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Adaptation of Schedule for Oral Motor Assessment to Turkish and its Validity and Reliability: Methodological Study

Yutmada Oral Motor Değerlendirme Ölçeği'nin Türkçeye Uyarlanması, Geçerlik ve Güvenirliği: Metodolojik Çalışma

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This study was presented as an oral presentation at 14th Panhellenic-1st International Congress of Speech and Language Therapy Congress, May 28-30, 2021, Online.

ABSTRACT Objective: Swallowing disorders may occur in children and may lead to life-threatening problems. It is important to assess swallowing in a practical way in clinical settings. Schedule for Oral Motor Assessment (SOMA) is a standardized scale developed for pediatric oral motor feeding assessment for use in clinical evaluation. In Türkiye there is a need a tool for the clinical evaluation of swallowing during feeding. Therefore, SOMA was adapted to Turkish and its validity and reliability were calculated. **Material and Methods:** Adaptation was made by translation and back-translation method, and the Content Validity Index (CVI) was calculated. The tool named "Yutmada Oral Motor Değerlendirme Ölçeği (YOMDÖ)" was administered 37 children with diagnosis of cerebral palsy, Down syndrome, developmental delay, and 13 children with typically development. For validity; item analyses, cluster analysis and Karaduman Chewing Performance Scale, for reliability, test-retest and interrater reliability methods were performed. Internal consistency was calculated and receiver operating characteristic analysis was performed. **Results:** CVI was>0.80. No items were excluded. Spearman correlation coefficient was calculated for the equivalent criterion (r=0.989, p=0.000). Percentage of agreement and Kappa were>75% and >0.61 in test-retest, and >79% and >0.63 in interrater reliability method. Internal consistency was 0.971 for the total score. The percentages of sensitivity (88%), specificity (90%), positive predictive value (84%), and negative predictive value (93%) for the total score were satisfactory, yet the sensitivity percentages of some of the subcategories were low. **Conclusion:** The scale, which was adapted into Turkish and called YOMDÖ, is a valid and reliable scale that can be used in the clinical evaluation of pediatric oral motor feeding skills.

Keywords: Oral motor; pediatric dysphagia; pediatric feeding disorders; reliability; Schedule for Oral Motor Assessment; validity

ÖZET Amaç: Pediatrik popülasyonda beslenme ve yutma bozukluğu görülebilir, yaşamı tehdit eden sorunlara neden olabilir. Yutma fonksiyonunu klinik ortamda pratik şekilde değerlendirmek önemlidir. Schedule for Oral Motor Assessment (SOMA) klinik değerlendirmede kullanılmak üzere pediatrik oral motor beslenme değerlendirmesi için geliştirilmiş, standardize ve objektif bir ölçektir. Ülkemizde, pediatrik grupta yutma fonksiyonunun klinik değerlendirmesinde beslenme esnasında değerlendirmeye dayalı bir ölçeğe ihtiyaç vardır. Bu amaçla, SOMA Türkçeye uyarlanmış, geçerlik-güvenilirliği incelenmiştir. **Gereç ve Yöntemler:** Çeviri-geri çeviri yöntemi kullanılmış, Kapsam Geçerlik İndeksi (KGİ) hesaplanmıştır. Yutmada Oral Motor Değerlendirme Ölçeği (YOMDÖ) adını alan ölçek serebral palsi, Down sendromu, gelişim geriliği tanılı 37 ve tipik gelişen 13 çocuğa uygulanmıştır. Geçerlik için madde güçlük ve ayırt edicilik indeksleri hesaplanmış, ölçüt geçerliğinde küme analizi ve Karaduman Çiğneme Performans Testi, güvenirlik için test-tekrar test ve gözlemciler arası güvenirlik yöntemi uygulanmıştır. İç tutarlılık hesaplanmış, alıcı işletim karakteristik analizi yapılmıştır. **Bulgular:** KGİ>0,80'dir. Madde çıkarılmamıştır. Eş değer ölçütte Spearman korelasyon katsayısı incelenmiştir (r=0,989, p=0,000). Test-tekrar test yönteminde uyum yüzdesi>%75, Kappa>0,61, gözlemciler arası güvenirlikte uyum yüzdesi>0,63, Kappa katsayısı %79'unda 0,63'ün üzerindedir. İç tutarlılık toplam skorda 0,971, alt kategorilerde 0,803-0,913 aralığında bulunmuştur. Toplam skorun duyarlılık (%88), özgüllük (%90), pozitif prediktif değer (%84), negatif prediktif değer (%93) yüzdelerinin yeterli, bazı alt kategorilerin duyarlılığının düşük düzeyde olduğu görülmüştür. **Sonuç:** Türkçeye uyarlanıp YOMDÖ adını alan ölçek, pediatrik oral motor beslenme becerilerinin klinik değerlendirmesinde kullanılabilecek geçerli ve güvenilir bir ölçektir.

