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The Reliability and Validity of The Bristol Tongue Assessment Tool in The Turkish Language

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ABSTRACT

Purpose: The tongue tie is a congenital oral abnormality that causes the change in the appearance and function of the tongue. Breastfeeding problems are common with tongue-tie babies. The study was planned aim of the to increase the awareness of health workers about "tongue tie" and to make Turkish language validity and reliability the Bristol Tongue Assessment Tool (BTAT) as a diagnostic tool.
Method: The study was conducted August 2018- January 2019 in a private hospital in Konya with 129 mother-baby couples. Data were collected by Introductory Information Form prepared by the researchers, BTAT Turkish version and the LATCH Breastfeeding Assessment Tool.
Results: The draft scale was examined by 8 experts for content validity. Content Validity Index (CVI) value of all four substances on the scale is higher than 0.80, the total scale value was determined to be 0.94. The Kaiser-Meyer Olkin (KMO) coefficient of the scale is 0.70 and the Barlett test was statistically significant ($\chi 2$=128.953, df=6, p=0,000). BTAT explained 55.28% of the total variance. The Cronbach alpha coefficient was 0.72 and the scale was found to be reliable. In the study was determined that there was a positive and significant relationship between the substance scores and the scale total score (r=0.42 and 0.78) and the item total score of the scale was found to be high reliability. There isn't significant relationship between BTAT and LATCH.
Conclusion and Suggestions: The BTAT Turkish version is a valid and reliable tool which that can be for the evaluation of tongue tie.

Bristol Dil Değerlendirme Aracı'nın Türkçe Geçerlilik ve Güvenirliği

Makale Bilgileri

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ÖZ

Amaç: Dil bağı, dilin görünümünde ve işlevinde değişikliğe neden olan doğuştan gelen konjenital oral anomalidir. Emzirme sorunları dil bağı olan bebeklerde yaygındır. Çalışma, sağlık çalışanlarının "dil bağı" konusunda farkındalıklarını artırmak ve tanı aracı olarak Bristol Dil Değerlendirme Aracı'nın (BDDA) Türkçe geçerlik ve güvenirliğini sağlamak amacıyla yapıldı.
Yöntem: Araştırma, Ağustos 2018-Ocak 2019 tarihleri arasında Konya'da özel bir hastanede 129 anne-bebek çifti ile gerçekleştirildi. Veriler, araştırmacılar tarafından hazırlanan Tanımlayıcı Bilgi Formu, BDDA Türkçe versiyonu ve LATCH Emzirme Değerlendirme Aracı ile toplanmıştır.
Bulgular: Taslak ölçek kapsam geçerliliği için 8 uzman tarafından incelenmiştir. Ölçekteki dört maddenin Content Validity Index (CVI) değerinin 0.80'den yüksek, toplam ölçek değerinin 0.94 olduğu belirlenmiştir. Ölçeğin Kaiser-Meyer Olkin (KMO) katsayısı 0.70 olup Barlett testi istatistiksel olarak anlamlı bulunmuştur ($\chi 2$=128.953, df=6, p=0,000). BDDA toplam varyansın %55.28'ini açıklamaktadır. Cronbach alfa katsayısı 0.72 olup ölçeğin güvenilir olduğu görülmüştür. Araştırmada madde puanları-ölçek toplam puanı arasında güvenirlik katsayılarının r=0.42 ile 0.78 arasında olmak üzere pozitif yönde ve önemli düzeyde anlamlı ilişki olduğu belirlenmiş olup, ölçeğin madde toplam puan güvenirliği yüksek bulunmuştur. BDDA ve LATCH arasında anlamlı arasında anlamlı ilişkiye rastlanmamıştır.
Sonuç ve Öneriler: BDDA Türkçe versiyonu dil bağının değerlendirilmesinde kullanılabilecek geçerli ve güvenilir bir araçtır.

