

# The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale (PREP to BF): A Turkish Validity and Reliability Study

Funda Evcili<sup>1</sup>, Gulbahtiyar Demirel<sup>2</sup>

<sup>1</sup> Sivas Cumhuriyet University, Vocational School of Health Care Services, Child Care and Youth Services, Sivas, Turkey.
<sup>2</sup> Sivas Cumhuriyet University, Faculty of Health Sciences, Department of Midwifery, Sivas, Turkey.

Correspondence Author: Funda Evcili E-mail: fundaevcili@hotmail.com Received: 05.01.2020 Accepted: 03.07.2020

# ABSTRACT

**Objective:** Breastfeeding self-efficacy is an easy-to-evaluate and easy-to-change variable. The prenatal period is an ideal period of time for women to gain breastfeeding self-efficacy. Valid and reliable measurement tools are needed to assess breastfeeding self-efficacy. The purpose of this study is to examine psychometric analysis of the Turkish form of the Prenatal Rating of Efficacy in Preparation to Breastfeed Scale.

**Methods:** This is a methodological study. The study was conducted at the obstetrics outpatient clinic of a state hospital in Turkey. The study was administered to 407 pregnant women. The relevant data were collected through the use of a Personal Information Form, The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale. Internal consistency coefficient, split-half reliability and item analysis to assess the reliability of the scale, factor analysis was performed to evaluate the validity of the scale.

**Results:** Cronbach Alpha coefficient of the scale was 0.96. A 5-factor structure with eigenvalues above 1 that explained 71.267% of the variance emerged. The model fitted the observed data in terms of these fit index values, and that the Turkish version of the scale demonstrated an acceptable level of fit.

**Conclusion:** The scale can be employed by healthcare professionals to assess prenatal breastfeeding self-efficacy. It can contribute data for the structuring of the content of training and consultancy programs intending to improve breastfeeding self-efficacy.

Keywords: breastfeeding, efficacy, prenatal, reliability, scale, validity.

# **1. INTRODUCTION**

Breastfeeding is an important public health topic, as well as being a lifestyle choice (1,2). World Health Organization (WHO) recommends babies to be fed only with breast milk for the first 6 months from birth. It also recommends starting additional food items from the 7<sup>th</sup> month on and continuing to breastfeed until the age of two (3,4). Breastfeeding provides optimal health for infants in the first 6 months of life and provides valuable health benefits for the mother (4). The risk of mortality and morbidity is decreased in infants who are breastfed and in women who breastfeed. With the help of breastfeeding, the cost of healthcare is reduced, and damages given to nature due to the production of infant formulas are minimized (5). Although the benefits of breastfeeding are known and many initiatives have been implemented to encourage breastfeeding, breastfeeding rates vary throughout the world. Exclusive breastfeeding rates at 6 months remain low (37% globally) and global suboptimal breastfeeding practices contribute to 11.6% of mortality for children younger than 5 years (6). Although breastfeeding rates in Turkey have shown significant improvement in recent years, it is still not at the desired level. According to Turkey Demographic and Health Survey (2008) data in Turkey, the rate of feeding only breast milk for the first 6 months is 41.6% (7).

In Turkey Demographic and Health Survey (2013), the median duration of breastfeeding was 16.7 months, the rate of feeding only breast milk was 30%, and the rate of breastfeeding within the first hour after birth was 50% (8). However, the prevalence of breastfeeding is below the WHO's recommendations.

A better understanding of breastfeeding determinants and barriers to its practice is needed to improve global breastfeeding levels (9). The prevalence of breastfeeding is influenced by individual, social, political, religious and cultural factors (2). Among these factors, the perception of breastfeeding self-efficacy takes an important place. Breastfeeding self-efficacy is defined as the confidence of women in breastfeeding. The concept of breastfeeding selfefficacy is explained by the self-efficacy construct integrating the Breastfeeding Self-Efficacy Theory developed by Dennis with Bandura's Social Cognitive Theory (10,11). According to the self-efficacy construct, people need to believe that they can successfully fulfill a specific task or behavior. People must believe that they are capable of accomplishing a task or behavior (11). Breastfeeding self-efficacy is closely related to a woman's perception of her ability to breastfeed her baby

#### Breastfeed self-efficacy

and her belief that she has sufficient knowledge/skills to successfully breastfeed her baby (10).

