicating that the data were appropriate for factor analysis.

In this study, a cutoff point of 0.45 was established for factor loading. The EFA revealed that the scale's 10 items clustered under a single factor, which accounted for 89.61% of the total variance, indicating a highly robust psychometric structure. Factor loadings ranged from 0.86 to 0.97, with all items demonstrating strong associations with this single factor (Table 2). Furthermore, the item-total correlations for each item were also high, ranging from 0.86 to 0.97. These results suggest that the internal consistency of the scale items is notably strong.

Table 1. Demographic characteristics of participants (n=350)

Variable	Category	Frequency (%)
Gender	Woman	220 (57.6)
	Man	130 (42.4)
Age (yr)	18–20	85 (25.0)
	21–23	181 (49.0)
	24–26	74 (24.0)
	27 and above	10 (2.0)
Marital status	Single	80 (26.8)
	Married	220 (62.6)
	Other (divorced, separated, etc.)	50 (10.6)
Do you have insomnia? Or have you had sleep problems before?	Yes	202 (55.0)
	No	148 (45.0)
Have you ever suffered from or been treated for depression, anxiety, or insomnia?	Yes	131 (49.3)
	No	219 (50.7)

Table 2. Factor loadings of Sleeping Pills Receptivity and Involuntariness Scale-6 items

Item no	Factor loadings	Common variance	ITC	Eigen value	Explained variance (%)
It1	0.86	0.74	0.86	8.80	88.01
It2	0.89	0.78	0.88		
It3	0.94	0.87	0.93		
It4	0.94	0.89	0.94		
It5	0.94	0.88	0.93		
It6	0.97	0.92	0.96		
It7	0.95	0.90	0.94		
It8	0.96	0.91	0.95		
It9	0.95	0.89	0.94		
It10	0.94	0.88	0.93		

ITC, item-total correlation.

CFA

To test the validity of the scale's single-factor structure, previously identified through EFA, a CFA was conducted with data from a separate sample of 240 participants. The analysis utilized the Maximum Likelihood method. Goodness-of-fit indices indicated a strong fit between the single-factor model and the data (Table 3). The tested model is illustrated in Fig. 1.

Reliability Analysis Results

To determine the reliability of the SPRIS-6, we examined internal consistency coefficients and test-retest reliability. The scale's internal consistency was assessed using Cronbach's alpha and McDonald's omega coefficients, both of which were calculated to be 0.92. These findings indicate that the scale has a high level of internal consistency (Table 4).

Table 3. Fit values of the single factor structure

Fit index	Acceptable fit	Obtained value
χ^2/df	≤5	3.15
RMSEA	0.06–0.08	0.06
SRMR	0.06–0.08	0.02
CFI	0.90–0.94	0.99
TLI	0.90–0.94	0.98
IFI	0.90–0.94	0.99

RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual; CFI, comparative fit index; TLI, Tucker-Lewis index; IFI, incremental fit index.

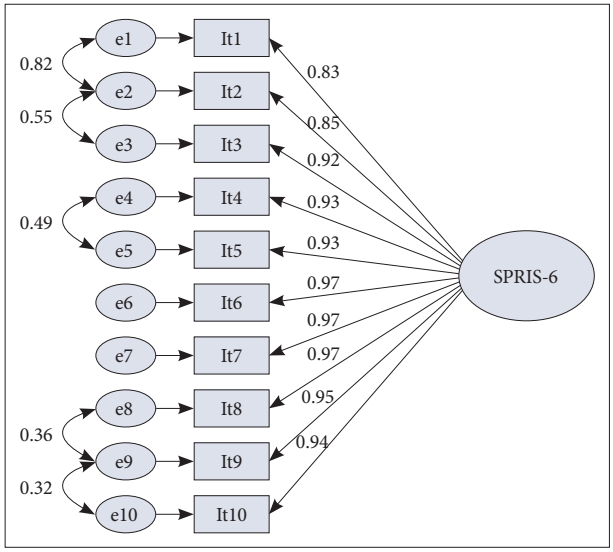

Fig. 1. Confirmatory factor analysis model of Sleeping Pills Receptivity and Involuntariness Scale-6 (SPRIS-6). $\chi^2=78.85$, df=25, $p<0.001$.