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INTRODUCTION

Ankyloglossia, also defined as tongue-tie, is a congenital oral anomaly characterized by a short frenulum in which the tip of the tongue cannot extend beyond the lower incisors (Belmehdi, Harti, & Wady, 2018; Rowan-Legg, 2011). Tongue-tie is caused by insufficient apoptosis of the tongue from the floor of the mouth during prenatal differentiation (Belmehdi et al., 2018). It is indicated that its prevalence is between 1% and 10% and it is more common in males (Becker & Mendez, 2019; Belmehdi et al., 2018; Jamilian, Fattahi, & Kootanayi, 2014; Rowan-Legg, 2011).

Tongue-tie is classified according to the region where the lingual frenulum is attached to the floor of the mouth, its thickness, and the flexibility of the floor of the mouth (Genna, 2013). The tie called the lingual frenulum leads to changes in the appearance and function of the tongue since it is close to the tip of the tongue (Genna, 2013; Srinivasan et al., 2019). A thick, fibrous, short, inelastic frenulum and narrow mouth floor significantly affect the language functions (Genna, 2013).

Tongue-tie is an anomaly that causes breastfeeding problems as well as speech problems related to language function (Çaka, Topal, & Altınkaynak, 2017; Pransky, Lago, & Hong, 2015). While breastfeeding problems rate i3% in those without tongue-tie, its rate is 25% (eight times more) in those with tongue-tie (Ingram et al., 2015). The infant with a very short tongue-tie chews mother's nipple instead of sucking it since they cannot move the tongue properly. Problems such as damage/crack in the nipple, failure to completely empty breasts, pain in the nipple, blocked lactiferous ducts, mastitis, and the loss of trust in the newborn can be observed, and it may also lead to the early start of complementary foods (Becker & Mendez, 2019; Çaka et al., 2017; Rowan-Legg, 2011).

The lack of a Turkish scale to evaluate tongue-tie was the main reason for the planning of this study because there are different opinions about diagnostic criteria. The diagnostic criteria established by several studies are the length of the lingual frenulum, the degree of tongue movement, heart-shaped appearance of the tongue tip, and the thickness of the frenulum (Belmehdi et al., 2018). The Bristol Tongue Assessment Tool (BTAT) developed for this purpose is an objective, simple and clear indicator of the severity of tongue-tie. This scale is advantageous because it has a higher possibility of identifying mild to moderate cases compared to other scales, and it is easy to use (Ingram et al., 2015). To increase the awareness of healthcare professionals of “tongue-tie,” and to contribute to the identification of tongue-tie type, adaptation of this tool to Turkish is necessary. So, this study aimed to assess the validity and reliability of the Turkish Bristol Tongue Assessment Tool.

METHOD

Research Design

This research was carried out methodologically.

Research Sample

In general, at least 5-10 times more individuals than the total number of items of the scale are selected to perform analyses on a sufficient number of individuals (Erdoğan, Nahcivan, & Esin, 2014). Ingram et al., (2015) who developed the Bristol Tongue Assessment Tool conducted their study with 126 infants during the validity and reliability study of the scale. Following the literature's recommendation and the study by Ingram et al., (2015), 30 times more individuals were selected for the validity and reliability study of the 4-item scale, it was aimed to include 120 mother-infant couples, and 129 mother-infant couples were included within the specified date range. The random sampling method was used to select participants.

The inclusion criteria were mothers who were over the age of 18 years, speaking Turkish, literate, had no health problem that was an obstacle for breastfeeding, volunteered to participate

in the study.

Research Instruments and Processes

This research was conducted in the postpartum department of a private hospital in Konya province from August 2018 to January 2019. The data were collected by the researchers through face-to-face interview and observational evaluation methods.

The data were collected using the LATCH (L: for how well the baby attaches to the breast, A: for the number of swallows, T: for the nipple type, C: for the maternal comfort grade and H: for the amount of assistance that the mother requires when holding her baby to her breast), BTAT and Introductory Information Form.

Introductory Information Form: It was prepared by the researchers by reviweing the literature to evaluate the socio-demographic and obstetric characteristics as well as breastfeeding histories.

