

The Reliability and Validity Study of The Partner Breastfeeding Influence Scale

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ABSTRACT

Aim: This study aimed to assess the validity and reliability of the Partner Breastfeeding Influence Scale (PBIS) in the Turkish population.

Materials and Methods: This research was carried out as a methodological descriptive cross-sectional study. The study population consisted of 301 fathers who attended a new-born outpatient clinic at a children's hospital from July, 2018 to December, 2018. The data for this study were gathered via the Person Identification Form and the PBIS. The scale comprises five subscales and a total of 37 items. The subscales include Breastfeeding Savvy, Helping, Appreciation, Breastfeeding Presence and Responsiveness. The validity of this scale was assessed by exploratory and confirmatory factor analyses.

Results: The Cronbach's alpha correlation coefficient was determined to be 0.95 for the entire scale and between 0.75 to 0.83 for the subscales. The exploratory factor analysis accounted for 59.09% of the overall variation. The factor load values of the scale, as determined using confirmatory factor analysis, ranged from 0.28 to 0.82. Goodness of Fit Index, Normed Fit Index, Non-Normed Fit Index, and Comparative Fit Index were greater than 0.90, whereas root mean square error of approximation was less than or equal to 0.08.

Conclusion: PBIS is a credible and dependable instrument applicable in Turkish culture.

Keywords: Breast milk, breastfeeding, father, reliability, validity

Introduction

Breast milk is a natural source of nutrition which provides all the fluids, energy, and nutrients necessary for a baby's physical, mental, and intellectual development. It is highly bioavailable, easy to digest, and helps reduce morbidity and mortality in new-borns (1-5). However, social and economic developments have changed the roles of individuals within the family (6). The roles of the mother, father, and child, as family members, have evolved with regards to societal norms and over time (7). A rising number of professional women re-enter the workforce postchildbirth, and the heightened focus on gender equality has elevated the fathers' involvement in their children's lives (6). Consequently, breastfeeding is not exclusively a matter between the mother and infant; fathers also play an essential role in assisting the mother and facilitating the initiation and maintenance of breastfeeding (8).

The current literature emphasizes the importance of consulting and educating mothers about breastfeeding to facilitate a healthy breastfeeding process. Including fathers in this process makes mothers more determined to start and sustain breastfeeding (7-10). Breastfeeding rates are higher

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Nurdan Akçay Didişen, Ege University Faculty of Nursing, Department of Pediatric Nursing, İzmir, Turkey **E-mail:** nurdan.akcay@ege.edu.tr **ORCID:** orcid.org/0000-0002-4371-6020 **Received:** 17.05.2024 **Accepted:** 04.09.2024



Copyright® 2024 by Ege University Faculty of Medicine, Department of Pediatrics and Ege Children's Foundation. The Journal of Pediatric Research, published by Galenos Publishing House. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND 4.0). when partners and families provide support. Moreover, mothers experience fewer challenges and are also better equipped to cope with them when support is present (8,11,12). A comfortable and peaceful environment, supported by the father, helps the mother feel emotionally at ease, which is vital for successful breastfeeding (13,14). Furthermore, the father can enhance the mother's motivation to maintain breastfeeding (12,15,16).

If fathers are included in breastfeeding education, solutions to breastfeeding challenges can be more effectively addressed, thus promoting exclusive breastfeeding and continuation beyond six months. This can play a critical role in increasing breastfeeding rates (9,17,18).

Despite the recognized importance of the father's influence on breastfeeding, studies evaluating this influence are limited in the literature. There is currently no scale in our country for assessing the father's influence on breastfeeding. The Partner Breastfeeding Influence Scale (PBIS) has the potential to raise awareness among fathers regarding breastfeeding. Consequently, fathers may offer greater assistance to mothers, resulting in higher breastfeeding rates.

Materials and Methods

Setting and Participant

This was a cross-sectional study designed to evaluate the validation and reliability of the Turkish adaptation of the PBIS. This study received approval from the Non-Interventional Studies Ethics Committee of Manisa Celal Bayar University (approval no.: 20.478.486, date: 23.05.2018). All procedures conducted in studies involving human subjects adhere to the ethical criteria set forth by the institutional and/or national research committee, as well as the 1964 Helsinki Declaration and its subsequent revisions or equivalent ethical guidelines.