Anahtar Kelimeler: Oral motor; pediatrik yutma; pediatrik beslenme bozukluğu; güvenirlik; Yutmada Oral Motor Değerlendirme Ölçeği; geçerlik

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Nutrition is essential for survival. Ingestion of food and drinks is an important factor, in the physical and psychological growth and development of a child.[1] Since the body systems of children constantly develop, even short-term problems with swallowing or feeding may hinder the normal development of children and cause permanent problems in the long term.[2] The prevalence of feeding disorders in pediatric population is estimated to be 25%-45% in those with typical development and 33%-80% in those with developmental delay. The prevalence of feeding and swallowing disorders are increasing in the pediatric population.[3]

Swallowing consists of 4 main stages: oral preparatory phase, oral transit phase, pharyngeal phase and esophageal phase. The problems with these stages are regarded as swallowing disorders, namely dysphagia.[4] Oral dysphagia is characterized by sensitivity to taste and texture, oral loss and inability to form bolus. Pharyngeal dysphagia is characterized by poor contraction of the pharyngeal muscles, poor timing in swallowing, poor laryngeal movement, airway closure, or decreased sensation. This can result passage of food up the nasal cavity, food residue in the mouth and pharynx, coughing, or choking. Esophageal dysphagia is characterized by problems such as failure of the mechanisms that needs to work for the transition of food to the esophagus, or disorders in the movement of the esophagus.[5]

Oral-motor skills should be observed during feeding to diagnose oropharyngeal dysphagia (OPD). Poor oral-motor skills may result in insufficient fluid and food intake, prolonged eating times, failure to thrive, and respiratory problems due to aspiration.[6] Thus, it is important to make an assessment during feeding. Assessment of feeding and swallowing begins with a clinical evaluation during actual feeding, and children having difficulty in swallowing function or requiring the identification of the pharyngeal phase of swallowing are referred to instrumental swallowing assessment for a comprehensive evaluation.[7,8]

In general, physical assessment scales are used during clinical evaluation.[9] Some of those; Ability for Basic Feeding and Swallowing Scale for Children Scale, which was developed to evaluate swallowing difficulties and can be administered by professionals and family members who undertake the treatment, education or care of disabled children, the Brief Assessment of Motor Function scale, which includes the rapid evaluation of oral motor skills required for swallowing and articulation, the Oral Motor Assessment Scale, which was developed to evaluate oral motor skills in children and adolescents with neurological damage and Schedule for Oral Motor Assessment (SOMA), which was developed by Reilly et al. in 1995 and is used to objectively assess oral-motor functions.[10-13] SOMA is an approved tool to assess the oral motor functions during feeding subjectively.

In Türkiye there is one tool, which was the Karaduman Chewing Performance Scale (KCPS) that was developed by Serel Arslan et al., is used in clinical setting for evaluation during feeding in the pediatric group and measures chewing performance.[14] There is no tool available that has been developed in or adapted to Turkish, and used for objective assessment of swallowing function during feeding and examination of the entire oral-motor pattern in detail. This study aimed to adapt the SOMA to Turkish and to evaluate its validity and reliability.

