

Instrument Development and Validation of an Attitude Scale for Breastfeeding in Pregnancy and Tandem Nursing

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ABSTRACT

Introduction

Globally, breastfeeding duration often falls short of recommendations, partly due to women becoming pregnant while still nursing. Although breastfeeding during pregnancy and tandem breastfeeding are supported, these practices lack widespread acceptance. Assessing women's attitudes towards these practices is essential for promoting sustained breastfeeding, yet no standardized tool currently exists for this purpose.

Objective

This study aimed to develop a scale to evaluate women's attitudes toward breastfeeding during pregnancy and tandem breastfeeding.

Method

An initial item pool was developed and refined using the Davis Technique. The scale was tested through two pilot studies (each with 100 participants), followed by a main study with 318 participants. The scale's psychometric properties were assessed through validity and reliability analyses.

Results and Conclusion

The final scale is a five-point Likert-type instrument, explaining 50.01% of the total variance across two factors (breastfeeding during pregnancy and tandem breastfeeding) with 13 items. It demonstrated strong internal consistency with a Cronbach's alpha of 0.87.

Keywords

Breastfeeding; Breastfeeding During Pregnancy; Tandem Breastfeeding; Scale Development; Attitudes

INTRODUCTION

Mother's milk is essential for the physical and emotional development of newborns. Consequently, the World Health Organization (WHO) and UNICEF recommend exclusive breastfeeding for the first 6 months, followed by continued breastfeeding with appropriate complementary foods until at least 2 years of age.^{1,2} Despite these guidelines, the 2021 WHO data revealed that only 48% of newborns were breastfed within the first hour, 44% were

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exclusively breastfed for 6 months, 68% were breastfed for at least 1 year, and just 44% continued until 2 years.¹ Similarly, the 2018 Turkey Demographic and Health Survey indicated that 66% of infants were breastfed for 1 year, but only 34% for 2 years.³

Globally and in Turkey, breastfeeding duration often falls short of recommendations duration due to many reasons,³⁻⁵ with one factor being the onset of a new pregnancy.^{6,7} Weaning due to a subsequent pregnancy is reported in 1.3%–55.7% of cases.⁶⁻⁸

Many women perceive breastfeeding during pregnancy as harmful to the unborn or nursing child, often leading to early weaning due to anxiety, social stigma, and cultural beliefs, as well as disapproval from healthcare providers.^{6,9} However, research supports that breastfeeding during pregnancy is safe for both mother and baby.^{10,11} The American Academy of Family Physicians stated in 2008 that women with healthy pregnancies can safely breastfeed an older child and continue tandem breastfeeding after birth.¹²

Tandem breastfeeding, which involves nursing two children of different ages simultaneously,^{9,13} can promote exclusive breastfeeding for the newborn up to 6 months and continued breastfeeding until 2 years or beyond.¹⁴⁻¹⁶ However, breastfeeding during pregnancy and tandem breastfeeding remain uncommon, with limited research on attitudes toward these practices. Therefore, assessing women's attitudes is crucial for targeted interventions and counseling. This study aimed to develop a standardized scale to measure attitudes toward breastfeeding during pregnancy and tandem breastfeeding.

METHODS

Study Design

This methodological study collected data via face-to-face interviews using a sociodemographic questionnaire and a newly developed candidate scale.

Setting and Context

The study was conducted in Sanliurfa, a province in southeastern Turkey. According to socio-economic development rankings, Sanliurfa is 73rd out of 81 cities.¹⁷ The Turkish Statistical Institute (2022) reported a fertility rate of 3.59 in Sanliurfa, significantly higher

than Turkey's national average of 1.62.¹⁸ The province also has high rates of short birth intervals and suboptimal breastfeeding durations.^{19, 20}

Sample

Participants included pregnant or breastfeeding women registered at Family Health Centers (FHCs) in central Sanliurfa. No specific sample selection was applied. Two pilot tests (each with 100 participants) were conducted before the main study to refine the scale. For robust factor analysis, a sample size of at least 300 is recommended;^{21,22} thus, the study included 318 women. To ensure diverse sociodemographic representation, participants were drawn from four different FHCs.

Inclusion criteria

- Women aged 18 years or older.
- Pregnant or breastfeeding women.
- Proficient in Turkish.

Exclusion criteria

- Women with a diagnosed psychiatric illness.