To assess the scale's reliability over time, a test-retest analysis was conducted with 50 participants at 2-week intervals. The Pearson correlation coefficient between the scores from the first and second administrations was r=0.74 (p<0.01) (Table 5). This result indicates that the scale's measurements are consistent over time, demonstrating a high level of test-retest reliability.

Item Analysis Results

An item analysis was conducted to evaluate the discriminatory power of each item on the SPRIS-6. Participants were divided into lower (27%) and upper (27%) groups (n=189) based on their total scores. The differences in scores assigned to each item between the two groups were assessed using an independent samples t-test. This analysis aimed to determine how effectively each item distinguished between individuals with low and high levels of dysfunctional sleep beliefs [16].

The analysis results revealed statistically significant differences between the lower and upper group means for all items, favoring the upper group. Additionally, all items demonstrated significant discrimination at the p<0.001 level (Table 6). These findings indicate that the scale items are highly effective in distinguishing individuals with high levels of dysfunctional sleep beliefs.

Table 4. Reliability coefficients of SPRIS-6

Scale	Number of items	Cronbach's alpha	McDonald's omega
SPRIS-6	10	0.92	0.92

SPRIS-6, Sleeping Pills Receptivity and Involuntariness Scale-6.

Table 5. Descriptive information and Pearson correlation coefficient of SPRIS-6 test-retest reliability

Scale	Application	Medium	SD	r
SPRIS-6	First application	72.61	27.90	0.74**
	Final application	70.03	29.59	

**p<0.01, n=50.
SPRIS-6, Sleeping Pills Receptivity and Involuntariness Scale-6; SD, standard deviation.

Table 6. Discrimination levels of Sleeping Pills Receptivity and Involuntariness Scale-6 items

Item no.	Group				t(240)
	Bottom (n=120)		Top (n=120)		
	Medium	SD	Medium	SD	
It1	2.52	1.36	7.84	1.85	32.22***
It2	2.96	1.34	8.02	1.37	36.23***
It3	2.79	1.36	8.09	1.17	42.58***
It4	2.50	1.19	8.10	1.11	47.26***
It5	2.70	1.38	8.25	1.20	41.69***
It6	2.66	1.20	8.37	1.12	48.64***
It7	2.71	1.19	8.15	1.09	46.47***
It8	2.69	1.22	8.27	1.10	47.58***
It9	2.63	1.12	8.17	1.23	45.85***
It10	2.67	1.20	8.13	1.22	44.69***

***p<0.001.
SD, standard deviation.

Criterion Validity Analysis Results

To determine the criterion validity of the SPRIS-6, the scale was administered to the same group of participants (n=50) in a single session, alongside the Sleep Belief Scale. The resulting coefficients are presented in Table 7. The analysis revealed negative and moderately significant correlations between the SPRIS-6 and the TSS subscales: dysfunction due to sleep problems (r= -0.54, p<0.01), affective symptoms due to sleep problems (r= -0.56, p<0.01), and sleep quality (r=-0.49, p<0.01). These findings indicate that the SPRIS-6 exhibits consistent correlations with scores from another scale that is theoretically related to the construct it measures. Thus, the criterion validity of the scale is supported.

DISCUSSION

This study developed the SPRIS-6, a 10-item scale with established validity and reliability in Turkish, to evaluate acceptance of hypnotic use. EFA and CFA confirmed a single-factor structure. The SPRIS-6 showed strong and consistent relationships with the TSS, evidenced by significant correlations that support its criterion validity. Our findings underscore the SPRIS-6's potential as a reliable and valid tool for assessing acceptance and involuntariness of hypnotic use in individuals aged 18 years and older who experience insomnia symptoms.

This study developed a 10-item scale, the SPRIS-6, which has established validity and reliability in Turkish, to evaluate the acceptance of hypnotic use. EFA and CFA indicated a single-factor structure. The SPRIS-6 demonstrated strong and consistent relationships with the TSS, evidenced by significant correlations that support its criterion validity. Our findings underscore the SPRIS-6's potential as a reliable and valid instrument for assessing acceptance and involuntariness regarding hypnotic use in individuals aged 18 years and older who exhibit insomnia symptoms.