The study population consisted of fathers who attended a new-born polyclinic from July, 2018 to December, 2018 for their infants. Among these, 301 fathers who fulfilled the inclusion criteria, completed the scale and consented to participate formed the study sample.

In validity and reliability studies, it is advised that the sample size be five to ten times the number of items in the scale (19-21). According to this recommendation, the sample size was determined to be five to ten times the total number of items in the scale utilized in our study. The fathers were apprised of the study's objectives and requirements. Informed written consent was acquired from

each father who consented to participate after reviewing the consent form. During the examination of their infant, the fathers who consented to participate filled out the study forms.

Data Collection Tools

The "Individual Identification Form" and the "Partner Breastfeeding Influence Scale" served as instruments for data collection.

Individual Identification Form

This form was developed by the researchers in accordance with the literature. It contains 13 questions, including the father's age, educational status, occupation, number of children, the age and sex of those children currently breastfeeding, and other related questions (Table I).

PBIS

This scale was initially created by Rempel and Rempel (22). It includes 37 items and evaluates how often fathers engage in specific behaviours while their partners are breastfeeding. The scale employs a 5-point Likert-type format: 1 represents "Not at all", 2= "Rarely", 3= "Sometimes", 4= "Often" and 5= "Very often". The scale has five subscales: Breastfeeding Savvy, Helping, Appreciation, Breastfeeding Presence, and Responsiveness.

- Breastfeeding Savvy includes items related to learning and discussing breastfeeding knowledge.
- Helping includes items related to direct and indirect support, such as assisting with household chores, childcare, and partner care during the breastfeeding period.
- Appreciation includes items related to encouraging the mother in breastfeeding and expressing gratitude to her.
- Breastfeeding presence encompasses elements pertaining to the father's supportive involvement during breastfeeding.
- Responsiveness encompasses aspects pertaining to the father's regard for the mother's choices and his attunement to her requirements.

Higher scores on the overall scale indicate a greater influence of the father on breastfeeding. The maximum score on this scale is 185, while the minimum is 37.

Data Collection

Language Validity

Two colleagues and an English/Turkish translator worked on the Turkish translation of the scale. The Turkish

version was then retranslated into English by two linguists. The original and retranslated scales were reviewed by both the linguists and researchers, who reached a consensus on each item in order to finalize the scale.

Content Validity

Expert evaluations were solicited in order to determine the content validity of the scale. The Turkish translation of the scale was submitted to ten experts in their respective domains for evaluation. Following deliberation among the experts, numerous terms were amended, resulting in the final iteration of the scale. The Content Validity Index (CVI) was employed to assess the experts' evaluations regarding content validity (23). Experts evaluated each item on a scale from 1 to 4, where 1 indicated "Not suitable", 2 indicated "Mildly suitable", 3 indicated "Suitable but needs some changes", and 4 indicated "Very suitable".

Construct Validity

Exploratory and confirmatory factor analyses (CFAs) were performed in order to evaluate the construct validity of the scale. The omitted items were those which did not load well onto any of the subscales or those which did not conceptually fit well with the identified subscales.

Determination of Reliability

Cronbach's Alpha reliability coefficient and item-total score analyses were conducted in order to assess the scale's reliability.

Statistical Analysis

Statistical analysis was conducted using SPSS v25.0 (24), with p-values less than 0.05 deemed significant. The Cronbach's alpha coefficient was calculated in order to assess the internal consistency of the scale. A correlation analysis of item-total scores was performed in order to assess the impact of each item on the overall score. Descriptive factor analysis was employed to assess the item-factor relationship. Ultimately, CFA was conducted to ascertain whether the items and subscales accurately represented the scale's structure.