Measurement Tools

Data were collected using:

1. Sociodemographic Information Form: Consisting of 5 questions on age, education, language, employment, and economic status.
2. Breastfeeding During Pregnancy and Tandem Breastfeeding Attitude Scale (SA-BPTB): A newly developed 5-point Likert scale (strongly agree to strongly disagree), containing both positive and negative statements. Positive statements are scored as 5-4-3-2-1, while negative statements are reverse scored.

Scale Development

- An initial item pool of 38 statements was created based on a literature review.^{9,14,15}
- Content validity was assessed by a panel of 5 experts, reducing the items to 31.
- The Davis technique was used to refine the scale further with input from 8 experts, resulting in a Content Validity Index (CVI). Items with low CVI were excluded, leaving 24 items.
- Two pilot tests were conducted. The first led to revisions of 10 items for clarity. The second

removed 8 items with item-total correlation below 0.30, resulting in a final scale of 16 items.

Data Collection

Data were gathered between November 2022 and January 2023. Participants were informed of the study's purpose, and only those providing written consent were included. Interviews, conducted in a private setting at FHCs, lasted 10-15 minutes.

Data Analysis

Data were analyzed using SPSS 20.0 and AMOS software. Descriptive statistics (frequency, percentage, mean) were calculated for sociodemographic data.

- **Construct Validity:** Assessed using Exploratory Factor Analysis (EFA), with Bartlett's test and Kaiser-Meyer-Olkin (KMO) test to confirm data suitability. Principal component analysis and varimax rotation were used to identify factor loadings, eigenvalues, and explained variance. Confirmatory Factor Analysis (CFA) verified the factor structure.
- **Reliability:** Evaluated through item-total score analysis, Cronbach's Alpha for internal consistency, Tukey's Summability Analysis, and Hotelling's T-square test for response bias.

A significance level of $p < 0.05$ was considered statistically significant.

Ethics Approval Statement

The study was performed after receiving written permission from the Sanliurfa Provincial Health Directorate and Harran University Clinical Research Ethics Committee (dated 22.08.2022, no. HRÜ/22.16.15). The study was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

Sociodemographic Characteristics of Respondents

The mean age of the participants was 28.2 (5.83), and 17% (n=54) had not completed basic education level. Only 13.5% participants (n=43) were employed in an income-generating job, and 69.5% (n=221) reported their income level as "middle". Of the study of participants, 35.5% (n=113) spoke a language other than Turkish at home (Kurdish (n=52), Arabic (n=61)) (Table 1).

Table 1: Distribution of women's socio-demographical characteristics (N = 318)

Socio-demographic characteristics	n (%)
Educational status	
Illiterate	29 (9.1)
Literate	25 (7.9)
Primary education	129 (40.6)
Secondary education	77 (24.2)
University and above	58 (18.2)
Working status	
Yes	43 (13.5)
No	275 (86.5)
Economical situation	
Good	50 (15.7)
Middle	221 (69.5)
Bad	47 (14.8)
Most spoken language at home	
Turkish	205 (64.5)
Kurdish	52 (16.3)
Arabic	61 (19.2)

Note: N = Total number of people; n = Portion of total sample; % = Percentage of sample.

Semantic and Content Validity

The content validity of the scale was evaluated with the Davis Technique.²³ According to this technique, items with a CVI greater than 0.80 are considered "adequate" in terms of content validity, and items with a CVI less than 0.80 are excluded.²³ In this context, 24 items with a CVI between 0.87 and 1.00 were accepted as "adequate", and seven items were excluded from the scale because their CVI was less than 0.80. Thus, a 24-item version of the candidate scale to be tested with pilot practice was created.

Construct Validity

After the first pilot practice, ten items with low comprehensibility were revised. After the second pilot practice, eight items with item-total correlation values below 0.30 were removed from the scale. Finally, a 16-item scale was generated for validity-reliability analysis.