Breastfeeding self-efficacy is an easy-to-evaluate and easyto-change variable. Analyzing this variable contributes to diagnosing breastfeeding problems early, identifying women at risk, and accomplishing personalized care initiatives. The prenatal period is an ideal time frame for the determination of risk factors that will cause women to experience the perception of inability associated with breastfeeding, the elimination of these factors, and the strengthening of the perception of self-efficacy. In the literature, there is a limited number of measurement instruments to assess pregnant women's self-efficacy and/or attitudes associated with breastfeeding in the prenatal period in Turkey (12-14). In the international literature, however, different measurement instruments assessing breastfeeding with its various dimensions could be found. Some of these measurement tools include: Australian Breastfeeding Knowledge and Attitude Questionnaire Overview (15), Iowa Infant Feeding Attitude Scale Breastfeeding Knowledge (16), Attitude, and Confidence Scale (17), Breast-Feeding Attitude Scale (18), Supportive Needs of Adolescents Breastfeeding Scale (19), The Breastfeeding Self-Efficacy Scale (20), Perceived Breastfeeding Support Assessment Tool (21). The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale (PREP to BF) has been developed by McKinley et al. (22). The scale offers the opportunity to make a detailed assessment of individual, interpersonal, professional and social factors, which have the potential to affect pregnant women's breastfeeding self-efficacy. The scale can be administered in a short time, and it can be interpreted easily, which are some of the most important advantages of it. In this study, it was aimed to determine whether the scale was a valid and reliable measurement instrument for Turkish women as well. The study will contribute to increasing the diversity of measurement instruments that allow to assess Turkish pregnant women's breastfeeding self-efficacy by using objective methods. Moreover, the scale will be available for use as a data collection instrument to determine the scope of training and consultancy services given to pregnant women by healthcare professionals, to structure educational content and to assess the effectiveness of services.

### 2. METHODS

### 2.1 Research Type

The purpose of this study is to examine the reliability and validity of Turkish form of the PREP to BF. This study is a methodological research. In the scope of the study, the language and content validity of the scale was assessed first, followed by its psychometric characteristics.

### 2.2 Data Collection Tools

The relevant data were collected through the use of a Personal Information Form and the PREP to BF.

*Personal Information Form:* Form was used to identify certain sociodemographic, obstetric and breastfeeding-related characteristics of pregnant women.

**PREP to BF:** The scale was developed by McKinley et al. for the purpose of measuring prenatal breastfeeding self-efficacy during the process of preparation for breastfeeding (22). The original scale had 39 items, and its Cronbach Alpha coefficient was found to be 0.98. Each factor was found to show a significant and high degree of correlation in a test-retest analysis. The range of the item–total correlations of the original scale is between 0.54 and 0.78. The scale has 4 factors:

**Factor 1. Individual Processes:** The Cronbach Alpha coefficient of the first factor with 14 items is 0.88. This factor is related to the self-confidence in cognitive processes involving the goal-setting associated with breastfeeding, the mental preparation, the understanding of situations where breastfeeding can be difficult, fear, stress, and anxiety.

**Factor 2.** Interpersonal Processes: The Cronbach Alpha coefficient of the second factor with 16 items is 0.89. This factor is related to monitoring and modeling of breastfeeding, the comfort of talking about breastfeeding, and being able to seek advice of friends and family about breastfeeding.

*Factor 3. Professional Advice:* The Cronbach Alpha coefficient of the third factor with 4 items is 0.91. This factor is associated with the self-efficacy in obtaining professional advice from professionals and following their recommendations.

*Factor 4. Social Support:* The Cronbach Alpha coefficient of the fourth factor with 5 items is 0.88. This factor is related to social support for breastfeeding from friends and family.

Women who were not pregnant, under 18 years of age or having multiple pregnancies (such as twins, triplets, and so forth) were excluded from the study when administering the original scale. It takes approximately fifteen minutes to respond to all items on the scale. It is very easy to interpret the scale. There is no right or wrong answer on the scale. There is a scoring table just below each statement, with a scale of 0–10, where '0 = never can do it' and '10 = can do it with utmost certainty'. The pregnant woman is asked to read each statement on the scale and to mark a point between zero (0) and ten (10), which she thinks is appropriate for her. As the score on the scale increases, prenatal breastfeeding self-efficacy of pregnant women is considered to increase.

