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RESEARCH ARTICLE

Turkish Version of the Sleep Self-Report Scale: Factorial Structure and Psychometric Properties for 8-12-Year Old Children

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ABSTRACT

BACKGROUND: Appropriate diagnosis of sleep problems is crucial, given the importance of sleep in childhood development. The Sleep Self-Report Scale (SSRS) is used to assess children's sleep problems in the United States and Spain, and this study aimed to expand the usability of this instrument by evaluating its validity and reliability in Turkish children.

METHODS: Between March 2019 and December 2019, this methodological, descriptive, correlational study was conducted on 1138 children. The sociodemographic information form and the SSRS were used to collect data. Factor analysis, Cronbach's alpha, and item-total score analysis were used for data analysis.

RESULTS: The scale consists of 23 items and 3 sub-dimensions. Three sub-dimensions were observed to explain 58.79% of the total variance. All goodness of fit indices were >0.90 and the root mean square error was <0.08 in the confirmatory factor analysis. For the entire scale, the Cronbach's alpha coefficient is .94.

CONCLUSIONS: The SSRS was found to be a valid and reliable instrument to identify sleep problems. The factorial structure supported by exploratory and confirmatory analysis examines the most relevant areas of sleep in children.

Keywords: children; psychometric properties; validity; reliability; Sleep Self-Report Scale.

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The National Sleep Foundation study reported that 9-11 h of sleep are required for school children (aged 6-13 years), 8-10 h for adolescents (aged 14-17 years), and 7-9 h for young adults (aged 18-25 years).[1] Because sleep is essential for well-being and human health, it plays a critical role in behavior, emotion, and attention control.[2] Sleep problems generally start in infancy and can have a detrimental effect on children's physical, psychological, and social growth.[1,3-5] A study conducted with various age groups observed a similar association between sleep disturbances and anxiety and depression; an 11-year-old child was more likely to experience depression/anxiety than a 6-year-old child.[6] Sleep problems can result in attention deficit, hyperactivity, overweight, and obesity in these children.[6-8] Studies on this context have determined that the better the quality of childhood sleep, the better is the academic performance and capacity to learn.[9-11]

Properly diagnosing sleep disorders is crucial, given the importance of sleep in childhood development. To assess and identify sleep problems in children, valid and reliable screening instruments are required. However, measurement devices, such as the Children's Sleep Habits Questionnaire, Pediatric Sleep Questionnaire, and Sleep Disturbance Scale for Children usually analyze the observations of parents regarding the sleep habits of children.[12-14] This situation neglects the real cause of sleep disorders. Hence, the Sleep Self-Report Scale (SSRS) was developed by Owens et al. (2000).

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This scale has 3 sub-dimensions and 23 items, and its Cronbach's alpha value is .88. SSRS is a 3-point Likert-type scale; participants are typically asked to mark 1 of the 3 options: usually (5 to 7 times a week), sometimes (2 to 4 times a week), and rarely (never or once a week).[15] The options are assigned 3, 2, and 1 points, respectively. Furthermore, via Spanish and Dutch validity and reliability tests, the psychometric properties of SSRS were assessed.[5,16] With a total of 16 items that measure sleep quality, sleep anxiety, bedtime refusal, and sleep routines, the Spanish version of the scale has a 4-factor structure. The scale has a robust internal coherence, and its Cronbach's alpha value is .85. The authors recommended the use of SSRS by clinicians and researchers to evaluate sleep in Spanish school children based on these findings.[16] Factor analysis results are not sufficient in terms of the psychometric properties in the Dutch version of the scale; however, it was claimed that the internal consistency of the scale in deciding general sleep problems was acceptable. More psychometric studies on sleep self-reporting have also been suggested.[5]

Turkey generally identifies such problems or sleep-disordered breathing in accordance with the Turkish validity and reliability of measurements made by scales notified by parents.[12-14] However, there is a need for assessment instruments in which psychometric properties are evaluated based on the self-report of children so that the children with the key sleep disorder will not be neglected. The Turkish validity and reliability analysis of SSRS has not been reported in literature in this context.

Purpose

This study aimed to evaluate and expand the validity and reliability of SSRS in a Turkish population.

METHODS

Study Design

This methodological and descriptive study was conducted in children aged 8-12 years to assess the validity and reliability of SSRS.