The construct validity of the scale was analyzed using EFA. Firstly, the suitability of the variables for factor analysis was analyzed using the KMO and Bartlett's test of sphericity (Table 2). The KMO value of this scale was 0.88. According to the literature, the KMO value for a scale should be at least 0.50.²⁴ The KMO value >0.50 indicates the suitability of the sample size for analysis. Furthermore, Bartlett's test of sphericity was also found to be statistically significant ($\chi^2 = 1482.448$; $P < .001$). A significant test result indicated that the matrix formed by the relationship among the variables is significant for EFA, and factor analysis could be performed.²⁵

EFA was used to investigate the relationships between the variables and develop a new structure. Factor rotation was performed to determine the factorial structure and easily interpret the EFA results. Varimax rotation showed that the scale was suitable for a two-factor structure (breastfeeding during pregnancy and tandem breastfeeding). In this 2-factor structure, three overlapping items were removed from the scale. The factor loadings of the remaining 13 items ranged between 0.527 and 0.798. This 2-factor structure explained 50.01% total variance (Table 2).

Table 2: Explanatory factor analysis values for the scale based on two factors

Items	Factor loading	
	Dimension 1	Dimension 2
P1. If I got pregnant while breastfeeding, I would continue breastfeeding my baby throughout my pregnancy.	0.737	
P2. Breastfeeding during pregnancy is not harmful to the unborn baby.	0.700	
P3. Breastfeeding during pregnancy is not harmful to the breastfed baby.	0.543	
P4. If I got pregnant while breastfeeding, I would continue breastfeeding as long as my baby wanted.	0.798	
P5. If I got pregnant while breastfeeding, I would continue breastfeeding as long as I feel comfortable.	0.778	
P6. Breastfeeding during pregnancy does not cause miscarriage.	0.588	

Items	Factor loading	
	Dimension 1	Dimension 2
P7. Breastfeeding during pregnancy does not reduce the quality of mother's milk.	0.527	
P8. If I got pregnant while breastfeeding, I would wean my baby immediately.	0.748	
T1. After birth, the newborn and the older baby should be breastfed together.		0.636
T2. Tandem breastfeeding (breastfeeding two babies at the same time) does not harm the health of the mother.		0.682
T3. While tandem breastfeeding (breastfeeding two babies at the same time), the mother's body produces sufficient milk for both babies.		0.682
T4. Tandem breastfeeding (breastfeeding two babies at the same time) tires the mother.		0.538
T5. Tandem breastfeeding (breastfeeding two babies at the same time) is religiously acceptable.		0.707

The validity of the structure obtained after EFA was tested using CFA. Since CFA examines the relationships between constructs instead of relationships between variables, it validated the scale dimensions obtained after performing EFA. To represent the structure clearly, modifications were made between e2–e3, e2–e7, e2–e6, and e6–e7 (Figure 1). The fit indices obtained using CFA

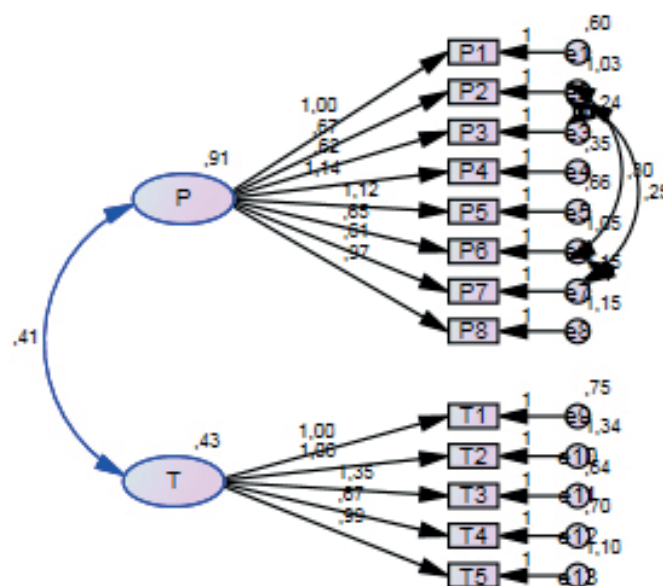


Figure 1. Confirmatory factor analysis results for the two-factor model

and the criteria for determining perfect and acceptable fit based on the literature are mentioned in Table 3. The data in Table 3 shows that all goodness of fit indices showed excellent or acceptable fit for the model. These results confirm the two-factor structure of the scale.