MATERIAL AND METHODS

ETHICS

Permission to use the tool in the study was obtained via e-mail from Sheena Reilly, one of the developers of the scale. The study was conducted in accordance with the principles of the Declaration of Helsinki. In order to conduct the study, approval was obtained from the Non-Interventional Clinical Research Ethics Committee of İstanbul Medipol University (date: October 5, 2018; no: 512). Written permission was obtained from the study centers, and consent of the families of the children participating in the study was obtained through informed consent form.

PARTICIPANTS

In the study 50 children were included. Thirty seven children with a diagnosis of cerebral palsy, Down syndrome, and developmental delay were included in the study group, and 13 children with normal development in the control group.

Inclusion criteria are; being within the 8-42 month age group in the study group, and 8-24 months in the control group, ability to be fed orally, no allergies to the foods used, no facial anomaly that would affect oral-motor functions.

DATA COLLECTION PROCESS

The study was conducted between November 2018 and June 2019 in the centers where the children received therapy and their homes. Demographics form, translated version of Schedule for Oral Motor Assessment (YOMDÖ) and KCPS were used to collect data in the study.[14]

Demographics Form

The form was developed by the advisor and the researcher and included sections to submit information about age, gender, birth weight, parents, diagnosis, risk factors, feeding and motor development stages. The distribution of demographics is presented in Table 1.

38% of the participants were of 30 months and older, 50% were preterm and the mean birth weight was 2,711.30±851.58 kg (minimum-maximum=880-4,415). Of participants, 26% were children with normal development, 28%, 24%, and 22% were children with diagnosis of Down syndrome, cerebral palsy and developmental delay, respectively.

SOMA

Translated version of SOMA was used for oral-motor assessment. Developed by Reilly et al. in 1995, SOMA was designed to objectively evaluate the oral-motor skills of children aged 8-24 months. The scale was initially designed to detect oral-motor dysfunction (OMD) in children with normal development and then was expanded for use in children with a clinical diagnosis. The age range for which the scale can be used was determined as 8-24 months in children with normal development and 8-42 months in children with a clinical diagnosis. Children with normal development, growth-developmental problems and a diagnosis of cerebral palsy were evaluated. The validity and reliability of the scale were examined and a high score was obtained.[15,16] SOMA is an assessment tool based on video recording of the child during feeding with foods of different consistency and then watching the video for scoring. The areas evaluated with this tool are divided into three groups. They include functional regions (head and trunk, lips, tongue and chin), functional units (actions of structures and muscles in the functional regions) and discrete oral-motor behaviors (oral-motor movements contributing to functional units). SOMA is structured in 7 categories: puree, semisolids, solids, cracker, bottle, trainer cup and cup. Each category includes different numbers of items and uses certain cut-off scores. Each item has a corresponding box to choose between the options, yes and no, and these options represent normal and abnormal condition depending on the observed functions. The fields representing the abnormality are shown in bold and the points given in the fields are summed up to determine the score of the relevant category. The total score equal to or above the cut-off score of the category means that there is an OMD in the category.

TABLE 1: Distribution of demographics.

		Cerebral palsy n (%)	Down syndrome n (%)	Development delay n (%)	Typical development n (%)	Total n (%)
Age (month)	<18	2 (16.7)	3 (21.4)	2 (18.2)	6 (46.2)	13 (26)
	19-30	3 (25)	6 (42.9)	3 (27.3)	6 (46.2)	18 (36)
	>30	7 (58.3)	5 (35.7)	6 (54.5)	1 (7.7)	19 (38)
Gender	Male	6 (50)	8 (57.21)	7 (63.6)	4 (30.8)	25 (50)
	Female	6 (50)	6 (42.9)	4 (36.4)	9 (60.2)	25 (50)
Birth time	Preterm	10 (83.3)	4 (28.6)	7 (63.6)	4 (30.8)	25 (50)
	Term	2 (16.7)	10 (71.4)	4 (36.4)	9 (69.2)	25 (50)
Physical developmental milestones	Delay	10 (83.3)	13 (92.9)	7 (63.6)	0 (0)	30 (60)
	Normal	2 (16.7)	1 (7.1)	4 (36.4)	13 (100)	20 (40)