Bristol Tongue Assessment Tool: It was developed by Ingram et al. in 2015 (Ingram et al., 2015). It is a 3-point Likert-type scale with four items. The appearance of the tongue tip (1), the connection of the tongue-tie with the lower gingival line (2), the elevation of the tongue as the entire mouth width while crying (3), tongue sticking out of the lower lip (4). The minimum and maximum scores obtained from the scale are 0 and 8, respectively. While high scores indicate that language function is at a good level, scores between 0-3 indicate a significant decrease in language function. The Cronbach's alpha value of the original form of the scale was indicated as 0.70, in this study cronbach's alpha was found to be 0.72 and was found to be suitable for clinical use.

LATCH Breastfeeding Diagnosis and Assessment Tool: It was developed by Jensen and Wallace (Jensen, Wallace, & Kelsay, 1994), and its adaptation to Turkish was conducted by Yenal and Okumuş (Yenal & Okumuş, 2003). The LATCH has five assessment criteria that stand for the first letters of these five criteria in English. L: Latch on the breast; A: Audible swallowing; T: Type of the nipple; C: Comfort breast/nipple, and H: Hold/Help. Items score between 0-2 points. The total score obtained from the tool is 10, and a high score refers to effective breastfeeding. While the Cronbach's alpha value of the original form of the tool 0.93, in this study cronbach's alpha was found to be 0.75.

Data Analysis

To anlyse the data, mean, percentage, and standard deviation were used for descriptive characteristics. Transfer of the scale to Turkish language and content validity and construct validity were examined to check the validity of the scale. For content validity, expert opinions were explored and the content validity index (CVI) was calculated. For construct validity, exploratory and confirmatory factor analyses were used. Different tests were used to assess the reliability such as Pearson correlation analysis for concurrent criterion validity of reliability and item analysis, and Cronbach's alpha analysis for internal consistency.

Ethics

The permission for using the English scale was obtained from Jenny Ingram via e-mail. Also, ethics committee approval was obtained before starting the study (dated 18.11.2016 and numbered 2016/005). All participants were informed about the study aims and consent was obtained.

RESULTS

Characteristics of the Participants

The average age of the mothers was 28.36±4.13 (range: 20-38), 45% were housewives, and 50.4% had university education and above. Among mothers, 51.2% had a vaginal delivery at their current birth, 51.2% had their first delivery, 82.9% never had a miscarriage, and 87.6% never had an abortion. The average age (days) of the infants was 1.23±0.42, 45.7% were male and 63.6% were exclusively breastfed (Table 1).

Table 1. *Characteristics of the Participants*

Characteristics of mothers	**n**	**%**
Education		
Primary school	17	13.2
Middle School	12	9.3
High school	35	27.1
University	65	50.4
Profession		
Worker	23	17.8
Clerk	48	37.2
Housewife	58	45.0
Income status		
Low	103	79.8
Middle	6	4.7
High	20	15.5
Total number of pregnancies		
1	52	40.3
2	45	34.9
3 ≥	32	24.8
Number of living children		
1	66	51.2
2	45	34.8
3 ≥	18	14.0
Number of births		
1	60	46.5
2	47	36.4
3 ≥	22	17.1
Infant's charactreistics	**n**	**%**
Gender		
Female	70	54.3
Male	59	45.7
What is the method of infants feeding?		
Exclusively breast milk	82	63.6
Exclusively formula	22	17.0
Breast milk and formula	25	19.4
Mode of delivery		
Vaginal delivery	66	51.2
Cesarean with general anesthesia	10	7.7
Cesarean with epidural	53	41.1

Validity Analysis

Language Validity: The following four steps were followed to ensure the language validity of the Bristol Tongue Assessment Tool:

➢ The original scale was translated into Turkish as by the researchers without making any changes on the scale.

➢ The draft scale was translated into English by a native speaker of English and Turkish who was not a member of the research team and had not seen the original scale. Then, it was sent to Jenny Ingram, who developed the original scale, for conformity, and her approval was obtained.