Results

Study Population

The participants' socio-demographic data are presented in Table I. The average age of the fathers was 31.69±5.60 years. Of the fathers, 42.5% had a bachelor's degree, 49.8% worked in the private sector, and 90.7% of the families resided in an urban area as opposed to a rural one (Table I).

| Table I. Distribution of sociodemographic data on fathers (n=301) | | | | | | |
|---|----------------------------------|---|--|--|--|--|
| Socio-demographic data on fathers | n (number) | % (percentage) | | | | |
| Mean age | 31.69±5.60 (min.: | 20, max.: 55) | | | | |
| Educational level | | | | | | |
| Primary Secondary High school Bachelor Graduate | 14 26 114 128 19 | 4.7 8.6 37.9 42.5 6.3 | | | | |
| Work status | | | | | | |
| Yes No | 301 - | 100 | | | | |
| Residence of family | | | | | | |
| City Countryside | 273 28 | 90.7 9.3 | | | | |
| Occupation | | | | | | |
| Public official Private sector Freelance | 86 150 65 | 28.6 49.8 21.6 | | | | |
| Income status | | | | | | |
| Negative profit-loss Balanced profit-loss Positive profit-loss | 64 178 59 | 21.3 59.1 19.6 | | | | |
| Working period | | | | | | |
| Day time Night time Both | 265 1 35 | 88 0.3 11.6 | | | | |
| Work status of mother | | | | | | |
| Yes No | 165 136 | 54.8 45.2 | | | | |
| Occupation of mother | 1 | | | | | |
| Public official Private sector Freelance None | 85 74 6 136 | 28.2 24.6 2 45.2 | | | | |
| 1 | 122 | 12 0 | | | | |
| 2 3 4 5 | 127 32 9 1 | 42.2 10.6 3 0.3 | | | | |
| Rank of child taking breast milk | | | | | | |
| 1st 2nd 3rd 4th 5th | 147 114 31 8 1 | 48.8 37.9 10.3 2.7 0.3 | | | | |
| Age of child taking breast m | ilk | | | | | |
| <1 month 1 up to 6 months 6 up to 12 months 12 up to 18 months 18 up to 24 months 24 months or above | 84 128 63 15 10 1 | 27.9 42.5 20.9 5 3.3 0 3 | | | | |
| Gender | I · | | | | | |
| Female Male | 159 142 | 52.8 47.2 | | | | |
| ivial | 1001 | 100.0 | | | | |

Validity Analysis

Language Validity

The initial phase of this study involved the evaluation of language validity. The scale was initially translated from English to Turkish by a translator skilled in both languages. The translated version was then evaluated by five experts who were also fluent in both languages. After the evaluations, the researcher and experts collaborated to create a common text. This text was subsequently retranslated into English by an impartial individual.

Content Validity

CVI was assessed utilizing the Davis method. Ten experts in Pediatric Nursing and Women's Health and Diseases Nursing assessed the content validity of each item on the Turkish version of the scale, using a rating scale from 1 to 4 points. This expert group should comprise a minimum of 3 and a maximum of 20 individuals. Utilizing the Davis technique, the specialists evaluated each item as: a) appropriate, b) needs revision, or c) requires serious revision. The CVI for each item was determined by dividing the number of experts who chose options (a) or (b) by the total number of experts (25). The item-level-CVI (I-CVI) for the scale items was assessed at 0.92, employing a four-point grading system to identify inappropriate items. The scalelevel-CVI (S-CVI) was determined to be 0.98, signifying high content validity at the scale level.

Construct Validity

Exploratory Factor Analysis

Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were performed to evaluate the data's homogeneity and appropriateness for factor analysis. These findings demonstrated that the data were homogeneous and the variances were suitable for factor analysis. Prior to conducting the exploratory factor analysis of the PBIS, Bartlett's test yielded χ^2 =5688.606, the KMO statistic was 0.94, and p<0.001. The data were classified into five subscales. The breastfeeding savvy subscale contributed 40.08% to the total variance, the helping subscale contributed 7.25%, the appreciation subscale contributed 4.67%, the breastfeeding presence subscale contributed 3.65%, and the responsiveness subscale contributed 3.42%.

CFA revealed that the factor loadings for the breastfeeding savvy subscale ranged from 0.50 to 0.65, for the helping subscale, it was from 0.54 to 0.69, for the appreciation subscale, it was from 0.48 to 0.70, for the breastfeeding presence subscale, it was from 0.56 to 0.68, and for the responsiveness subscale, the range was from 0.40 to 0.66 (Table II).