Table 3: Model fit indices and criteria of the two-factor scale

Fit indices	Scale fit indices	Perfect fit criteria	Acceptable compliance criteria
χ^2 / df	2.315	$0 \leq \chi^2 / sd \leq 2$	$2 \leq \chi^2 / sd \leq 3$
RMR	0.08	$0 \leq RMR \leq 0.05$	$0.05 < RMR \leq 0.10$
GFI	0.94	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 95$
AGFI	0.91	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$
PGFI	0.62	$0.95 \leq PGFI \leq 1.00$	$0.50 \leq PGFI \leq 0.95$
NFI	0.91	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$
RFI	0.88	$0.90 < RFI < 1.00$	$0.85 < RFI < 0.90$
IFI	0.95	$0.95 \leq IFI \leq 1.00$	$0.90 \leq IFI \leq 0.95$
CFI	0.95	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$
TLI (NNFI)	0.93	$0.95 \leq NNFI (TLI) \leq 1.00$	$0.90 \leq NNFI (TLI) \leq 0.95$
PNFI	0.70	$0.95 \leq PNFI \leq 1.00$	$0.50 \leq PNFI \leq 0.95$
RMSA	0.06	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$

AGFI = Adjusted goodness-of-fit index, CFI = Comparative fit index, GFI = Goodness-of fit index, IFI = Incremental fit index, NFI = Normed fit index, PGFI = Parsimony goodness-of-fit index, PNFI = Parsimony normed fit index, RFI = Relative fit index; RMR = Root mean square residual, RMSA = Root mean square error

of approximation, TLI (NNFI) = Non-normed fit index, $\chi^2 / df = X^2 / \text{degree of freedom}$

Reliability

The internal consistency of the scale was assessed using Cronbach's alpha reliability coefficient and item-total correlation. The Cronbach's alpha reliability coefficient of the scale was 0.87, indicating that the scale items were internally consistent. The values of item-total correlation coefficients of the scale were between 0.39 and 0.73, showing a positive and statistically significant correlation between item scores and total scores (Table 4).

Table 4: Item-scale correlation analysis of a two-factor scale

Scale items	The average that will be valid when the relevant item is removed	The variance that will be valid when the relevant item is removed	Item-total score correlation	The correlation that will be valid if items are removed from the scale
P1	30.50	82.043	0.638	0.872
P2	29.97	84.214	0.545	0.879
P3	29.82	85.027	0.480	0.873
P4	30.44	80.134	0.728	0.876
P5	30.14	80.301	0.650	0.869
P6	30.35	83.464	0.588	0.870
P7	29.86	84.054	0.547	0.878
P8	29.94	81.737	0.547	0.878
T1	30.82	87.441	0.450	0.872
T2	29.91	85.795	0.406	0.873
T3	30.39	84.321	0.550	0.878
T4	30.86	89.596	0.406	0.873
T5	29.60	87.319	0.388	0.876

Total Cronbach's Alpha Coefficient: 0.87

The additivity of the scale items was evaluated using Tukey's test of additivity, which is a test of reliability. This test yielded a significance value of ($p < .001$), indicating that the scale items were suitable for summation to obtain the total score (Table 5).

Table 5: Tukey Summability test

			Sum of squares	Degrees of freedom	Mean squares	<i>F</i>	<i>p</i>
Within the population			2384.656	317	7.523		
Out of population	Among the items		589.845	12	49.154	48.367	<.001
		Collectability	3.994 ^a	1	3.994	3.933	0.047
	Oddments	Balance	3861.854	3803	1.015		
		Total	3865.847	3804	1.016		
	Total		4455.692	3816	1.168		
Total			6840.348	4133	1.655		

Note. ^a = Tukey's power estimate = 0.727, for which observations have to be amplified to obtain summability.

Hotelling T-squared test was used to determine whether the mean of the item scores were equal and detect response bias. It was found that the mean scores of the items varied and there was no response bias (Hotelling $T^2 = 549.238$, $p < .001$) (Table 6).

Table 6: Hotelling's T Square test

Hotelling's T-Square	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
549.238	44.182	12	306	<.001

DISCUSSION

Recent studies show that with proper information and support, women can breastfeed during pregnancy and practice tandem breastfeeding^{9,14}, though these practices are not widely known. Raising awareness and assessing attitudes are key to promoting them. While tools exist to measure breastfeeding attitudes,^{26,27} none address attitudes toward breastfeeding and tandem breastfeeding

during pregnancy, leading to the development of SA-BPTB.