### 2.3 Content Validity of the PREP to BF

When translating a scale during a scale adaptation study, the 'translation into the target language' and 'translation back to the original language' steps follow each other (23). In this study, two linguists translated the scale from English to Turkish. Texts from both linguists were examined and organized by the researchers into a single text. Following that, this text was sent to two different specialists who were proficient in both languages and did not participate in the first translation process. The text was back translated from Turkish to English by each of the experts independently of each other. The translations in Turkish and English were

### Breastfeed self-efficacy

compared to the original scale and the text of the scale planned to be adapted was finalized.

# 2.4 Sampling and Participants

There are different opinions in the literature as to determine the size of a sample in scale development, validity and reliability studies. Factor analysis is a technique for determining the size of a sample. It is recommended in many sources in general that the sample size be at least 300 (24, 25). If factor loads are low, it is recommended that the sample size be increased (25, 26). In this study, 300 was accepted as the lower limit of the number of people in the sample, and the scale was administered to 407 pregnant women.

# 2.5 Data Collection

A pilot study was conducted on a small group of 20 pregnant women to ensure that the scale was appropriately translated into the culture. After it was understood that the scale was understandable, the actual implementation began. The data collection instruments were administered to the pregnant women who presented to a state hospital in the city center between April and May 2019 to undergo routine pregnancy follow-ups without any health problems. The pregnant women were asked to perform an assessment on each of the statements associated with breastfeeding. The pregnant women were told that it was sufficient for them to circle a score on the 0–10 scoring table located just below each statement. For example:

Thinking about your life right now, how well can you: Overcome any fear you may feel about breastfeeding?

0 1 2 3 4 5 6 7 8	9	10
-------------------	---	----

# 2.6 Psychometric Analysis of the PREP to BF

After the administration of the scale to the participants, the data were transferred to the computer environment via the Lisrel 8.54 and SPSS 22.0 package programs, and 'reliability' and 'validity' analyses were carried out on the scale. When testing the reliability of the scale, the item–total correlation was assessed using item analysis, the Cronbach Alpha reliability was assessed using reliability analysis, and the Spearman-Brown and Guttman Split-Half reliability coefficients were assessed using the split-half method. Exploratory factor analysis (EFA) was carried out to test whether the construct validity of the adapted scale conformed to the original scale. Confirmatory factor analysis (CFA) was carried out to examine the relationship between factors.

# 2.7 Ethical Approval

Prior to the validity and reliability studies of the scale, Erin McKinley was contacted, permission was received from the institution, and written permission was received to adapt the scale to the Turkish culture. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national

### **Original Article**

research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Before the scale was administered, the volunteer information form was read to the pregnant women who were to fill out the form, their permissions were obtained, and they were told that the data obtained would only be used for scientific purposes and that the participants' names would be kept confidential.

# **3. RESULTS**

The mean age of the pregnant women was  $27.27 \pm 5.14$  (min: 19, max: 45), 68.3% lived in the center of the city, and 63.3% lived with a nuclear family. Of the pregnant women, 15.7% worked in a wage-earning employment, 3.9% defined their economic status as 'bad', and 5.7% had no health coverage.

Table	1.	Sample	Characteristics	(n=407)	)
-------	----	--------	-----------------	---------	---

Characteristic	n (%)				
Trimester					
First	100 (24.6)				
Second	140 (34.4)				
Third	167 (41.0)				
Mean ± SD weight before pregnancy (kg)	62.94 ± 9.41				
Mean ± SD weight gain during pregnancy (kg)	7.46 ± 4.74				
Planned mode of delivery					
Vaginal	369 (90.7)				
Caesarian section	38 (9.3)				
Parity					
Nulliparous	312 (76.7)				
Multiparous	95 (23.3)				
Breastfeeding experience					
Yes	309 (75.9)				
No	98 (24.1)				
Knowledge related to breastfeeding					
Sufficient	358 (88.0)				
Unsufficient	49 (12.0)				
Information receiving status on breastfeeding					
Yes	328 (80.6)				
No	79 (19.4)				
Knowledge source related to breastfeeding (n=328)					
Health professionals	312 (76.7)				
TV / book / newspaper	10 (2.5)				
Mother / relative	3 (0.7)				
Friend	3 (0.7)				
SD: standard deviation					