Sample Population and Sampling

The study was performed in 2 middle schools representing the middle socio-economic level in a city center in western Turkey (in the Aegean Region) from March 2019 to December 2019. These institutions have been accredited by the Ministry of National Education, and since the number of students is higher than other institutions, they have been preferred over other institutions in terms of representation. The primitive language of the children included in the research is Turkish. The study sample included students aged 8-12 years who were in the 3rd-6th grade and could understand and write what they had been reading. In methodological studies, the sample size in testing the validity and reliability of measurement instruments should be at least between 5 and 10 times the number of variables (items).[17,18] Regarding the sample size, Comrey and Lee (1992) reported the following: ''n = 50 is very poor, n = 100 is poor, n = 200 is medium, n = 300 is good, n = 500 is very good, and n = 1,000 is an excellent sample size.''[19] Therefore, the present study was conducted with a total of 1138 school children in Group 1 (n = 609), Group 2 (n = 529) who volunteered to participate after the study was announced.

Research Ethics

Judith A. Owens was informed about the use of the scale, and the requisite permission was obtained through e-mail. Ethical permission was obtained from the research ethics committee of our institution, and institutional permission to collect data was obtained from the schools. Written permission was obtained from the families of the children via a form in which the study purpose was explained. In addition, verbal and written permission was obtained from children who were allowed by families and who agreed to participate in the study voluntarily.

Data Collection Tools

Between March 2019 and December 2019, data were collected using the introductory information form and SSRS. Descriptive information was obtained via 6 questions that included descriptive features, such as age, gender, grade level, frequency of daily television and internet use, and presence of a chronic disease.

Sleep Self-Report Scale

For children aged 8-12 years, a 1-week retrospective SSRS questionnaire was created. SSRS comprises 23 items and was developed in the United States. It was created based on the Children's Sleep Habits Questionnaire (CSHQ) structure and materials, a multidimensional parental reporting questionnaire that measures sleep in children aged 4-10 years. Furthermore, 13 SSRS items are directly related to CSHQ items. Children are asked to measure their last weeks' sleep using SSRS. It is a 3-point Likert-type scale; participants are typically asked to mark 1 of the 3 options: usually (5 to 7 times a week), sometimes (2 to 4 times a week), and rarely (never or once a week), and these options are assigned 3, 2, and 1 points, respectively. Some items are scored in reverse (items 1, 2, 3, 5, 8, and 23). The original scale has 3 sub-dimensions and assesses various sleep aspects, including bedtime, sleep behavior, and daytime sleepiness.[15] A pilot study was conducted with

30 participants, and this group was excluded from the sample. The scale was reapplied to 30 students 2 weeks after the first application, and this sample was also excluded from the study to calculate the invariance of the scale with respect to time.

Translation

The English form was translated independently from English to Turkish for the semantic equivalence of SSRS by 2 language experts whose native language is Turkish. The researchers checked both translations, assessed the most suitable translation for each item, and compressed the scale into a single form. The Turkish-translated scale was not the same as the original scale after it was back-translated into English by a linguist who knows Turkish and English well. Hence, the translated scale was compared with its original form, and the scale took its final form after the necessary corrections were made (see Data S1).

Specialist Opinions

The completely translated scale was sent to 5 experts, including pediatric nursing specialists. These experts were asked to analyze and evaluate the items of the scale in terms of suitability and understandability. By evaluating expert opinions with the content validity rate, content validity index (CVI), and Kendall correlation coefficient of correlation test, the content validity analysis of the scale was performed.

Cognitive Testing

After providing language validity and expert consensus, the scale was administered to 30 school children, and this group was excluded from the sampling. These 30 students were specifically chosen to meet the following criteria: aged 8-12 years, were in the 3rd-6th grade, were literate, and had good reading comprehension. The clarity of the scale was considered sufficient in line with the verbal feedback of the students; hence, the scale was then applied to a large sample. The validation study involved 1138 participants. The sample was divided into 2 major subgroups: Group 1 (n = 609) was used to conduct the explanatory factor analysis (EFA), Group 2 (n = 529) was used to conduct the confirmatory factor analysis (CFA).

Statistical Analyses

Statistical Package for the Social Sciences (SPSS) 24.0 and Analysis of Moment Structures (Amos) 24.0 were used for data analyses.[20] Information on the introductory characteristics of the individuals involved in the sample was analyzed using the number and percentage distribution. The significance level was considered as $p < .05$ in the validity and reliability analysis.