CFA

The CFA revealed that factor loadings in the breastfeeding savvy subscale varied from 0.28 to 0.60, in the helping subscale, it was from 0.37 to 0.59, in the appreciation subscale, it was from 0.42 to 0.82, in the

| Table II. Factor loadings for the five factors | | | | | |
|--|----------------|----------|--------------------|------------------------------------|--|
| The partner breastfeeding influence scale | ltem number | Factors | Factor loadings | Exploratory factor analysis (%) | |
| Discuss or negotiate with your partner about how long to continue breastfeeding | ltem 1 | | 0.554 | | |
| Discuss with your partner ideas for trying to solve breastfeeding problems or making suggestions for creative or different ways to make breastfeeding work better | ltem 3 | | 0.612 | | |
| Learn more about breastfeeding by reading books or articles on breastfeeding. | ltem 10 | | 0.647 | | |
| Tell your partner your opinion about how long you think that she should breastfeed. | ltem 11 | | 0.629 | | |
| Speak up in support of your partner or defend breastfeeding when someone makes a negative breastfeeding comments. | ltem 14 | Factor 1 | 0.654 | 40.08 | |
| Help your partner get assistance from others for solving breastfeeding problems or improving breastfeeding (for example, by asking others for advice, getting professional help, or going along to get help) | ltem 15 | | 0.556 | | |
| Remind your partner of the benefits that breastfeeding has for her or for your baby (for example, it saves money, it is easier than bottle feeding) | ltem 23 | | 0.580 | | |
| Show patience and a willingness to wait for your opportunity to feed the baby. | ltem 30 | | 0.526 | | |
| Support your partner's attendance at a breastfeeding support group | ltem 31 | | 0.502 | | |

| Table II. Continued | | | | |
|--|----------------|---------------|--------------------|------------------------------------|
| The partner breastfeeding influence scale | ltem number | Factors | Factor loadings | Exploratory factor analysis (%) |
| Help out with or take care of other childcare tasks with the baby (for example, rocking, soothing, responding to the baby's cries, changing diapers) | ltem 4 | Factor 2 | 0.639 | 7.25 |
| Give something up in order to make breastfeeding easier (for example, be willing to set aside hobbies or preferred activities, take time off work, stop on a car trip) | ltem 7 | | 0.566 | |
| Help out with other household tasks and responsibilities to free up your partner's time and energy. | ltem 9 | | 0.541 | |
| Help out with breastfeeding at night (for example, bring the baby, put the baby back to bed) | ltem 16 | | 0.607 | |
| Care for your baby during and after breastfeeding is done (for example, burp the baby, change the diaper) | Item 17 | | 0.694 | |
| Try to improve your partner's health and nutrition (for example, cooking nutritious meals, helping to avoid foods as agreed) | ltem 28 | | 0.571 | |
| Give your partner a break from the baby (for example, encourage personal time away, take care of the baby so that she can have time to herself) | ltem 29 | | 0.593 | |
| Encourage your partner to do her best when it comes to breastfeeding and let her know that she is not less of a mother if she feels like quitting | Item 12 | | 0.623 | 4.67 |
| Praise your partner for breastfeeding and let her know that what she is doing is a beautiful, worthwhile thing | Item 18 | | 0.650 | |
| Let your partner know that breastfeeding is natural and/or give her the message that she is breastfeeding because (that is who she is) she wants the best for her baby | ltem 19 | _ Factor 3 | 0.699 | |
| Listen to and encourage your partner when she is feeling frustrated or discouraged about breastfeeding | ltem 22 | | 0.605 | |
| Show appreciation that your partner is breastfeeding (for example, bring her flowers, take her out for dinner) | Item 32 | | 0.515 | |
| Tell your partner that you value and support her mothering decisions and intuitions around breastfeeding | Item 36 | | 0.478 | |
| Try to improve the breastfeeding experience by getting equipment or supplies ready for breastfeeding (for example, preparing a breastfeeding pump, get things such as a pillow that will make your partner comfortable) | ltem 5 | | 0.643 | - 3.65 |
| Act attentively towards your partner during breastfeeding (for example, bring your partner food or drink, a book, or massage your partner's shoulders or back) | ltem 6 | | 0.651 | |
| Quietly share time and watch or hold your partner during breastfeeding | Item 13 | E star 4 | 0.626 | |
| Physically help with breastfeeding related activities (for example, check the baby's latch or position, breast massage, hold a breast pump, help with breastfeeding aids) | ltem 20 | Factor 4 | 0.586 | |
| Help create a quiet, pleasant environment for breastfeeding | ltem 21 | | 0.561 | |
| Show pleasure and satisfaction while your partner is breastfeeding (for example, watch, smile) | ltem 24 | - | 0.680 | |
| Make it easy for your partner to breastfeed while entertaining company or visiting others (for example, by entertaining company while your partner breastfeeds or by joining your partner in a private place at a social event) | ltem 2 | - Factor 5 | 0.578 | 3.42 |
| Respond sensitively and positively to sexual issues (for example, understand your partner's feelings about not having sexual relations more than she wants, understand her feelings about touching her breasts, be flexible in sleeping arrangements and allow the baby to sleep in your bed) | ltem 8 | | 0.486 | |
| Be patient and understanding of the time it takes to breastfeed and don't get upset if the other housework is not done | ltem 25 | | 0.402 | |
| Show your comfort with breastfeeding in public (for example, malls, restaurants) and help her feel comfortable too | ltem 26 | | 0.663 | |
| Pay attention to how and how much your partner wants you to participate in breastfeeding | Item 27 | | 0.580 | |
| Total scale | | | | 59.09 |