➢ After that, the scale was examined by 8 expert, (3 pediatrics physicians, 2 delivery room midwives, 3 academician of women's health and obstetrics nurses), and necessary changes were made in line with their recommendations.

➢ Next, a pilot study was performed with 30 mothers to resolve the spelling, expression, or format problems of the scale. This pilot study showed that there was no need to change the scale draft form. Preliminary data of the pilot study were not included in the research data.

Content Validity: For content validity, the draft scale was examined by 8 experts including 3 pediatrics physicians, 2 delivery room midwives, 3 academician women's health and obstetrics nurses, and necessary changes were made in line with their recommendations. The Davis technique was used to obtain expert opinions. In the Davis technique, items are rated as "appropriate," "the item should be slightly reviewed," "the item should be seriously reviewed," and "the item is inappropriate." In this technique, the number of experts who marked the options "the item is inappropriate" and "the item should be slightly reviewed" was divided by the total number of experts, and the content validity index (CVI) of the item was obtained. The fact stated that the acceptable level is at least 0.80 (Erdoğan et al., 2014; Karakoç & Dönmez, 2014; Taşkın & Akat, 2010). In this study, the total value of CVI was 0.94 (94%). The lowest and highest scores given by the experts to the items, mean, standard deviations, and CVI values are presented in Table 2.

Table 2. *Evaluation of Expert Opinions for Content Validity of Bristol Tongue Assessment Tool Items (S= 8)*

Scale Items	$\bar{X}$ ±SD	Min-Max	Number of Experts Giving 3-4 Points to the Scale	CVI*
1. Tongue tip appearance	1.13±0.35	1-2	8	1.00
Heart shaped	1.00±0.00	1-1	8	1.00
Slight cleft/notched	1.63±0.74	1-3	7	0.88
Rounded	1.00±0.00	1-1	8	1.00
2. Attachment of frenulum to lower gum ridge	1.63±0.74	1-3	7	0.88
Attached at top of gum ridge	1.88±0.64	1-3	7	0.88
Attached to inner aspect of gum	1.75±0.89	1-3	7	0.88
Attached to the floor of mouth	1.38±0.74	1-3	7	0.88
3. Lift of tongue with mouth wide (crying)	1.75±0.71	1-3	7	0.88
Minimal tongue lift	1.75±0.71	1-3	7	0.88
Edges only to mid-mouth	1.88±0.83	1-3	7	0.88
Full tongue lift to mid-mouth	1.50±0.76	1-3	7	0.88
4. Protrusion of tongue	1.13±0.35	1-2	8	1.00
Tip stays behind gum	1.38±0.52	1-2	8	1.00
Tip over gum	1.25±0.46	1-2	8	1.00
Tip can extend over lower lip	1.50±0.76	1-3	8	0.88
Score				0.94

- The minimum and maximum expert assessment score for all items is between 1 and 4.
* Content Validity Index: Number of experts giving 3 and 4 points for item eligibility / total number of experts.

Exploratory Factor Analysis: The principal components analysis and varimax rotation method were used in the exploratory factor analysis for the factor analysis of the Bristol Tongue Assessment Tool. The Kaiser-Meyer-Olkin (KMO) coefficient of the scale was found to be 0.70, and Bartlett's test result was found to be significantly meaningful (X^2=128.953, df=6, p=0.000). In the exploratory factor analysis, the draft scale items were collected in one dimension in accordance with the theoretical structure (Table 3). The Bristol Tongue Assessment Tool explains 55.28% of the total variance.

Table 3. *Explained Total Variance Analysis of Bristol Tongue Assessment Tool*

Total Variance Explained						
Item	Initial Eigenvalues			Extraction sums of squared loadings		
	Score	Variance percentage (%)	Cumulative %	Score	Variance percentage (%)	Cumulative %
1	2.211	55.284	55.284	2.211	55.284	55.284
2	0.911	22.781	78.065			
3	0.559	13.964	92.029			
4	0.319	7.971	100.000			

Confirmatory Factor Analysis: The predetermined factor structure of the Bristol Tongue Assessment Tool was tested by confirmatory factor analysis. The goodness of fit values obtained as a result of confirmatory factor analysis which are presented in Table 4.