First, the lost data ratio of all datasets was evaluated, which was shown to be <1%. Moreover, whether the lost data pattern was dispersed randomly was assessed, and the result of Little's MCAR test was as significant as expected ($p = 1.02$), indicating that the lost data pattern was spread randomly. The assignment was made using the Expectation Maximization (EM) algorithm for missing data.[21]

Validity

To test the validity of SSRS, EFA and CFA were performed. EFA was used to determine the relation between the items and factors. The adequacy of the sample size for the factor analysis was tested using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity test prior to EFA. The eigenvalue is the sum of the squares of items in the sub-dimension of the scale-loading factor. It shows the percentage of behavior/attitude to be calculated. The percentage explained by the sub-dimension increases as the eigenvalue increases, and the sub-dimensions are calculated using eigenvalue >1.[21,22]

To judge whether the items and subscales clarified the original scale structure, CFA was performed using IBM SPSS Amos version 24.0 (IBM Corp.). CFA tested the model fit of the extracted factor model. Multiple model fit indices, including χ^2/degrees of freedom (χ^2/df) <5, root mean square error of approximation (RMSEA) (excellent ≤0.05; good ≤0.08), goodness-of-fit index (GFI) (excellent ≥0.95; good ≥0.90), comparative fit index (CFI) (excellent ≥0.95; good ≥0.90), and normal fit index (NFI, excellent ≥0.95; good ≥0.90) were also used. Tukey's additivity test measured the additivity of the scale and whether it includes a sub-dimension. Hotelling's T^2 test was used to assess the existence of bias in the responses (to demonstrate that different responses were provided by the participants).[21,22]

Reliability

Item analysis, Cronbach's alpha reliability coefficient, independent sample *t*-test, and test-retest analysis were performed for the reliability of the scale. Moreover, an independent sample *t*-test was performed for item analysis based on 27% sub-upper group averages for the scale.[17,22]

RESULTS

Sample Characteristics

The mean age of the participants was 10.32 ± 1.34 years; 61.7% (n = 702) of these were male students. The students were in the third, fourth, fifth, and sixth grades and distributed as 29.2%, 21.0%, 25.0%, and 24.8%, respectively. The

durations of internet use were 0-2 h for 49.7%, 2-4 h for 36.7%, and ≥4 h for 13.5%. The durations of television watching were 0-2 h (73.3%), 2-4 h (25%), and ≥4 h (4.7%). Most students (95%) did not have a chronic disease.

Validity Analysis

Content validity. For the draft scale, opinions were gathered from 5 experts. An expert opinion score was calculated using the content validity analysis. For all scale items, the item-CVI (I-CVI) was 1.00 and CVI at the scale level (S-CVI) was 1.00. Expert opinions were statistically compatible with one another in the Kendall fit coefficient analysis (Kendall's $W = 0.482$, $p < .05$).

Construct validity. Worthington and Whittaker (2006) suggest that EFA and CFA analyzes be performed in different samples. The sample group was randomly divided, and EFA and CFA were performed on separate samples. In the study, EFA was carried out on the data of 609 students (Group 1), and CFA was carried out on the data set of 529 students (Group 2).

Explanatory factor analysis. The scale's construct validity was evaluated using various approaches, including factor analysis. Factor analysis showed that the KMO coefficient was .94, Bartlett's χ^2 value was 21,137.152, and p value was <.05. In line with these findings, the sample was considered appropriate for factor analysis.

Table 1. **Results of the Explanatory Factor Analysis (n = 609)**

F1		F2		F3	
Item	Factor Load	Item	Factor Load	Item	Factor Load
S1	0.35	S13	0.69	S20	0.60
S2	0.64	S14	0.69	S21	0.61
S3	0.80	S15	0.59	S22	0.60
S4	0.80	S16	0.65	S23	0.62
S5	0.66	S17	0.93		
S6	0.40	S18	0.93		
S7	0.40	S19	0.59		
S8	0.66				
S9	0.42				
S10	0.70				
S11	0.70				
S12	0.70				
Eigenvalue	11.04	2.37		1.77	
Explained variance (%)	22.12	21.47		15.19	

The scale contains 3 sub-dimensions: bedtime (first sub-dimension), sleep behavior (second sub-dimension), and daytime sleepiness (third sub-dimension). The first sub-dimension explained 22.12% of the total variance, the second sub-dimension 21.47%, and the third sub-dimension 15.19%. These factors together explained 58.79% of the total variance (Table 1).