breastfeeding presence subscale, it was from 0.46 to 0.61, and in the responsiveness subscale, the range was from 0.28 to 0.55 (Table III). The model fit indicators for the PBIS were as follows: root mean square error of approximation (RMSEA)=0.08, Goodness of Fit Index (GFI)=0.94, Comparative Fit Index (CFI)=1.00, Incremental Fit Index (IFI)=1.06, Normed Fit Index (NFI)=1.00, Non-Normed Fit Index (NNFI)=1.06, χ^2 =1448.52, and degree of freedom=485 (p<0.001). The reference values for fit indices, as outlined by Schermelleh-Engel et al. (26), are given in Table III.

Reliability Analysis

In order to assess internal consistency as a reliability indicator of the PBIS and its subscales, the Cronbach's alpha coefficient was calculated. The subscale coefficients ranged between 0.75 and 0.95, and the overall scale coefficient was 0.95, indicating high reliability. All subscales exhibited Cronbach's alpha values exceeding 0.70 (Table IV). The

| Table III. Model fit indices of confirmatory factor analysis | | | | |
|--|--|--|--|--|
| Models | Acceptable fit | Value found in the analysis Model 5 (five sub- dimensional model) | | |
| X²/df | 2 <x² df<3<="" td=""><td>2.98 (Acceptable)</td></x²> | 2.98 (Acceptable) | | |
| RMSEA | 0.05 <rmsea<0.10< td=""><td>0.08 (Acceptable)</td></rmsea<0.10<> | 0.08 (Acceptable) | | |
| GFI | 0.90 <gfi<0.95< td=""><td>0.94 (Acceptable)</td></gfi<0.95<> | 0.94 (Acceptable) | | |
| CFI | 0.95 <cfi<1.00< td=""><td>1.00 (Acceptable)</td></cfi<1.00<> | 1.00 (Acceptable) | | |
| IFI | 0.90 <ifi<0.95< td=""><td>1.06</td></ifi<0.95<> | 1.06 | | |
| NFI | 0.90 <nfi<1.00< td=""><td>1.00</td></nfi<1.00<> | 1.00 | | |
| NNFI | 0.90 <nnfi<0.95< td=""><td>1.06</td></nnfi<0.95<> | 1.06 | | |
| RFI | 0.90 <rfi<1.00< td=""><td>0.92 (Acceptable)</td></rfi<1.00<> | 0.92 (Acceptable) | | |
| DMCEA Deathers and a feature time of a second secon | | | | |

RMSEA: Root mean square error of approximation, GFI: Goodness of Fit Index, CFI: Comparative Fit Index, IFI: Incremental Fit Index, NFI: Normed Fit Index, NNFI: Non-Normed Fit Index, RFI: Relative Fit Index, df:degree of freedom item-total correlation coefficient varied from 0.240 to 0.721. The correlation coefficients for the breastfeeding savvy subscale ranged from 0.525 to 0.741, for the helping subscale, it was from 0.608 to 0.764, for the appreciation subscale, it was from 0.610 to 0.855, for the breastfeeding presence subscale, it was from 0.634 to 0.778, and for the responsiveness subscale, the range was from 0.642 to 0.731. All values were determined to be statistically significant (p<0.001).