EFA was performed to evaluate the construct validity of the scale, focusing on factors, factor loadings, and variance explained.²⁸ SA-BPTB was found suitable for a two-factor structure. Principal components analysis was used, revealing the scale explained 50.01% of the total variance, meeting the recommended threshold for multidimensional scales (40-60%, ideally 50%)²⁸⁻³⁰. This indicates a strong factor structure.

According to the literature, factor loadings should exceed 0.30^{31,32}, with values of 0.71+ considered "excellent," 0.63 "very good," 0.55 "good," 0.45 "moderate," and 0.32 "poor."^{31,32} In this study, the factor loadings for the 13 items of the SA-BPTB ranged from 0.527 to 0.798 (Table 2), indicating that the items can be classified as having good to excellent factor loadings.

The model identified through EFA was tested with CFA to assess its fit. For the two-factor model, a χ^2/df

ratio below 2 indicates a perfect fit, and values below 3 indicate an acceptable fit.³³ The scale achieved a χ^2/df ratio of 2.315, showing acceptable fit. Additionally, the RMR statistic was 0.08, meeting the acceptable fit criterion as it is below 0.10.³⁴ The GFI statistic was 0.94, indicating good fit as it is below 0.95.^{35,36} The AGFI was 0.91, demonstrating excellent fit with values above 0.90.³⁴ The PGFI value was 0.62, meeting the acceptable fit threshold of 0.50.³⁷ The NFI and RFI values were 0.91^{35,36} and 0.88³⁴, respectively, both indicating acceptable fit. Additionally, the IFI and CFI values of 0.95 reflect excellent fit. The TLI (NNFI) statistic was 0.93, indicating acceptable fit as it exceeds 0.90.^{35,36} The PNFI value of 0.70 also met the acceptable fit threshold of 0.50.³⁸ The RMSEA statistic was 0.06, reflecting acceptable fit as it is below 0.08.³⁷ These CFA indicators confirm that all goodness-of-fit values were acceptable, supporting the two-factor structure of the scale.

Cronbach's alpha is commonly used to assess a scale's internal consistency and item homogeneity, with reliability coefficients ranging from 0 to 1. Higher values indicate greater reliability.³⁹ For SA-BPTB, the Cronbach's alpha was 0.87, demonstrating that the scale is reliable.

For scales with independent and equally weighted items, a high correlation coefficient between each item and the total score indicates a strong relationship with the measured feature. The item-total correlation coefficient should be positive, with acceptable values above 0.25 (or 0.20) for item selection.⁴⁰ The correlation coefficients for the SA-BPTB ranged from 0.39 to 0.73, showing a positive and statistically significant relationship between item scores and total scores. These results confirm the consistency among items and their contribution to the total scale score. Additionally, the items demonstrated a good discrimination index, further supporting their reliability. Our analyses showed that the items in SA-BPTB were suitable for summing to obtain a total score, the items have different mean values, and they do not generate a response bias. These results confirmed that the respondents did not give biased responses and perceived the items in the same manner while answering them. Response bias should

be analyzed as it can affect the reliability of a scale.⁴¹ Therefore, it can be inferred that this scale is reliable.

CONCLUSIONS

This study resulted in the development of a new measurement tool called the “Breastfeeding During Pregnancy and Tandem Breastfeeding Attitude Scale.” This is a five-point Likert-type scale validated for reliability, explaining 50.01% of the total variance. The final version includes 13 items divided into two factors: 8 items assessing attitudes toward breastfeeding during pregnancy and 5 items toward tandem breastfeeding. It comprises both positive (items P1–P7, T1–T4) and negative statements (items P8, T5). Items are scored from 5 (strongly agree) to 1 (strongly disagree), with reverse scoring for negative items. The total score ranges from 13 to 65, with higher scores indicating a more positive attitude toward breastfeeding and tandem breastfeeding.

Conflict of Interest

The authors have no conflict of interest.

Funding Sources

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Data Availability Statement

The datasets used during the current study are available from the corresponding author upon reasonable request.