The factor loads were 0.35-0.80, 0.59-0.93, and 0.60-0.62 for the first, second, and third sub-dimensions, respectively (Table 1). As a result of the Varimax rotation method, the factor loads for the 23 items varied between 0.35 and 0.93. Based on the results of the factor analysis, items 1-12 were included in Factor 1, items 13-19 were included in Factor 2, and items 20-23 were included in Factor 3 (Table 1).

Confirmatory factor analysis. Although only EFA analysis and not CFA analysis was performed in the original scale, Orgilés et al. (2013) performed CFA analysis in 4 sub-dimensional scale models, in line with the findings of the validity and reliability review. The results of CFA showed high RMSEA values (RMSEA = 0.137) and low fit indices (Table 2, Figure 1). A 3-dimensional model in line with the EFA analysis results of the original scale was used for SSRS. The following fit CFA indices for checking the construct validity of the 23-item scale with 3 sub-dimensions were obtained as a result of EFA: $X^2 = 400.942$, $df = 95$, $\chi^2/df = 4.220$, RMSEA = 0.068, GFI = 0.92, CFI = 0.95, IFI = 0.95, NFI = 0.94, TLI = 0.94, and RFI = 0.93 (Table 2). Figure 2 shows the 3 sub-dimensional model built for the 23-item scale shape (Figure 2).

Tukey's additivity test calculated the additivity of the scale as $F = 0.174$ and $p = .751$, and the scale was judged as additive. Hotelling's T^2 value was 94.701, $F = 4.225$, and $p < .05$; the scale was not biased.

Reliability Analysis

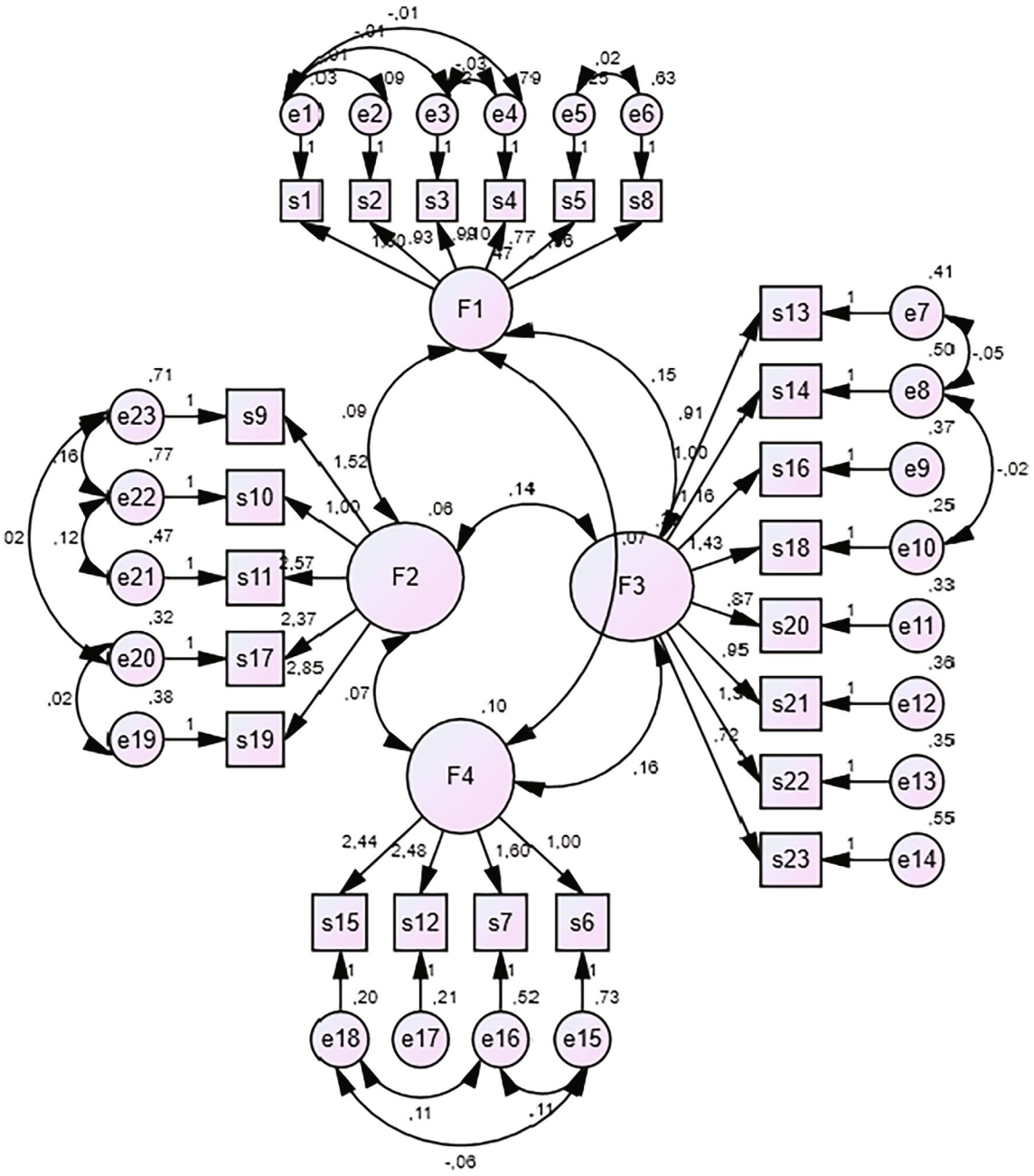
Item analysis. Item analysis showed that the item-total correlation coefficients of the items were between .43 and .83. As a result of the *t*-test for item discrimination power, each item had the power at