Discussion

This study analysed the validity and reliability of the Turkish version of the PBIS scale, created by Rempel and Rempel (22). Factor analysis was performed in order to assess the scale's validity, internal consistency was evaluated for construct validity, and test-retest reliability coefficients were computed.

Expert opinions were solicited from ten individuals to assess language and content validity. Both item-level and scale-level fit indices exceeded 0.90. The CVI was employed to assess the expert opinions. The item-level CVI varied from 0.9 to 1.0, while the scale-level CVI was 0.98 (Kendall's W value=0.163; p<0.05). The literature indicates that a CVI exceeding 0.80 is preferable for both item-level and scale-level assessments (23). The findings indicate that the PBIS, encompassing all 37 original items, is appropriate for Turkish culture and demonstrates content validity.

The compatibility of data and sample size for factor analysis were assessed utilizing the KMO coefficient and Bartlett's test. Prior to conducting descriptive factor analysis, Bartlett's test yielded a result of χ^2 =5,688.606 for the PBIS, and the KMO coefficient was 0.94 (p<0.001). This outcome signified that the sample size was adequate for factor analysis and that the data distribution was uniform. The analysis identified a five-factor structure

| Table IV. Cronbach's alpha reliability coefficient of the partner breastfeeding influence scale and subscales (n=301) | | | | |
|---|-----------------|-------------------|-------------|---|
| Scale and subscales | Number of items | MinMax. points | X±SD | Cronbach's α reliability coefficient |
| The partner breastfeeding influence scale | 33 items | 33-165 | 114.5±21.05 | 0.95 |
| Breastfeeding savvy (items 1, 3, 10, 11, 14, 15, 23, 30, 31) | 9 items | 9-45 | 29.5±6.1 | 0.82 |
| Helping (items 4, 7, 9, 16, 17, 28, 29) | 7 items | 7-35 | 24.3±5.09 | 0.83 |
| Appreciation (items 12, 18, 19, 22, 32, 36) | 6 items | 6-30 | 21.3±4.3 | 0.83 |
| Breastfeeding presence (items 5, 6, 13, 20, 21, 24) | 6 items | 6-30 | 20.8±4.5 | 0.83 |
| Responsiveness (items 2, 8, 25, 26, 27) | 5 items | 5-25 | 18.4±3.4 | 0.75 |
| Omitted items (items 33, 34, 35, 37) | | | | |
| X: Mean, SD: Standard deviation, MinMax.: Minimum-Maximum | | | | |

with an eigenvalue exceeding 1.00, accounting for 59.9% of the total variance. This signified that the PBIS attained a satisfactory degree of total variance in this study. Upon analysing the primary components of the subscales, factor load values were determined to be at medium or high levels. This analysis substantiated the construct validity of the PBIS.

After the validity factor analysis of this study, the RMSEA was found to be 0.08. The GFI, NNFI, NFI, and CFI of the factor loads of the subscales were higher than 0.90 (Figure



Chi-Square= 1448.52, df=485, p-value=0.00000, RMSEA=0.081

Figure 1. Confirmatory factor analysis of the Partner Breastfeeding Influence Scale

1). These values demonstrate that the database aligns with the model and validate the five-factor structure. The items and subscales exhibit correlation with the overall scale, and each item within the subscales adequately delineates its respective factor. These results support the structural validity of PBIS and suggest that PBIS is valid and usable.