Table 4. *Confirmatory Factor Analysis Compatibility Values of Bristol Tongue Assessment Tool*

DFA Compatibility Value	Bristol Tongue Assessment Tool
CMIN/DF	0.680:2=0.340
RMSEA	0.000
CFI	1.000
NFI	0.995
GFI	0.997
RMSEA	0.000

Reliability Analysis

Internal Consistency: For internal consistency, BTAT's Cronbach's alpha coefficient was used and it was 0.72.

Item Analysis: Using the Pearson correlation analysis, it was determined that the correlation reliability coefficients were positively and statistically significantly correlated between r=0.42 and 0.78 ($p<0.001$, Table 5).

Table 5. *Bristol Tongue Assessment Tool Item-Total Score Correlations*

Scale Items	r	p
1. Tongue tip appearance	0.417	0.000
2. Attachment of frenulum to lower gum ridge	0.674	0.000
3. Lift of tongue with mouth wide (crying)	0.777	0.000
4. Protrusion of tongue	0.782	0.000

Concurrent criterion validity: For the criterion validity, it was determined that there was no statistically significant correlation between the scale scores and concurrently measured LATCH Scale scores (r=0.105, p=0.237, $p>0.05$).

DISCUSSION

The purpose of this study was to adapt the Bristol Tongue Assessment Tool to Turkish and assess its validity and reliability. In general, our result showed that the Bristol Tongue Assessment Tool is a highly valid and reliable diagnostic tool, which can be used in Turkish.

The recommended steps were applied to ensure the language validity of the scale. Validity is understood as the ability of a structured scale to predict certain events or its relationship with the measurement of other structures. The three main types of validity are content validity, construct validity and criterion-based validity (Avşar, 2017).

Content validity is assessed to evaluate whether the scale and each item in the scale measure the concept intended to be measured and whether they include different concepts. For content validity, the CVI value is obtained by receiving the opinions of the relevant experts (Erdoğan et al., 2014; Polit & Beck, 2010). The fact that the CVI value is at least 0.80 refers to an acceptable level (DeVellis, 2012; Erdoğan et al., 2014; Karagöz, 2014; Karakoç & Dönmez, 2014; Taşkın & Akat, 2010). In the study, it was determined that the CVI value of all four items in the scale examined by 8 experts was higher than 0.80 and that the total scale CVI value was 0.94 (94%).

Exploratory factor analysis is the examination to obtain information about the measured sub-dimensions instead of testing a particular hypothesis. It is aimed to create a model suitable for the structure of the data. In the exploratory factor analysis, the suitability of the data set for factor analysis is evaluated in the first stage. Therefore, Bartlett's test is applied to test whether the KMO value and variables are correlated with each other. The KMO value of below 0.50 indicates that the sample size is not sufficient for validity analysis (Erdoğan et al., 2014). In this study, the fact that the KMO coefficient was found to be 0.70 indicated that the sample was suitable for factor analysis, and the fact that Bartlett's test was significantly meaningful (p=0.000) indicated that the correlation matrix of items was suitable for performing factor analysis. Sub-dimensions were obtained in the next step. In the study, tests were performed with different numbers of sub-dimensions, and the items were collected in one sub-dimension in accordance with the theoretical structure.

For the construct validity of a scale, the "goodness of fit statistics" produced in confirmatory factor analysis should be at the desired level (Erdoğan et al., 2014). CMIN/DF, RMSEA, CFI, and NNFI are examined as the goodness of fit statistics. Accordingly, the CMIN/DF values of 5 and below 5 indicate an acceptable goodness of fit, (Çapık, 2014; Erdoğan et al., 2014) and the values below 0.05 for RMSEA indicate a good fit (Erkorkmaz, Etikan, Demir, Özdamar, & Sanisoğlu, 2013; Kline, 2011).