Table 2. **Model Goodness-of-Fit Indices of the Sleep Self-Report Scale for Children (n = 529)**

	χ^2	df	χ^2/df	RMSEA	GFI	CFI	IFI	NFI	TLI	RFI
Four-factor model	5130.188	229	22.403	0.137	0.70	0.77	0.77	0.76	0.74	0.73
Three-factor model	400.942	95	4.220	0.068	0.92	0.95	0.95	0.94	0.94	0.93

df, Degree of Freedom; RMSEA, Root Mean Square Error of Approximation; GFI, Goodness-of-Fit Index; CFI, Comparative Fit Index; IFI, Incremental Fit Index; RFI, Relative Fit Index; NFI, Normed Fit Index; TLI (NNFI): Trucker-Lewis Index.

Figure 1. **Confirmatory Factor Analysis of the 4-Factor Model**



a significant level to distinguish the group in the upper 27% of the sample and the group in the lower 27% from the total score ($p < .05$). Table 3 shows the findings related to the item analysis of the scale.

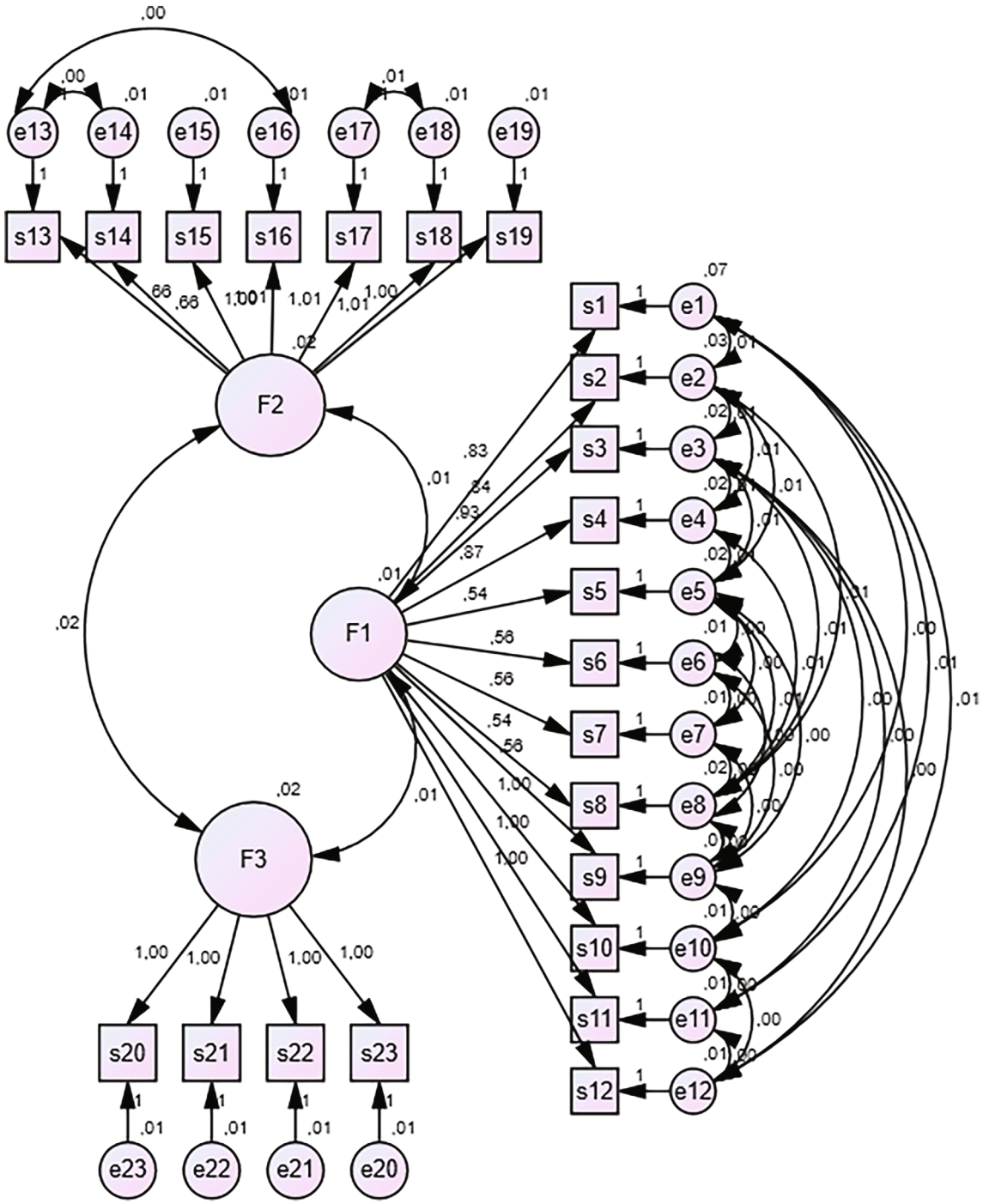
The Cronbach's alpha internal consistency coefficient of the scale was .94 and those of the sub-dimensions were .84, .93, and .91 (Table 4). The results of Pearson product-moment correlation analysis to determine the temporal invariance of the scale was $r = .930$ between the scale total mean score of the students at the first measurement and that when the scale was reapplied to 30 students 2 weeks later ($p < .05$). Table 4 shows the Cronbach's alpha values of the scale and the results of the test-retest analysis.