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REFERENCES

- World Health Organization. Infant and Young Child Feeding. World Health Organization; 2021 [cited 2023 Apr 4]. Obtainable from: <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>
- The United Nations Children's Emergency Fund. Breastfeeding. The United Nations Children's Emergency Fund; 2021 [cited 2023 Apr 4]. Obtainable from: https://www.unicef.org/media/48046/file/UNICEF_Breastfeeding_A_Mothers_Gift_for_Every_Child.pdf
- Turkey Demographic and Health Survey. Hacettepe University Institute of Population Studies. Turkey Demographic and Health Survey; 2018 [cited 2023 Apr 4]. Obtainable from: https://fs.hacettepe.edu.tr/hips/dosyalar/Ara%C5%9F%C4%B1rmalar%20-%20raporlar/2018%20TNSA/TDHS2018_mainReport_compressed.pdf
- Afroze S, Biswas A, Begum NA, Mei Ng YP. Exclusive Breast feeding in the 21st Century: a Roadmap to success in South Asia. *Bangladesh Journal of Medical Science* 2021;20(4), 725–731. <https://doi.org/10.3329/bjms.v20i4.54126>
- Maponya NM, Matlala SF. “They shouted at me to discontinue exclusive breastfeeding”: narratives of mothers in Limpopo Province of South Africa as they grapple with exclusive breastfeeding. *Bangladesh Journal of Medical Science* 2022;21(4), 813–819. <https://doi.org/10.3329/bjms.v21i4.60255>
- Gürarlan BN, Karatay G, Arıkan D. Weaning Practices of Mothers in Eastern Turkey. *J Pediatr (Rio J)* 2018;94(5):498-503. doi: 10.1016/j.jpeds.2017.06.019
- Ezenduka PO, Ndie EC, Nwankwo CU. Weaning practices among breastfeeding mothers local communities of Enugu State Nigeria. *Clin Mother Child Health* 2018;15(293). doi:10.4172/2090-7214.1000293
- Ramiro González MD, Ortiz Marrón H, Arana Cañedo-Argüelles C, Esparza Olcina MJ, Cortés Rico O, Terol Claramonte M, et al. Prevalence of breastfeeding and factors associated with the start and duration of exclusive breastfeeding in the Community of Madrid among participants in the ELOIN. *An Pediatr (Engl Ed)* 2018;89(1):32-43. doi:10.1016/j.anpede.2017.09.004
- O'Rourke MP, Spatz DL. Women's experiences with tandem breastfeeding. *MCN Am J Matern Child Nurs*. 2019;44(4):220-227. doi:10.1097/NMC.0000000000000534
- Erdoğan C, Turan T. Determination of breast milk insufficiency perceptions of tandem breastfeeding mothers; A case-control study. *J Neonatal Nurs* 2023;29(1):50-53. doi:10.1016/j.jnn.2022.02.002
- Madarshahian F, Hassanabadi, M. A comparative study of breastfeeding during pregnancy: Impact on maternal and newborn outcomes. *Journal of Nursing Research* 2012;20(1):74–80. doi:10.1097/JNR.0b013e31824777c1
- The American Academy of Family Physicians. *Breastfeeding, family physicians supporting (position paper)*. The American Academy of Family Physicians; 2021 [cited 2023 Apr 4]. Obtainable from: <https://www.aafp.org/about/policies/all/breastfeeding-position-paper.html>
- Flower H. *Adventures in tandem nursing: Breastfeeding during pregnancy and beyond*. La Leche League GB; 2003.
- Sinkiewicz-Darol E, Bernatowicz-Łojko U, Łubiech K, Adamczyk I, Twarużek M, Baranowska B, Skowron K, et al. Tandem breastfeeding: A descriptive analysis of the nutritional value of milk when feeding a younger and older child. *Nutrients* 2021;13(1):277. doi:10.3390/nut13010277
- Rosenberg G, Mangel L, Mandel D, Marom R, Lubetzky R. Tandem breastfeeding and human milk macronutrients: a prospective observational study. *J Hum Lact* 2021;37(4):723-729. doi:10.1177/08903344211003827
- Cunniff A, Spatz D. Mothers' weaning practices when infants breastfeed for more than one year. *MCN Am J Matern Child Nurs* 2017;42(2):88–94. doi:10.1097/NMC.0000000000000310
- The Republic of Turkey Ministry of Industry and Technology. Economic development ranking research. The Republic of Turkey Ministry of Industry and Technology; 2017 [cited 2023 Apr 4]. Obtainable from: <https://www.sanayi.gov.tr/merkez-birimi/b94224510b7b/sege>
- Turkey Statistical Institute. Birth statistics. Turkey Statistical Institute; 2022 [cited 2023 Jun 4]. Obtainable from: <https://data.tuik.gov.tr/Bulten/Index?p=Dogum-Istatistikleri-2022-49673>
- Koruk İ, Gökçeoğlu S, Allahverdi Ş, Kuzan R. Level of exclusive breastfeeding for the first 6 months in 0-24 month infants and children in a family health center in Sanliurfa and the factors affecting it. *J Health Sci Med*. 2019;4(1):1-11. doi:10.18311/jhsr/2019/23330
- Güner Ö, Koruk F. Breastfeeding status of 0-6-month-old infants and the effective factors in Sanliurfa. *Journal of Harran University Medical Faculty*. 2019;16(1):111-116. [cited 2023 Apr 4]. Obtainable from: <https://dergipark.org.tr/tr/download/article-file/677177>
- MacCallum RC, Widaman KF, Preacher KJ, Hong S. Sample size in factor analysis: The role of model error. *Multivariate Behav Res* 2021;36(4):611-637. doi:10.1207/S15327906MBR3604_06
- Osborne J, Costello AB. Best practises in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research and Evaluation* 2005;10(7). doi:10.7275/jyj1-4868
- Davis LL. Instrument review: Getting the most from a panel of experts. *Appl Nurs Res* 1992;5(4):194-197. doi:10.1016/S0897-1897(05)80008-4
- Kaiser HF. An index of factorial simplicity. *Psychometrika* 1974;39(1):31-36. doi:10.1007/BF02291575
- Yaşoğlu MM. Factor analysis and validity in social sciences: application of exploratory and confirmatory factor analyses. *Istanbul University Journal of the School of Business* 2017;46:74-85 [cited 2023 Mar 31]. Obtainable from: <https://dergipark.org.tr/tr/pub/>