Considering the gestational period, 41% of the pregnant women were in their third trimester. The mean weight before pregnancy was 62.94 kg  $\pm$  9.41 kg, and the mean weight gained during pregnancy was 7.46 kg  $\pm$  4.74 kg. The expected delivery method of 90.7% of the pregnant women was normal spontaneous vaginal delivery, 76.7% of them had a nulliparous, and 75.9% of them had a 'breastfeeding' history. Of the pregnant women, 88% found their level of knowledge of breastfeeding sufficient; 80.6% of them stated that they received knowledge about breastfeeding, and 76.7% of those who stated that they had received knowledge indicated that their source of information was 'health professionals' (Table 1).

# **Reliability Analysis**

### 3.1.1 Item and total correlations

In our study, the item–total correlations of the scale, which consisted of 39 items, were analyzed. As a result of the item analysis, it was found that there were no items with an item–total correlation coefficient (r) smaller than 0.30, and that the item–total correlation coefficients ranged from r = 0.37 to r = 0.77. The findings that were obtained indicated that the items constituting the scale had sufficient power to represent the scale (Table 2).

### Table 2. Item-Total Point Correlation of PREP to BF

Item No	Mean	Standart	Corrected Item-	Cronbach's Alpha if		
Rentino	weat	Deviation	Total Correlation	Item Deleted		
BS1	6.705	2.247	0.559	0.963		
BS2	6.869	2.020	0.666	0.963		
BS3	6.611	2.330	0.562	0.963		
BS4	7.029	2.221	0.709	0.963		
BS5	6.474	2.292	0.685	0.963		
BS6	6.476	2.238	0.659	0.963		
BS7	6.702	2.559	0.631	0.963		
BS8	6.029	2.760	0.376	0.964		
BS9	7.287	2.443	0.681	0.963		
BS10	7.132	2.521	0.724	0.962		
BS11	6.837	2.527	0.693	0.963		
BS12	7.066	2.658	0.725	0.962		
BS13	6.990	2.416	0,696	0.963		
BS14	7.098	2.429	0.726	0.962		
KS1	6.783	2.480	0.588	0.963		
KS2	6.518	2.639	0.626	0.963		
KS3	6.781	2.595	0.707	0.963		
KS4	6.945	2.456	0.698	0.963		
KS5	6.098	2.990	0.458	0.964		
KS6	6.744	2.539	0.654	0.963		
KS7	6.353	2.746	0.517	0.964		
KS8	6.552	2.512	0.653	0.963		
KS9	4.142	3.341	0.505	0.964		
KS10	4.066	3.249	0.485	0.964		
KS11	6.100	2.731	0.570	0.963		
KS12	6.434	2.472	0.750	0.962		
KS13	6.611	2.462	0.729	0.962		
KS14	6.815	2.825	0.585	0.963		
KS15	6.746	2.680	0.547	0.963		
KS16	6.697	2.739	0.506	0.964		
PT1	7.245	2.306	0.717	0.963		
PT2	7.191	2.313	0.706	0.963		
PT3	7.287	2.333	0.770	0.962		
PT4	7.081	2.521	0.727	0.962		
SD1	5.921	3.058	0.398	0.964		
SD2	6.638	2.518	0.618	0.963		
SD3	7.199	2.369	0.736	0.962		
SD4	7.346	2.398	0.755	0.962		
SD5	7.292	2.545	0.714	0.962		

PREP to PF: The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale, BS: Individual Processes, KS: Interpersonal Processes, PT: Professional Advice, SD: Social Support

### 3.1.2 Internal consistency

In this study, the Cronbach Alpha coefficient of the scale with 39 items was 0.96, and the internal consistency of the scale showed it was highly reliable.

# 3.1.3 Split-half reliability

In this study, the Spearman-Brown and Guttman Split-Half reliability coefficients, which were obtained by using the split-half method, were checked. The Spearman-Brown and Guttman Split-Half internal consistency coefficients of the scale were both 0.88.

# **Validity Analysis**

# 3.2.1 Construct validity

The Kaiser Meyer Olkin (KMO) value of the scale was above 0.60. The Bartlett test was found to be significant. It was found that the data were suitable for factor analysis (Table 3).