DISCUSSION

Validity Analysis

Content validity of the scale. The Turkish version of the scale was sent to 5 experts to obtain their

Figure 2. **Confirmatory Factor Analysis of the 3-Factor Model**



opinion. I-CVI and S-CVI values were 1.00; I-CVI and S-CVI should have a minimum value of 0.80.[23,24] In the analysis, the scale had a high CVI. To analyze the agreement between expert opinions, Kendall correlation coefficient (W) correlation test was performed. Miller (2009) noted that an average effect size suggests W values between .30 and .50.[25] In the statistical analysis performed according to the evaluators' ratings, the opinions of the experts were moderately consistent ($p < .05$).

Construct validity of the scale. To assess whether the sample size was appropriate for performing factor analysis, KMO and Bartlett's test of sphericity were used. Kaiser (1974) noted that values of ≥.50 are sufficient for the KMO coefficient, although some

sources defined values >.60 as acceptable.[26] The KMO coefficient in different studies was graded as ''excellent between .90 and 1.00, quite good between .80 and .89, good between .70 and .79, medium between .60 and .69, poor between .50 and .59, and unacceptable below .50''.[27,28] Moreover, Bartlett's sphericity test result should be significant. As the KMO value was .956 and Bartlett's test of sphericity values were significant, the sample size was suitable for the factor analysis in this study.[18,29,30] The sample size and characteristics in the study by Orgilés et al. (2013) were similar to the Spanish scale for which validity and reliability was performed (KMO value = .82; Bartlett's test of sphericity [$\chi^2 = 1382.976$; $p < .000$]).[16]

An eigenvalue of ≥1 is acceptable to assess the number of factors[17,31] and the scale was found to have 3 sub-dimensions in the present study. The scales of the 3 sub-dimensions explained 58.79% of the total variance. In general, the variance explained in multidimensional scales should be >40%; the higher the total variance, the stronger is the construct validity.[17,31] The total variance obtained in this study was >50%, and the total explained variance of the scale was high. These findings support the construct validity of the scale and were found to be similar to the total variance explained (46.09%) in the study by Orgilés et al. (2013).[16]

EFA and CFA. EFA showed that the 3 sub-dimensional factor loads were .35-.93 (Table 1). The minimum load factor should usually be ≥.30, and items below that value should be excluded from the scale.[29-31] In this analysis, the factor loads for all sub-dimensions were >.30. The factor loads of the items in the 4-dimensional scale validated in Spanish by Orgilés et al. (2013) were .41-.75. The present study scale's factor loads were similar to those of the Orgilés et al. Spanish scale. In the present study, the factor loads obtained from each subscale (>.30) demonstrated that the scale has a strong factor structure.