The CFI value of equal to or greater than 0.90 and the NNFI value of equal to or greater than 0.90 also indicate a good fit. In the study, the CMIN/DF value of 0.680:2=0.340 indicated that the model was an acceptable model, the RMSEA value of (0.000) indicated a good fit, and the CFI (1.00) and NNFI (0.995) values indicated that the scale items had a perfect fit with the sub-dimensions (Table 2).

Internal consistency is reliability that determines whether all aspects of the scale have a measurement capability. For a scale to have internal consistency reliability, it should be proven that all sub-dimensions of the scale measure the same feature (Erdoğan et al., 2014; Polit & Beck, 2010). The most appropriate way to determine the internal consistency is to calculate Cronbach's alpha reliability coefficient. It is frequently used while determining the internal consistency of Likert-type scales (Erdoğan et al., 2014; Polit & Beck, 2010). A scale is quite reliable if Cronbach's alpha reliability coefficient is between 0.60-0.80 (Karagöz, 2014). In this study, Cronbach's alpha reliability coefficient was found to be 0.72, and the scale was found to be reliable according to the internal consistency coefficients.

Item-total correlation is calculated by comparing the variance of each test item with the variance of the total test score and examining the correlation between them. If the items in the scale are of equal weight and independent items, the correlation coefficient between each item and total values is expected to be high (Erdoğan et al., 2014). Items with high value are more desirable than items with low value (Sağkal, 2017). In the study, it was determined that there was a positive and statistically significant correlation between item scores and the scale's total score. This result indicated that the item total score reliability of the scale was high.

Invariance is the ability of the measurement tool to give consistent results from application to application and to show invariance over time. When the same measurement tool is applied to individuals at different times, the fact that responses of individuals to the measurement tool items are similar, in other words, they are consistent, indicates the invariance of the measurement tool. It is an essential feature for a reliable measurement tool. Invariance can be proven by test-retest and parallel form reliability (Erdoğan et al., 2014; Polit & Beck, 2010). However, this method is not suitable for this study in case of the possibility of early discharge from the hospital and the possibility that the intervening 15-day period will change the results. The "parallel form" technique was preferred due to the above-mentioned reasons. A parallel form sample is called alternative or equivalent form reliability. It is applied when there is an alternative form of the concept intended to be measured. This method is preferred, especially if the researcher wants to prove that the test he/she uses is powerful (Erdoğan et al., 2014). It was determined that there was no significant correlation between the mean score of the Bristol Tongue Assessment Tool and the mean score of the LATCH scale, which was used as a parallel form. It was observed that this result was affected by the fact that the use of the LATCH in the early postpartum period was not very convenient.

CONCLUSION AND SUGGESTIONS

It was determined that the Bristol Tongue Assessment Tool is a highly valid and reliable diagnostic tool, which can be used in Turkish. We recommend the use of the Bristol Tongue Assessment Tool in order to of healthcareprofessionals detection and evaluation of "tongue-tie".

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Conflict of Interest

No conflict of interest.

Author Contributions

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REFERENCES

Becker, S. & Mendez, M. D. (2019). Ankyloglossia. *Treasure Island: StatPearls Publishing.*

Belmehdi, A., Harti, K., & Wady, W. (2018). Ankyloglossia as an oral functional problem and its surgical management. *Dental and Medical Problems, 55,* 213-216. https://doi.org/10.17219/dmp/85708

Çaka, S., Topal, S., & Altınkaynak, A. (2017). Problems encountred during breastfeeding. *Turkiye Klinikleri Pediatric Nursing-Special Topics, 3,* 120-128. https://www.researchgate.net/publication/319207881_Anne_Sutu_ile_Beslenmede_Karsilasilan_Sorunlar_Problems_Encountred_During_Breastfeedinghttps://www.researchgate.net/publication/319207881_Anne_Sutu_ile_Beslenmede_Karsilasilan_Sorunlar_Problems_Encountred_During_Breast feeding

Çapık, C. (2014). Use of confirmatory factor analysis in validity and reliability studies. *Journal of Anatolia Nursing and Health Sciences, 17*(3), 196-205. https://dergipark.org.tr/tr/download/article-file/29691

DeVellis, R. (2012). Scale Development Theory and Applications (4 ed.). *Chapel Hill, USA: SAGE Publications*.