Standards other than the Cronbach's Alpha Coefficient used when evaluating reliability analysis include "itemtotal correlation", "mean if item deleted", and "reliability coefficient if item deleted". "Correlation analysis" is a statistical technique employed to evaluate the linear relationship between two variables and to quantify the strength of this link, if it exists. The correlation is often anticipated to be equal to or exceed 0.30 (23). In our study, the item-total correlation varied from 0.240 to 0.721 for all items, and the relationship was statistically significant (p<0.001). All items appear to be highly reliable and designed to assess the same variable.

Internal consistency is another criterion which indicates the reliability of a scale. Cronbach's alpha coefficient is the most favoured measure for assessing internal consistency (20,23). This method analyses whether all items in a scale exhibit a homogenous structure. This coefficient ranges between 0 and 1 (19,20,23). However, if there is a negative correlation between items, the alpha coefficient becomes negative, causing the reliability model to break down (20).

The Cronbach's alpha coefficient for PBIS was calculated to be 0.95. The Cronbach's alpha coefficient for the breastfeeding savvy subscale was 0.82, for the helping subscale, it was 0.83, for the appreciation subscale, it was 0.83, for the breastfeeding presence subscale, it was 0.83, and for the responsiveness subscale, it was 0.75. The Cronbach's alpha coefficient of the original article exceeded 0.70. These findings suggest that the scale closely resembles the original and demonstrates robust internal consistency.

Item-total correlation analysis reveals the association between the scores of individual items and the overall scores of the scale. Item-total correlation analysis is accepted as both a valid and reliable indicator (21,23). The lowest acceptable limit for item-total correlation is generally 0.20. Items with a correlation score between 0.30 and 0.40 are considered highly discriminative and reliable, while items with a correlation score higher than 0.40 are considered very highly discriminative and reliable. In our study, the item-total correlation coefficients for all 37 items in the scale ranged between 0.240 and 0.721, demonstrating statistical significance for all items. The correlation coefficients for the item-subscales were as follows: the breastfeeding savvy subscale ranged from 0.525 to 0.741, the helping subscale was from 0.608 to 0.764, the appreciation subscale varied from 0.610 to 0.855, the breastfeeding presence subscale ranged from 0.634 to 0.778, and the responsiveness subscale had a range from 0.642 to 0.731. All values were determined to be statistically significant (p<0.001).

These results indicate that the item-subscale correlation of PBIS is at a sufficient level and that subscale item reliability is high.

Study Limitations

Notwithstanding its advantages, the scale possesses certain small drawbacks. This research was performed in the western region of Turkey. Despite the region's multicultural composition, this may influence the generalizability of this study's findings to the nation as a whole.

Conclusion

This study evaluated the psychometric features of the PBIS with regards to its adaptation to the Turkish language and culture. The analysis results indicated that the PBIS is both valid and reliable for the Turkish population. The PBIS is a valid and reliable instrument suitable for research projects. Comprising 37 items and 5 subscales (breastfeeding savvy, helping, appreciation, breastfeeding presence, and responsiveness), this scale has strong psychometric features and high internal consistency. The PBIS is a reliable and valid tool adapted to the Turkish language with the aim of determining the effects of fathers' behaviours on mothers in supporting breastfeeding. Using this scale for crosssectional studies is highly recommended.

Ethics

Ethics Committee Approval: This was a cross-sectional study designed to evaluate the validation and reliability of the Turkish adaptation of the PBIS. This study received approval from the Non-Interventional Studies Ethics Committee of Manisa Celal Bayar University (approval no.: 20.478.486, date: 23.05.2018).

Informed Consent: Informed written consent was acquired from each father who consented to participate after reviewing the consent form. During the examination of their infant, the fathers who consented to participate filled out the study forms.

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Footnotes

Authorship Contributions

Surgical and Medical Practices: E.B., N.A.D., Concept: E.B., N.A.D., Design: E.B., N.A.D., Data Collection or Processing: E.B., Analysis or Interpretation: E.B., N.A.D., Literature Search: E.B., N.A.D., Writing: E.B., N.A.D.