The CFA results of the model were in line with the EFA result.[21,22] Unlike the validity and reliability study conducted by Orgilés et al. (2013), the present scale comprised 3 sub-dimensions, as in the original scale. As the purpose of the present study was to decide the best scale structure by comparing the results of the 4 and 3 sub-dimensional scales, 4- and 3-factor CFA analyses were performed. The findings of the 2 analyses showed that the 4-factor structure had low fit indices, RMSEA was >.137, and degrees of freedom of the chi-square values were >5. These results indicate that the 4-factor structure is not suitable for the present Turkish scale. The factor loads of all sub-dimensions for the 3-factor CFA were >.30, other indices (GFI, NFI, RFI, CFI, TLI, and IFI) were >.90, and RMSEA was <.08, indicating that the model is a good fit. The degrees of freedom of the chi-square value were <5. A strong and significant relationship was found between the scale and its subscales.[21,22] In this study, the CFA results comply with the criteria specified in literature. In addition, because CFA analysis was not performed by Owens et al. (2000), their results could not be compared with the results of the present study. Orgilés et al. (2013) performed the Spanish validity and reliability of the scale, with a CFA results of >.90 and RMSEA of <.08 ($\chi^2 = 243.942$;

Table 3. **Item Analysis of the Sleep Self-Report Scale**

	Item-Scale Total Correlation	Item Discriminative Power	
Item	***r***	***t***	**p**
S1	.43	15.623	.000
S2	.56	9.142	.000
S3	.63	15.599	.000
S4	.63	37.759	.000
S5	.52	15.212	.000
S6	.51	49.307	.000
S7	.51	47.977	.000
S8	.52	14.347	.000
S9	.52	20.260	.000
S10	.70	40.919	.000
S11	.71	52.589	.000
S12	.70	48.226	.000
S13	.69	24.413	.000
S14	.70	29.149	.000
S15	.80	43.259	.000
S16	.82	39.677	.000
S17	.83	33.105	.000
S18	.82	69.682	.000
S19	.80	57.449	.000
S20	.80	28.277	.000
S21	.80	21.885	.000
S22	.80	40.073	.000
S23	.80	12.521	.000

Table 4. **Internal Consistency and Temporal Invariance Analysis Results of the Sleep Self-Report Scale**

		Internal Consistency Coefficient	Test-Retest Reliability	
Sub-dimension	**Number of Items**	**Cronbach's Alpha**	***r***	**p**
Bedtime	**12**	.84	.978	.000
Sleep behavior	7	.93	.934	.000
Daytime sleepiness	4	.91	.946	.000
Sleep Self-Report Scale	23	.94	.930	.000

$p < .000$; χ^2/gl ratio = 2.48; RMSEA = .04; GFI = .95; AGFI = .93). Hence, the CFA results show that the data are consistent with the model, the 3-factor structure is confirmed, the sub-dimensions are dependent on the scale, and the factors of each sub-dimension are adequately defined. In the present study, the EFA and CFA results support the construct validity of the scale and show that the scale is a valid tool.

Reliability analysis of the scale. The relation between the scores obtained from each scale item and the total score of the scale is explained by the item-total score analysis. The score is an indication of whether the desired quality is measured by the items on a scale.[18,29,31] This correlation value should be >.20, positive, and as close to 1 as possible.[17] In this study, the correlation value of each item with the total score of the scale was .43-.83. Moreover, the item-total score correlation coefficients were positive and >.20, and no item was removed from the scale. Hence, all items of the scale showed high correlation with the total score, the scale measured the desired quality sufficiently, and the item reliability of the scale was high. In the analysis by Orgilés et al. (2013), the item-scale total correlation coefficients of the Spanish version of scale were between .33 and .56; these were similar to the findings of the present study. In this context, these findings showed that the Turkish version has a high level of internal consistency. Moreover, the discrimination power of the items in the scale was examined by *t*-test. The scale total score differentiated the group in the upper 27% of the sample as well as the group in the lower 27% at a significant level ($p < .05$) (Table 3). These findings indicate that the items on the scale have the desired qualities to be assessed at a high level and that the measured characteristics are well distinguished by individuals.[18,31] Because Owens et al. (2000) and Orgilés et al. (2013) did not conduct a validity and reliability study of their scales, their results could not be compared with the results of the present study.