Foods used for each consistency level were prespecified. Yoghurt for puree category, banana or cream cheese for semi-solid category, boiled potato or pasta for solid category, petit beurre cookies for cracker category, apple juice or milk for liquid category was used. Food was presented to child 3 times, and on the fourth attempt child was allowed to eat by themselves, if they are able to. During the standard administration of SOMA, the food presentations made by speech and language therapist (SLT) or family. Rating of the scores made by SLT and there is no need to certificate. Scoring is based on the 1st attempt. However, if no movement can be observed, then the 2nd, 3rd or 4th attempts can be made depending on whether any movement is observed. Food was presented to be eaten with a spoon for puree, semisolids, and solids categories and with hand for cracker category. Liquids were presented in three different ways: bottle, trainer cup and cup. Presentation was mostly made by the SLT who is the first researcher of the study. In cases where the child could not cooperate, the family was instructed on how to present the food and they made the presentation.

KCPS

The scale was developed by Serel Arslan et al. to assess the chewing ability in children.[14] The ability to chew is scored between 0 and 4. The child is given a cookie and the biting and chewing behaviors during eating are recorded for 3-5 minutes. Before the assessment, the child is not instructed on how to bite and chew.

Translation Process

Translate-back translate model was used for translation. Translation was the first step of scale adaptation, in which translation and back translation method was employed. SOMA was translated into Turkish by advisor and researcher. For the back translation, the scale translated into Turkish was re-translated into English by an advanced English speaker. The text of the back-translated version of the scale and the text of the original version were compared, and the harmony between the two scale texts was demonstrated, as they were semantically, formally and grammatically close to each other. The version obtained by the back-translation and the original version of the scale were compared, and the agreement between the two scale was demonstrated. For the interrater reliability evaluation of the translated scale, the scale translated into Turkish and Expert Assessment Forms were sent to the five SLTs to obtain their opinions. Thus, content validity was also evaluated as the second step of scale adaptation. The final version of the translation was decided according to the feedbacks.

Validity

Construct and criterion validity were used in this study. Cluster analysis was performed for criterion validity and KCPS was used as an equivalent criterion. Item analysis was used for construct validity.

Reliability

Test-retest, interrater reliability and internal consistency methods were used to evaluate the reliability of the scale. In the test-retest method, the tool was re-administered by the same researcher 3 weeks later and 15 people are randomly selected among 50 participants for measurement. For interrater reliability, 20 people were randomly selected among 50 participants and the administration was carried out by two raters. To evaluate the interrater reliability, the chi-square goodness of fit percentage and Kappa coefficients were calculated. The Kuder-Richardson (KR-20) coefficient was calculated to assess the internal consistency of the scale.

Diagnostic Accuracy

Receiver operating characteristic (ROC) analysis sets out results such as sensitivity and specificity.[17] ROC analysis was performed to ascertain the diagnostic accuracy of the scale.

DATA ANALYSIS

Statistical analysis methods were used for the analysis of demographics as well as the validity, reliability, diagnostic accuracy, sub-scores, and total score of "Yutmada Oral Motor Değerlendirme Ölçeği (YOMDÖ)". SPSS 25 (IBM Corp., Armonk, NY, ABD) program was used for analyzing the data using a 95% confidence level. Statistics are presented as percentage (%) and number (n) for categorical variables and as mean, standard deviation, minimum, and maximum for continuous variables.

Skewness and kurtosis values were calculated to examine the conformance of the scale scores to normal distribution.[18-21] It was concluded that the scale scores exhibited a normal distribution (skewness=1.57; kurtosis=1.26).

Item difficulty and item discrimination indices were calculated to demonstrate the validity of the scale.[22]

KR-20 coefficient was calculated to determine the internal consistency of the scale.

Hierarchical clustering (Ward method) was used in creating clusters by scale information based on the article of the original scale as a source.

Parametric methods were used in the analyses. However, since there were less than 30 data in the correlation analysis of YOMDÖ and KCPS scores, nonparametric tests (Spearman; n=20<30) were used for the criterion validity analysis. t and analysis of variance tests were used for the comparison of clusters, diagnostic groups, and demographics according to scale scores, and Kappa coefficient and agreement percentage were used for test/retest, and interrater reliability analyses.