Erdoğan, S., Nahcivan, N. & Esin, N. (Eds.). (2014). Data collection methods and tools & reliability and validity of data collection tools. *İstanbul: Nobel Medical Bookstore.*

Erkorkmaz, Ü., Etikan, İ., Demir, O., Özdamar, K.. & Sanisoğlu, S. Y. (2013). Confirmatory factor analysis and fit indices. *Turkiye Klinikleri Journal of Medical Sciences, 33*(1), 210-223. https://doi.org/10.5336/medsci.2011-26747

Genna, C. (2013). Supporting sucking skills in breastfeeding infants. In Gerçek E, Didişen AN, Karabudak SS, (Eds): Nobel Akademik Publishing.

Ingram, J., Johnson, D., Copeland, M., Churchill, C., Taylor, H., & Emond, A. (2015). The development of a tongue assessment tool to assist with tongue-tie identification. *Archives of Disease in Childhood-Fetal and Neonatal Edition, 100*(4), F344-F349. https://doi.org/10.1136/archdischild-2014-307503

Jamilian, A., Fattahi, F., & Kootanayi, N. (2014). Ankyloglossia and tongue mobility. *European Archives of Paediatric Dentistry*, *15*(1), 33-35. https://doi.org/10.1007/s40368-013-0049-0

Jensen, D., Wallace, S. & Kelsay, P. (1994). LATCH: a breastfeeding charting system and documentation tool. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *23*(1), 27-32. https://doi.org/10.1111/j.1552-6909.1994.tb01847.x

Karagöz, Y. (2014). *SPSS applied biostatistics. Ankara: Nobel Publishing, (1 nd ed.)*

Karakoç, F. & Dönmez, L. (2014). Basic principles in scale development studies. *Medical Education World, 40*(1), 39-49. https://dergipark.org.tr/tr/download/article-file/199275

Kline, R. B. (2011). Principles and practice of structural equation modeling, third. *In: New York: The Guilford Press.*

Polit, D. & Beck, C. (2010). Essentials of Nursing Research: Methods, Appraisal and Utilization (Vol. 7). *Philadelphia: Lippincott Williams & Wilkins.*

Pransky, S., Lago, D. & Hong, P. (2015). Breastfeeding difficulties and oral cavity anomalies: The influence of posterior ankyloglossia and upper-lip ties. *International Journal of Pediatric Otorhinolaryngology*, *79*(10), 1714-1717. https://doi.org/10.1016/j.ijporl.2015.07.033

Rowan-Legg, A. (2011). Ankyloglossia and breastfeeding. *Paediatrics & Child Health*, *16*(4), 222. https://doi.org/10.1093/pch/16.4.222a

Sağkal, A. (Ed.) (2017). Scale development principles (3 nd ed.). Ankara: Nobel Academic Publishing.

Srinivasan, A., Al Khoury, A., Puzhko, S., Dobrich, C., Stern, M., Mitnick, H., & Goldfarb, L. (2019). Frenotomy in infants with tongue-tie and breastfeeding problems. J Hum Lact, 35(4), 706-712. https://doi.org/10.1177/0890334418816973

Şengül Avşar, A. Validity. Scale Development. Ankara: Nobel Publisher. 2017; 59-72.

Taşkın, Ç., & Akat, Ö. (2010). Structural equation modeling in research methods. Bursa: Ekin Publisher.

Yenal, K., & Okumuş, H. (2003). A study examining the reliability of the LATCH breastfeeding diagnostic tool. Journal of Research and Development in Nursing, 1, 38-44. http://hemarge.org.tr/ckfinder/userfiles/files/2003/2003-vol5-sayi1-76.pdf