For evaluating the invariance of an instrument over time, the test-retest approach was used. A value between ''−1.00'' and ''+1.00'' is expected to show the correlation obtained for the test-retest reliability. Moreover, the correlation obtained must demonstrate a high degree of positive correlation and be ''at least >.70'' to decide that the scale is invariant against time.[31,32] Sencan (2005) stated that ''≥.80'' should be the test-retest correlation coefficient.[17] According to the results of test-retest correlation, the SSRS was found to have a high level of reliability and the results between the 2 administrations of the subscales were similar. Because the scales of Owens et al. (2000) and Orgilés et al. (2013) did not include test-retest results, their results could not be compared with the results of the present study.

The Cronbach's alpha coefficient's internal consistency analysis of the scale and its sub-dimensions indicates whether the items measure the same feature and whether the items are connected to the topic to be measured. This value is expected to be as close to 1 as possible. The Cronbach's alpha values of the total scale and its sub-dimensions of the present are >.80 (Table 4). The Cronbach's alpha values showed that the items measure the subject sufficiently, the items are relevant, and the scale has a good reliability.[17,22,33] In the scale by Orgilés et al. (2013), the total Cronbach's alpha value was >.85 and the Cronbach's alpha value of the original scale was >.88. Therefore, the scale developed in the present study was found to possess the original structure and strong internal consistency similar to the scale whose validity and reliability tests were performed for another language. One of the important factors that affect the reliability of the scales is the presence of bias. Bias means that individuals respond to the items of the scale in line with the expectations of the researchers or the society rather than their opinions. Doing so negatively affects the reliability and validity of the scale, even indirectly. Hotelling's T^2 test was used to analyze the scale to determine the presence of bias. The test revealed that the participants answered the questions as per their own opinions, the answers of the participants were different, and the scale was not biased. Hence, the scale was considered reliable.[17,33]

IMPLICATIONS FOR SCHOOL POLICY, PRACTICE, AND EQUITY

The SSRS constitutes the only instrument to measure sleep patterns and problems with Turkish-speaking children (8-12-year age group), with satisfactory psychometric properties supporting its use. SSRS is a screening tool but not a diagnostic instrument; hence, this tool can be used by professionals to justify diagnostic status confirmation using clinical interviews in Turkish children. Moreover, SSRS offers the opportunity to distinguish children with and without sleep problems. Sleep problems affect many parameters, especially quality of life, academic achievement, hyperactivity, attention deficit, and obesity. Properly diagnosing sleep problems is crucial, given the importance of sleep in childhood development. Therefore, to assess and identify sleep problems in children, valid and reliable screening instruments are required. Furthermore, this study is expected to make significant contributions to the literature in terms of examining sleep habits in this age range, especially due to the increase in screen time during the COVID-19 process. Additional studies are needed to replicate the present study by using the scale in different (subsamples by sex, age, health, and screen habits) and large sample groups. For this reason, it is recommended to use SSRS in cross-cultural comparative studies. Further studies are expected to improve and develop self-report sleep tools in children.

Limitations

The results of this study cannot be generalized despite its strengths because they were conducted in only 2 schools and the data were cross-sectional.

Conclusion

The findings of this study are consistent with the results of the analysis of the original scale as well as the Spanish version. The satisfactory reliability and validity of the Turkish version of the SSRS justify its use as an instrument to assess sleep patterns and the most common sleep problems in childhood (8-12-year age group). The assessment, management, and education of children's sleep problems involves teamwork (public health nurses, public health professionals, pediatric nurses, pediatricians, etc.). In addition to assessing the sleep problems of children, public health nurses included in this team should assess the efficacy of educational and interventional nursing practices for children with sleep problems using SSRS.

Author Contribution

All authors contributed to the concept and design, acquisition and interpretation of data, drafting the article, and gave final approval of the version to be published.

Human Subjects Approval Statement

This protocol was reviewed and approved by the University of Ege University Health Sciences Scientific Research and Publication Ethics Committee for the Protection of Human Subjects (05/02-278).

Conflict of Interest

The authors declare no conflict of interest.

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SUPPORTING INFORMATION

The following Supporting Information is available for this article:

Data S1. English and Turkish version of Sleep Self-Report Scale (SSRS).

Additional supporting information may be found online in the Supporting Information section at the end of the article.