RESULTS

VALIDITY

Content Validity Index

Content validity index (CVI) obtained by calculating the results from the Expert Evaluation Forms that included the opinions about YOMDÖ, which was created with the translation of SOMA into Turkish, was calculated for all items of the test. As the CVI values of all items were above 0.80, the content validity of the scale was demonstrated.

Item Analysis

According to the analysis result, there were no items with a low item difficulty index (p>0.60), and there were 8 items with poor item discrimination index (r<0.20). Since there were no items with both low item discrimination and item difficulty index, no item required to be excluded.

CRITERION VALIDITY

Cluster Analysis

The participants were clustered in 3 clusters according to the results of hierarchical clustering analysis. By a majority, cluster 1, 2 and 3 consisted of participants with a diagnosis of cerebral palsy, a diagnosis of Down syndrome and normal development, respectively. Thus, participants with OMD constituted the majority of the first two clusters, while participants with normal oral-motor function constituted the majority of the third cluster. Based on the original article, participants were divided into 3 groups for the cluster analysis for the evaluation of criterion validity, and the dysfunction distribution of the participants was analyzed by all items in the scale. The distribution of the clusters is presented in Table 2.

Equivalent Criterion Validity

The correlation between the total OMD score from the scale and KCPS was examined for the equivalent criterion validity. Twenty participants were chosen for this analysis.

There was a statistically significant, positive and very strong correlation between the total OMD score of YOMDÖ and the KCPS (r=0.989, p=0.000).

RELIABILITY

Internal Consistency

The internal consistency analysis results of YOMDÖ are presented in Table 3.

The internal consistency level of the total score and subcategories was high (KR-20>0.60).

TABLE 2: Distribution of the clusters.

	Cluster 1 n (%)	Cluster 2 n (%)	Cluster 3 n (%)
Cerebral palsy	5 (62.5)	3 (30)	4 (12.5)
Down syndrome	3 (37.5)	4 (40)	7 (21.9)
Developmental delay	0 (0)	3 (30)	8 (25)
Typical development	0 (0)	0 (0)	13 (40.6)
Total	8 (16)	10 (20)	32 (64)

TABLE 3: Internal consistency analysis results of YOMDÖ.

	KR-20
Puree	0.823
Semisolid	0.845
Solid	0.880
Cracker	0.883
Bottle	0.913
Trainer cup	0.887
Cup	0.803
Total score	0.971

YOMDÖ: Yutmada Oral Motor Değerlendirme Ölçeği; KR-20: Kuder-Richardson-20.

Test-Retest and Interrater Reliability

The chi-square goodness of fit percentage and Kappa coefficients were calculated for each category to evaluate the test-retest and interrater reliability levels. According to the evaluation result, in the test/retest method, the percentage of agreement between the two tests administered by the observer at different times varies between 75% and 100%, and the Kappa coefficient varies between 0.61-1.00 values. Accordingly, test/retest reliability was ensured.

In the evaluations made by different observers, the percentage of agreement varies between 63% and 100%. Kappa coefficient between 0.81-1.00 in 51%, between 0.63-0.76 in 28%, between 0.44-0.59 in 12%, 0.28-0 in 5% It varies between, 37, and 0.16 in 1%, and the percentage of agreement for this item is 63%. Inter-observer agreement was found to be good in 79% of the items.

Diagnostic Accuracy

As in the original article, the category with most abnormal-abnormal/normal-normal agreement was used in the cluster analysis as the real case. A crosstab was created based on cluster analysis and values were calculated. It was applied to all participants eligible for evaluation. Based on the analysis result, the sensitivity, specificity, positive and negative predictive values of the scale are presented in Table 4.

For the total score of the scale; the sensitivity value was 88.89, the specificity value was 90.63, the positive predictive value was 84.21, and the negative predictive value was 93.55. For the subcategories of the test, the specificity, positive and negative predictive values were above 0.50 in all categories, yet the sensitivity of the test was low for the semisolids, bottle, trainer cup and cup categories.