iusiletme/issue/32177/357061

26. Lewallen LP, Dick MJ, Wall Y, et al. Toward a clinically useful method of predicting early breast-feeding attrition. *Appl Nurs Res* 2006;**19**(3):144–148. doi:10.1016/j.apnr.2005.06.004
27. Arslan H. Developing a breastfeeding attitude of the evaluation scale. *Nursing Forum* 1999;**2**(3):132-136 [cited 2023 Mar 31]. Obtainable from: <https://dergipark.org.tr/en/download/article-file/207494>
28. Osborne JW. *Best practices in exploratory factor analysis*. California: CreateSpace Independent Publishing Platform; 2014.
29. Boateng GO, Neilands TB, Frongillo EA, Melgar-Quinonez HR, Young SL. Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Front Public Health* 2018;**6**(149). doi:10.3389/fpubh.2018.00149
30. Carpenter S. Ten steps in scale development and reporting: a guide for researchers. *Commun Methods Meas* 2018;**12**(1):25-44. doi:10.1080/19312458.2017.1396583
31. DeVellis RF. *Scale development: Theory and applications (applied social research methods)*. Sage Publications; 2003.
32. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health* 2007;**30**(4):459-467. doi:10.1002/nur.20199
33. Kline RB. *Principles and practice of structural equation modeling*. New York City: The Guilford Press; 2011.
34. Schermelleh-Engel K, Moosbrugger H. Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures. *Meth Psychol Res* 2003;**8**(2):23–74. [cited 2023 Mar 31]. Obtainable from: <https://psycnet.apa.org/record/2003-08119-003>
35. Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. *Psychol Bull* 1980;**88**(3):588-606. doi:10.1037/0033-2909.88.3.588
36. Baumgartner H, Homburg C. Applications of structural equation modeling in marketing and consumer research: A review. *Int J Res Mark* 1996;**13**(2):139-161. doi:10.1016/0167-8116(95)00038-0
37. Browne MW, Cudeck R. Alternative ways of assessing model fit. *Sociol Methods Res* 1993;**21**(2):136-162. doi:10.1177/0049124192021002005
38. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Modeling* 1999;**6**(1):1-55. doi:10.1080/10705519909540118
39. Weinberg SL, Abramowitz SK. *Data analysis for the behavioral sciences using SPSS*. Cambridge: Cambridge University Press; 2002.
40. Çokluk O, Şekercioğlu G, Büyüköztürk Ş. *Multivariate statistics SPSS and LISREL applications*. Ankara: Pegem Academy Publications; 2018.
41. Kartal M, Bardakçı S. *Reliability and validity analysis with SPSS and Amos applied examples*. Ankara: Academician Bookstore; 2018.