Table	З.	Factor	Model	of	the	Prenatal	Rating	of	Efficacy	in
Prepai	ratio	on to Bre	eastfeed	l Sca	ale					

Kaiser Meyer Olkin of sampling ade	0.910	
Bartlett's test of sphericity	χ2	146.14
	SD	741
	р	0.000

# 3.2.2 Explanatory factor analysis (EFA)

In this study, the adapted scale was determined to have a different factor structure and item distribution than the original scale. While determining the items of the scale through EFA, attention was paid to ensure that eigenvalues were 1, values of item factor loads were at least 0.30, each item loaded only a single factor, and there was at least 0.10 points of difference between the factor loads of the items loading two factors (27,28). A 5-factor structure with eigenvalues above 1 that explained 71.267% of the variance emerged, when 11 items, which had less than 0.10 points difference between the factors, were excluded (Factor 1 = 46.445%, Factor 2 = 9.282%, Factor 3 = 5.996%, Factor 4 = 5.063%, Factor 5 = 4.481%). The eigenvalues of the factors were Factor 1 = 13.005, Factor 2 = 2.599, Factor 3 = 1.679, Factor 4 = 1.418, Factor 5 = 1.255. The factor loads of the items varied between 0.46 and 0.82 (Table 4). Following a factor rotation, seven items gathered under the first factor (BS3, BS7, BS8, BS9, BS11, BS12, BS14), nine items under the second factor (KS1, KS2, KS3, KS4, KS6, KS7, KS11, KS12, KS14), five items under the third factor (BS1, BS2, BS4, BS5, BS6), four items under the fourth factor (PT1, PT2, PT3, PT4), and three items gathered under the fifth factor (SD2, SD3, SD4). The items gathering under the 'Individual Processes' factor on the original scale were found to be divided into two factors in the present study. Because the other items were distributed as they were on the original scale, the names of the factors were kept as in the original scale. In this context,

### Breastfeed self-efficacy

the first factor was named 'Individual Processes' the second factor 'Interpersonal Processes' the third factor 'Mental

Individual Processes' the fourth factor 'Professional Advice' and the fifth factor was named 'Social Support'.

**Original Article** 

Factors	Item No	Items'	Factor Load	Variance	Eigenvalues
	BS3	Set goals for yourself to be successful at breastfeeding your baby?	0.713		
S	BS7	Accept that breastfeeding takes time?	0.792		
Cessi	BS8	Accept others opinions (positive or negative) about breastfeeding?	0.828	46.445%	13.005
Proc	BS9	Visualize yourself being successful at breastfeeding?	0.742		
ual	BS11	Accept that breastfeeding will NOT always be easy?	0.799		
tor:	BS12	See yourself as a breastfeeding mother?	0.788		
Fac 1 Ind	BS14	Solve problems that may keep you from breastfeeding your baby?	0.631		
	KS1	Ask another breastfeeding mother questions about breastfeeding?	0.702		
	KS2	Obtain opportunities to watch other women breastfeed?	0.763		
	KS3	Talk about breastfeeding with your close friends?	0.689		
	KS4	Talk about breastfeeding with family members?	0.763		
	KS6	Accept advice about breastfeeding from family members?	0.531	9.282%	2.599
nal	KS7	Locate breastfeeding support in your community?	0.768		
erso ses	KS11	Explain the benefits of breastfeeding to another person?	0.672		
erpe erpe	KS12	Discuss breastfeeding with other mothers or pregnant women?	0.641		
Fac 2 Int Pro	KS14	Talk about breastfeeding with your partner?	0.674		
	MBS1	Overcome any fear you may feel about breastfeeding?	0.742		
	MBS2	Overcome any anxiety you may feel about breastfeeding?	0.657		
a ual ual ses	MBS4	Mentally prepare yourself to breastfeed your baby?	0.658	5.996%	1.679
tor enta livid oces	MBS5	Manage the possible challenges that may come with breastfeeding?	0.628		
Fac Me Inc Pro	MBS6	Overcome any stress you may feel about breastfeeding?	0.620		
	PT1	Gather information to help you make a decision about breastfeeding?	0.685		
	PT2	Find the answers to your questions about breastfeeding?	0.746	5.063%	1.418
tor ofes. vice	PT3	Accept advice from your health care provider about breastfeeding?	0.797		
Fac Prc Ad	PT4	Talk about breastfeeding with your health care provider?	0.585		
	SD2	Depend on your friends to support the decisions you make about your baby?	0.892		
12 J	SD3	Count on your family to support the decisions you make about your baby?	0.929	4.481%	1.255
<b>acto</b> Social Suppo	SD4	Count on your family to support the decisions you make about infant feeding?	0.491		

Table 4. The Results of Explanatory Factor Analysis of PREP to BF

PREP to PF, The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale; BS, Individual Processes; KS, Interpersonal Processes; MBS, Mental Individual Processes; PT, Professional Advice; SD, Social Support; All questions began with the root: "Thinking about your life right now, how well can you ..."