Area under the curve (AUC)=0.898, standard error=0.053, $p<0.000$. The AUC value is used as a benchmark to assess the superiority of diagnostic tests. Higher AUC value means the assessed scale is a better diagnosis test for the estimation of disease conditions. According to the analysis result, YOMDÖ is a good test to distinguish people with OMD from those with normal conditions.

The ROC curve graph for the total score and subcategories of the scale is shown in Figure 1.

Distribution of Items of the Scale

The category with the highest OMD and the severity of OMD can be ascertained using the distribution of the OMD score of the scale items in categories and

TABLE 4: Sensitivity, specificity, positive and negative predictive values of YOMDÖ.

Consistency	Sensitivity %	Specificity %	Positive predictive %	Negative predictive %
Puree	61.11	96.88	91.67	81.58
Semisolid	22.22	100	100	69.57
Solid	88.89	100	100	94.12
Cracker	61.11	96.88	91.67	81.58
Bottle	44.44	96.88	88.89	75.61
Trainer cup	38.89	100	100	74.42
Cup	16.67	100	100	68.09
Total	88.89	90.63	84.21	93.55

YOMDÖ: Yutmada Oral Motor Değerlendirme Ölçeği.

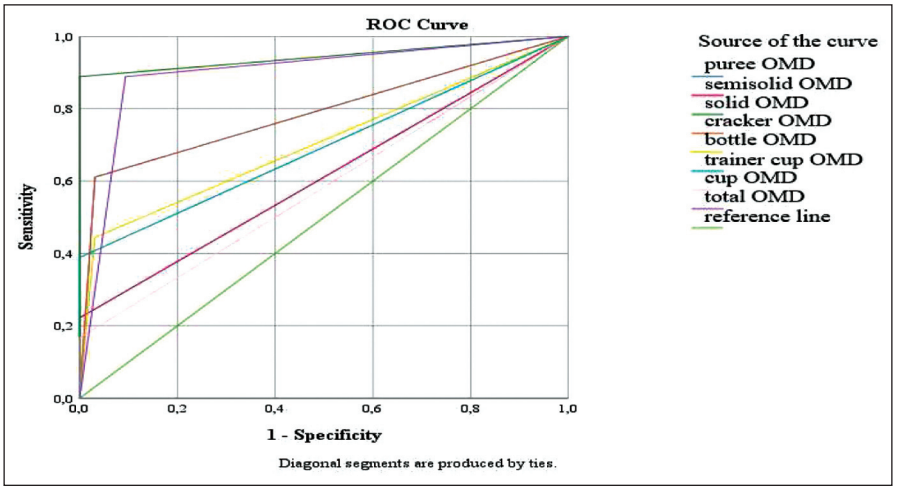

FIGURE 1: The ROC curve graph for the total score and subcategories of the YOMDÖ
OMD: Oral motor dysfunction; ROC: Receiver operating characteristic; YOMDÖ: Yutmada Oral Motor Değerlendirme Ölçeği.

TABLE 5: OMD distribution of scale subcategories and total score.

		n (%)
Puree OMD	Yes	12 (24)
	No	38 (76)
Semisolid OMD	Yes	4 (8)
	No	46 (92)
Solid OMD	Yes	16 (32)
	No	34 (68)
Cracker OMD	Yes	12 (24)
	No	38 (76)
Bottle OMD	Yes	9 (18)
	No	41 (82)
Trainer cup OMD	Yes	7 (14)
	No	43 (86)
Cup OMD	Yes	3 (6)
	No	47 (94)
Total score OMD	Yes	19 (38)
	No	31 (62)
OMD grade	None	31 (62)
	Poor	8 (16)
	Middle	8 (16)
	Severe	3 (6)

OMD: Oral motor dysfunction.

total score. OMD distribution of scale subcategories and total score are shown in Table 5.

Participants with OMD were 24% in puree, 8% in semi-solid, 32% in solid, 24% in cracker, 18% in bottle, 14% in trainer cups and 6% in cups, and according to the total score, 38% of them have OMD and OMD severity is moderate for 16% of them.