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References

- 1. Cakmak S, Dengi AS. Postpartum evaluation of the mothers' knowledge about breastfeeding and the importance of breast milk. TJFMPC. 2019; 23:9-19.
- Ozkan Pehlivanoğlu EF, Unluoğlu I. Historical development of breastfeeding. Telatar B, Ed. The importance of breast milk in terms of maternal and infant health in family medicine. 1. Edition. Ankara: Turk. Klinikleri 2019, p. 21-5.
- Huang Y, Liu Y, Yu XY, Zeng TY. The rates and factors of perceived insufficient milk supply: a systematic review. Matern Child Nutr. 2022; 18:1-13.
- Modak A, Ronghe V, Gomase KP, Dukare KP. The psychological benefits of breastfeeding: fostering maternal well-being and child development. Cureus. 2023; 15:e46730.
- Ventura A, Hupp M, Lavond J. Mother-infant interactions and infant intake during breastfeeding versus bottle-feeding expressed breast milk. Matern Child Nutr. 2021; 17:1-12.
- 6. Wu W, Xie R, Ding W, et al. Fathers' involvement and left-behind children's mental health in China: the roles of paternal-and maternal-attachment. Curr Psychol 2023; 42:4913-22.
- Leahy-Warren P, Philpott L, Elmir R, Schmied V. Fathers' perceptions and experiences of support to be a parenting partner during the perinatal period: a scoping review. J Clin Nurs. 2023; 32:3378-96.
- Rempel LA, Rempel JK, Moore K. Relationships between types of father breastfeeding support and breastfeeding outcomes. Matern Child Nutr. 2017;13:e12337.
- Gozukara F. Key factor for achievement of breastfeeding: providing father support and roles of nurses. Harran Univ Tip Fak Derg. 2014; 11:289-96.
- 10. Fan WQ, Chan C, Paterson S, et al. Weekly proactive telephone breastfeeding standard care by lactation consultants in the first month postpartum prolongs breastfeeding for up to 6 months. Nutrients. 2023; 15:2075.
- 11. Zhao ZH, Huang YY, Qiao J, et al. Co-parenting impact on breastfeeding: systematic review and meta-analysis. Breastfeed Med. 2023; 18:431-48.
- 12. Dagla C, Antoniou E, Sarantaki A, et al. The effect of antenatal education on expectant fathers' attitudes toward breastfeeding and attachment to the fetus. Nurs Rep. 2023; 13:243-54.

- 13. Towler J, Bramall J. Midwives in history and society. Taylor & Francis 2023.
- 14. Spiteri, G., Borg Xuereb, R., & Kaner, E. (2022). Preparation for Parenthood. In R. Borg Xuereb, & J. Jomeen, (Eds.), Perspectives on Midwifery and Parenthood. p. 15-26. Cham: Springer.
- Leng RNW, Shorey S, Yin SLK, Chan CPP, He HG. Fathers' involvement in their wives'/partners' breastfeeding: a descriptive correlational study. J Hum Lact. 2019; 35:801-12.
- Agrawal J, Chakole S, Sachdev C. The role of fathers in promoting exclusive breastfeeding. Cureus. 2022; 14:e30363.
- 17. deMontigny F, Gervais C, Larivière-Bastien D, St-Arneault K. The role of fathers during breastfeeding. Midwifery. 2018; 58:6-12.
- Davidson EL, Ollerton RL. Partner behaviours improving breastfeeding outcomes: An integrative review. Women Birth. 2020; 33:e15-e23.
- 19. Li T, Higgins JP, Deeks JJ. Collecting data. Cochrane handbook for systematic reviews of interventions 2019; 109-41.
- 20. Surucu L, Maslakci A. Validity and reliability in quantitative research. BMIJ. 2020; 8:2694-726.

- 21. Roni SM, Djajadikerta HG. Data analysis with SPSS for surveybased research. Singapore: Springer 2021.
- 22. Rempel LA, Rempel JK. The breastfeeding team: the role of involved fathers in the breastfeeding family. J Hum Lact. 2011; 27:115-21.
- Capik C, Gozüm S, Aksayan S. Intercultural scale adaptation stages, language and culture adaptation: Updated Guide. FNJN. 2018; 26:199-210.
- 24. IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Revised Statistical Analysis Section
- 25. Davis LL. Instrument review: getting the most from a panel of experts. Appl Nurs Res. 1992; 5:194-7.
- Schermelleh-Engel K, Moosbrugger H, Müller H. Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. Methods of Psychological Research. 2003; 8:23-74.