# 3.2.3 Confirmatory factor analysis (CFA)

In this study, it was understood that the fit index values of RMSEA (0.058), CFI (0.86), AGFI (0.89), and NFI (0.94) indicated an 'acceptable fit', and SRMR (0.089) indicated

a 'good fit'. It was understood that the model fitted the observed data in terms of these fit index values, and that the Turkish version of the scale demonstrated an acceptable level of fit (Table 5; Path Diagram).

<b>Table 5.</b> Fit Index Values o	f Confirmatory Factor Analysis
------------------------------------	--------------------------------

Compliance Measures	Acceptable Compliance	Good Fit Measurement	Scale Value
RMSEA	.05 < RMSEA ≤ .08	0 ≤ RMSEA ≤ .05	0.058
SRMR	.05 < SRMR ≤ .10	0 ≤ SRMR ≤ .05	0.089
NFI	.90 ≤ NFI < .95	.95 ≤ NFI ≤ 1.00	0.94
CFI	.95 ≤ CFI < .97	.97 ≤ CFI ≤ 1.00	0.95
AGFI	85 ≤ AGFI < .90	90 ≤ AGFI ≤ 1.00	0.89
x2/df	2 < x2/df ≤ 5	0 ≤ x2/df ≤2	2197.62/680 = 3.23

RMSEA: Root Mean Square Error of Approximation, S-RMR: Standardized Root Mean Square Residual, NFI: Normed Fit Index, CFI: Comperative Fit Index, AGFI: Adjusted Goodness-of-fit Index, χ2: chi-square



Chi-Square=2197.62, df=680, P-value=0.00000, RMSEA=0.058

**Figure 1.** Path Diagram: Cnfirmatory factor analysis of PREP to BF PREP to PF: The Prenatal Rating Of Efficacy in Preparation To Breastfeed Scale BS: individual processes, KS: Interpersonel Processes, MBS: Mental Individual Processes, PT: Professionel Advice, SD: Social Support

# 4. DISCUSSION

Item analysis is carried out to identify how powerful each item on a scale is to measure what is desired to be measured with the scale. In the literature, the item–total correlation coefficient is recommended not to be negative and recommended to be greater than 0.30. Additionally, if item–total correlation coefficients are greater than 0.40, it is assumed that the discriminatory properties of the items are good (28,29). In the present study, the item–total correlation coefficients of all items were found to be greater than 0.30. It was found that there were no items with a coefficient of less than 0.30. The item–total correlation coefficients ranged from 0.37 to 0.77. The data showed that the discriminatory properties of all the items that made up the scale were good (Table 2).

The Cronbach Alpha coefficient provides information about the extent to which items constituting a scale are consistent with each other and to what extent they represent the variable (30). There are certain criteria for evaluating the Cronbach Alpha coefficient. Accordingly, the alpha value indicates how reliable a scale is as follows: 0.00-0.40 =not reliable, 0.40-0.60 = poorly reliable, 0.60-0.80 = very reliable, and 0.80-1.00 = highly reliable (27,29,31,32). In this study, the Cronbach alpha coefficient of the adapted scale was found to be 0.96, and the scale was determined to be highly reliable.

#### Original Article

Another method that is used to test the reliability of a scale is the split-half method. The split-half method is the most commonly used technique for estimating test reliability. A high reliability coefficient obtained through this method indicates that both forms are reliable, and a coefficient that is not high enough indicates that the reliability of both forms is low (33). In this study, the Spearman-Brown and Guttman Split-Half coefficients were both found to be 0.88 by using the split-half method. In order to decide whether the sample size is adequate in scale studies and whether the scale is suitable for factor analysis, the KMO value should be greater than 0.60, and the result of Bartlett test should be significant (28,31,32). The KMO value of the scale in this study was greater than 0.60, and the Bartlett test was found to be significant. Therefore, the sample was considered to be suitable for factor analysis (Table 3).