Considering the distribution of OMD in all items, the prevalence for abnormal situations in children with a diagnosis of cerebral palsy was high in most of the items.

DISCUSSION

In the study in which the results of 9 assessment tools on children with cerebral palsy and neurodevelopmental disorders were discussed, Benfer et al. concluded that the instrument with the highest validity rate was SOMA. According to Benfer et al., SOMA is a standard and distinctive assessment tool that measures OPD in children, without any need for special tools, and it comprehensively assesses OMD.[23]

To consider the adapted scale as a valid and reliable one, other values related to validity and reliability should be ensured following the language and content validity. Reilly et al. used the cluster analysis method instead of any other tool to ensure criterion validity.[15] For validity, cluster analysis was performed based on the original scale. Another stage in ensuring validity is to ensure a criterion validity that is obtained by calculating the correlation between the score from the relevant scale and the score from an-

other scale known to measure the intended items.[24] The correlation between KCPS and YOMDÖ was examined to ensure the criterion validity and a very strong positive correlation was found between the two. One of the necessary stages to ensure reliability is the evaluation of internal consistency.[25] Internal consistency coefficients of the total score and sub-categories of the scale were also high, and it was determined that the scale was highly reliable based on the information in the literature. Other methods used to evaluate reliability were test/retest and interrater reliability methods. In the test/retest method, the agreement percentage is and Kappa score was high. Thus, the reliability of the test/retest method was demonstrated. In the study in which the reliability of adaptation of SOMA to Persian was evaluated by Abadi et al., the retest method was used with 13 children aged between 6 and 48 months with one-week interval, and for interrater reliability, 10 children by a second SLT.[26] Compared to Abadi's study, the test-retest agreement percentage of our study was found to be higher. In the original scale, the retest method was applied to 10 children with the presence of a second rater, and the interrater and the test-retest reliability was calculated.[13] Our results were similar to original scale.

ROC analysis results for the total score of the YOMDÖ are as follows: sensitivity, specificity, positive and negative predictive value was high. In the subcategories of the test, specificity, positive and negative predictive rates were high, yet the sensitivity values of the semisolid, bottle, trainer cup and cup categories were low. The reasons for the low sensitivity rate may be not using a tool that is one of the instrumental assessment methods, which is a golden standard for diagnostic accuracy, and the low number of participants. The original scale's positive predictive value was greater than 90% and sensitivity rate was greater than 85%.[15] In an article in which the sensitivity and specificity rates of YOMDÖ were evaluated, the sensitivity rate was 53% and the specificity rate was 100%, referring to their previous study. The researchers mentioned in their previous study that SOMA was designed to detect clinically significant OPD and therefore may not be sensitive in detecting mild OPD.[27,28]

LIMITATIONS

Not using a gold standard method to diagnose dysphagia in the evaluation of diagnostic accuracy and the low number of participants were the limitations of the study.

CONCLUSION

In the adaptation to Turkish, the content and language validity were ensured and all the items were adapted. According to the reliability analysis, the scale had a high level of internal consistency, and the test-retest and interrater reliability agreement percentages were satisfactory.

Translated into Turkish and called "YOMDÖ", the scale was shown to be a valid and reliable scale that can be used in the clinical evaluation of pediatric oral motor feeding skills.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Ayşegül Yılmaz, Seyhun Topbaş;* ***Design:*** *Ayşegül Yılmaz, Seyhun Topbaş;* ***Control/Supervision:*** *Seyhun Topbaş;* ***Data Collection and/or Processing:*** *Ayşegül Yılmaz;* ***Analysis and/or Interpretation:*** *Ayşegül Yılmaz, Seyhun Topbaş;* ***Literature Review:*** *Ayşegül Yılmaz;* ***Writing the Article:*** *Ayşegül Yılmaz;* ***Critical Review:*** *Seyhun Topbaş;* ***References and Fundings:*** *Ayşegül Yılmaz;* ***Materials:*** *Ayşegül Yılmaz.*

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