Table 7. Pearson correlation coefficients of the scores obtained from the scales

Scale	TSS factors		
	Dysfunction due to sleep problems	Affective symptoms due to sleep problems	Sleep quality
SPRIS-6	-0.54**	-0.56**	-0.49**

**p<0.01, n=50.
SPRIS-6, Sleeping Pills Receptivity and Involuntariness Scale-6; TSS, Troy Sleep Scale.

In this study, we developed a single-factor model for the Turkish SPRIS-6, which measures the acceptance and involuntary use of sleeping pills to evaluate individual acceptance of hypnotic use. The original article on the Korean SPRIS-6 proposed a two-factor model (Factor 1: involuntary nature, Factor 2: sleeping pills) [10]. The validity and reliability study for the Turkish version found that the acceptance and involuntary use of sleeping pills predominantly involved females in Türkiye, whereas the study in Korea included both males and females.

Research in the medical literature has demonstrated that attitudes toward hypnotic medications, whether positive or negative, significantly influence sleep quality. Many individuals with insomnia harbor fears about using these medications, primarily due to concerns about dependence, the potential for disrupted natural sleep, and side effects related to the drugs [17-21]. As a result, numerous patients are either apprehensive or dissatisfied with pharmacological treatments for insomnia [10]. Additional studies indicate that the use of hypnotics and sleeping pills plays a mediating role in the relationship between sleep and insomnia [22,23].

Insomnia patients can be categorized into two groups: those who can sleep without the aid of hypnotics and those who cannot [9]. This distinction impacts their sleep quality, highlighting the need for assessment tools that utilize domain-specific scales. These insights will be valuable for understanding the psychological effects of hypnotics on sleep quality [10].

To better assess the acceptance of hypnotic use, it is essential to develop various versions of the scale that measures acceptance and involuntariness of hypnosis [10]. Existing scales include the SPRIS-6, for which we conducted a Turkish validity and reliability study [10], the Hypnotic Use Urge Scale, which underwent development and psychometric evaluation [24]; and the Turkish validity and reliability study of the Hypnotic Suggestiveness Scale [25]. Additionally, a new benzodiazepine hypnotic withdrawal symptom scale was created to evaluate hypnotic use. Unlike our Turkish validity and reliability study, this scale specifically measures symptoms related to hypnotic drug use [26]. However, a Turkish version of the SPRIS-6 has not yet been developed. The internal consistency of the Turkish SPRIS-6 was found to be high, and the fit index indicated good validity and reliability for the scale.

This study has several limitations. First, it was conducted primarily with a population predominantly composed of women. The SPRIS-6 scale, which has been shown to be valid and reliable in Turkish, should be tested in age groups beyond those included in our study. Second, since the study focused on individuals aged 18 years and over who exhibited symptoms of insomnia, our results cannot be generalized. Third, the online administration of the survey and scale may introduce inaccuracies. Fourth, further investigation into the cultural relevance of the context in which the validity and reliability were assessed is necessary. Future studies should explore the validity of the SPRIS-6, especially across diverse populations.

In conclusion, the construct validity of the Turkish SPRIS-6 was established through the results of EFA and CFA. The internal consistency analysis of both the total score and subscales of the SPRIS-6 demonstrated high reliability. Additionally, the 5-point Likert-type rating system of the Turkish version of the DBSW proved to be a valid and reliable assessment tool for individuals aged 18 years and older experiencing insomnia symptoms. This tool effectively evaluates the acceptance and involuntary use of sleeping pills to assess the acceptance of hypnotic use. This study should be regarded as a preliminary investigation into the acceptance of hypnotic use in Türkiye, warranting further research on the topic.

Availability of Data and Material

The datasets generated or analyzed during the study are available from the corresponding author on reasonable request.

Author Contributions

Conceptualization: Çiğdem Müge Haylı. Data curation: Mehmet Zeki Avcı. Formal analysis: Dilek Demir Kösem. Funding acquisition: Çiğdem Müge Haylı. Investigation: Çiğdem Müge Haylı. Methodology: Çiğdem Müge Haylı. Project administration: Çiğdem Müge Haylı. Resources: Mehmet Zeki Avcı. Software: Dilek Demir Kösem. Supervision: Çiğdem Müge Haylı. Validation: Çiğdem Müge Haylı. Visualization: Çiğdem Müge Haylı. Writing—original draft: Çiğdem Müge Haylı. Writing—review & editing: Çiğdem Müge Haylı.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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