When developing a scale, EFA is recommended; however, when adapting a scale from a different culture, only CFA is recommended as the factor structure of the scale is known from the beginning (34). In this study, the adapted scale was determined to have a different factor structure and item distribution than the original scale (Table 4). CFA is used to determine the validity of a predetermined structure (31,32,35). The compatibility of the models established with CFA to the data is evaluated by looking at some fit indexes:  $\chi^2$  (chi-square) and their concordance index: Root-Mean-Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (S-RMR), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Normed Fit Index (NFI) (31,32). It was understood after the CFA that the model fitted the data in terms of the fit index values of the adapted scale and that the Turkish version of the scale demonstrated a good fit (Table 5, Fig 1: Path Diagram).

### **5. CONCLUSION**

In our study, the model-data fit of the Turkish form of the scale was found to be adequate. The scale can be employed by healthcare professionals to assess prenatal breastfeeding self-efficacy. It can contribute data for the structuring of the content of training and consultancy programs intending to improve breastfeeding self-efficacy.

### REFERENCES

- [1] Breastfeeding is Public Health Priority. [cited 2019 March 10]. Available from https://www.breastfeeding.org/breastfeedingis-public-health-priority/
- [2] Brown A. Breastfeeding as a public health responsibility: a review of the evidence. J Hum Nutr Diet 2017; 30(6):759-770.
- [3] World Health Organization. (2015). Breastfeeding. [cited 2019 March 22]. Available from http://www.who.int/topics/ breastfeeding/en/
- [4] UNICEF. (2015). Breastfeeding. [cited 2019 June 15]. Available from http://www.unicef.org/nutrition/index\_24824.html

- [5] Global Breastfeeding Scorecard. (2018). [cited 2019 June 22]. Available from: https://www.who.int/nutrition/publications/ infantfeeding/global-bf-scorecard-2018.pdf?ua=1
- [6] Victora CG, Bahl R, Barros AJD, Franca GVA, Horton S, Krasevec J, Murch S, Sankar MJ, Walker N, Rollins NC. Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. The Lancet 2016; 387(10017):475-490.
- [7] Hacettepe University Institute of Population Studies. Turkey Demographic and Health Survey, 2008. Ankara: Hacettepe University Institute of Population Studies, Ministry of Health, Maternal and Child Health and Family Planning General Directorate of the Prime Ministry State Planning Organization and TUBITAK; 2009. (In Turkish)
- [8] Hacettepe University Institute of Population Studies. Turkey Demographic and Health Survey, 2013. Ankara: Hacettepe University Population Studies, T.C. Ministry of Development and TUBITAK; 2014. (In Turkish)
- [9] Casal CS, Lei A, Young SL, Tuthill EL. A critical review of instruments measuring breastfeeding attitudes, knowledge, and social support. J Hum Lact 2017; 33(1):21-47.
- [10] Dennis CL. Theoretical underpinnings of breast-feeding confidence: a self-efficacy framework. J Hum Lact 1999. 15(3):195-201.
- [11] Bandura A. Self-efficacy: toward a unifying theory of behavioral change. Psychological Review 1977; 84(2):191-215.
- [12] Eksioglu BA, Ceber E. Translation and validation of the Breast-feeding Self-efficacy Scale into Turkish. Midwifery 2011; 27(6):e246-e253.
- [13] Tokat MA, Okumus H, Dennis CL. Translation and psychometric assessment of the Breast-Feeding Self-Efficacy Scale-Short Form among pregnant and postnatal women in Turkey. Midwifery 2010; 26:101-108.
- [14] Ozkan HA. Breastfeeding Attitudes of the Evaluation Scale. KASHED 2015; 2(1):53-58.
- [15] Brodribb W, Fallon A, Jackson C, Hegney D. The relationship between personal breastfeeding experience and the breastfeeding attitudes, knowledge, confidence and effectiveness of Australian GP registrars. Matern Child Nutr 2008; 4(4):264-274.
- [16] de la Mora AM, Russell DW, Dungy CI, Losch M, Dusdieker L. The Iowa Infant Feeding Attitude Scale: Analysis of reliability and validity. J Appl Soc Psychol 1999; 29(11):2362-2380.
- [17] Laanterä S, Pietilä AM, Pölkki T. Knowledge of breastfeeding among pregnant mothers and fathers. J Perinat Neonat Nur 2010; 24(4):320-329.
- [18] Lewallen LP, Dick MJ, Wall Y, Zickefoose KT, Hannah SH, Flowers J, Powell W. Toward a clinically useful method of predicting early breast-feeding attrition. Appl Nurs Res 2006; 19(3):144-148.
- [19] Grassley JS, Spencer BS, Bryson D. The development and psychometric testing of the Supportive Needs of Adolescents Breastfeeding Scale. J Adv Nurs 2013; 69(3):708-716.

- [20] Dennis CL. The breastfeeding self-efficacy scale: psycometric assessment of the short form. JOGNN-J Obst Gyn Neo 2003; 32(6):734-744.
- [21] Hirani SAA, Karmaliani R, Christie T, Parpio Y, Rafique G. Perceived Breastfeeding Support Assessment Tool (PBSAT): Development and testing of psychometric properties with Pakistani urban working mothers. Midwifery 2013; 29(6):599-607.
- [22] McKinley EM, Knol LL, Turner LW, Burnham JJ, Graettinger KR, Hernandez-Reif M, Leeper JD. The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale: A new measurement instrument for prenatal breastfeeding selfefficacy. J Hum Lact 2019; 35(1):21-31.
- [23] Capik C, Gozum S, Aksayan S. Intercultural scale adaptation stages, language and culture adaptation: updated guideline. FNJN 2018; 26(3):199-210.
- [24] Worthington RL, Whittaker TA. Scale development research. A content analysis for recommendations for best practices. TCP 2006; 34(6):806-838.
- [25] Carpenter S. Ten steps in scale development and reporting: a guide for researchers. Commun Methods Meas 2018; 12(1):25-44.
- [26] Mundfrom DJ, Shaw DG, Ke TL. Minimum sample size recommendations for conducting factor analyses. Int J Test 2005; 5:159-168.
- [27] Tavsancil E. Tutumların Ölçülmesi ve SPSS ile Veri Analizi. (4th ed.). Ankara: Nobel Publications, Turkey; 2010. (In Turkish)
- [28] Buyukozturk S. Sosyal Bilimler İçin Veri Analizi El Kitabı. Ankara: Pegem Publications, Turkey; 2009. In Turkish
- [29] Ozdamar K. Paket Programlar İle İstatistiksel Veri Analizi 2. (5th ed.). Eskisehir: Kaan Bookstore, Turkey; 2004. (In Turkish)
- [30] Taber KS. The use of Cronbach's alpha when developing and reporting research instruments in science education. Res Sci Ed 2018; 48(6):1273-1296.
- [31] Karagoz Y. Bilimsel Araştırma Yöntemleri ve Yayın Etiği. (1st ed.). Ankara: Nobel Academic Publishing, Turkey; 2017. (In Turkish)
- [32] Karagoz Y. SPSS 23 ve AMOS 23 Uygulamalı İstatistiksel Analizler. (1st ed.). Ankara: Nobel Academic Publishing, Turkey; 2016. (In Turkish)
- [33] Can A. SPSS ile Bilimsel Araştırma Sürecinde Nicel Veri Analizi. Ankara: Pegem Academy Publications, Turkey; 2013. (In Turkish)
- [34] Kilic F, Koyuncu I. Ölçek Uyarlama Çalışmalarının Yapı Geçerliliği Açısından İncelenmesi. Küreselleşen Dünyada Eğitim (Ed. Özcan Demirel; Serkan Dinçer). Chapter: 27, Ankara: Pegem Academy Publications, Turkey; 2017. (InTurkish)
- [35] Sencan H. Sosyal ve Davranışsal Ölçümlerde Güvenilirlik ve Geçerlilik. (1st ed.). Ankara: Seçkin Publishing, Turkey;2005. (In Turkish)

**How to cite this article:** Evcili F, Demirel G. The Prenatal Rating of Efficacy in Preparation to Breastfeed Scale (PREP to BF): A Turkish Validity and Reliability Study. Clin Exp Health Sci 2020; 10: 196-202. DOI: 10.33808/clinexphealthsci.670616