

Translation and Validation of the Breastfeeding Self-Efficacy Scale Into Spanish: Data From a Puerto Rican Population

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Abstract

Many new mothers discontinue breastfeeding prematurely due to difficulties encountered rather than maternal choice. Research has shown that a significant predictor of breastfeeding duration is maternal confidence. Using self-efficacy theory as a conceptual framework to measure breastfeeding confidence, the Breastfeeding Self-Efficacy Scale (BSES) was developed and psychometrically tested among English-speaking mothers. The purpose of this methodological study was to translate the BSES into Spanish and determine the psychometric characteristics of the BSES in a sample of 100 Puerto Rican women. The psychometric assessment of the original study was replicated including internal consistency, principal components factor analysis, and comparison between contrasted groups. This study is the first to examine the psychometric characteristics of the Spanish-version BSES administered in-hospital and provide further evidence of the reliability and validity of the instrument. *J Hum Lact.* 19(1):35-42.

Keywords: breastfeeding, breastfeeding self-efficacy, instrument development, psychometric testing, translation, maternal confidence

The value of providing infants with human milk has long been understood as numerous studies have provided undeniable evidence that breastfeeding reduces morbidity and mortality during the first year of life, not only in developing countries but in North America and Europe as well.¹ Today, many national and international organizations strongly advocate breastfeeding. In particular, the American Academy of Pediatrics² and the Canadian Pediatric Society³ recommend exclusive

breastfeeding for the first 6 months postpartum, continued breastfeeding while weaning foods are added through the first year, and then as long thereafter as the mother and infant wish. In May 2001, the World Health Organization reiterated the policy that infants worldwide should be exclusively breastfed for 6 months.⁴

However, few North American women continue to breastfeed beyond 3 months postpartum.⁵⁻⁸ The reasons for this sharp decline in breastfeeding are complex, and diverse studies have been conducted to identify high-risk breastfeeding women to target limited supportive interventions.⁹ However, many known predictors are *nonmodifiable* demographic variables such as maternal age, marital status, educational level, and socioeconomic status.⁹ For health care professionals to truly address low breastfeeding duration rates, prediction of high-risk mothers should be based on *modifiable* variables that may guide the development and evaluation of interventions.¹⁰ One possible modifiable variable consistently associated with positive breastfeeding outcomes is maternal breastfeeding confidence.¹¹⁻¹⁶ To provide a theoretical perspective of breastfeeding confidence and guide the development and evaluation of confidence-enhancing interventions, the breastfeeding

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self-efficacy theory was developed by Dennis¹⁷ through the application of Bandura's social cognitive theory.¹⁸⁻²⁰

Breastfeeding Self-Efficacy Theory

According to Dennis,¹⁷ breastfeeding self-efficacy refers to a mother's perceived ability to breastfeed her new infant and is a salient variable in breastfeeding duration as it predicts (1) whether a mother chooses to breastfeed, (2) how much effort she will expend, (3) whether she will have self-enhancing or self-defeating thought patterns, and (4) how she will emotionally respond to breastfeeding difficulties. In particular, efficacious (confident) mothers are more likely to choose breastfeeding, persist when confronted with difficulties, employ self-encouraging thoughts, and react positively to perceived difficulties.¹⁷

Approximating Bandura,²⁰ breastfeeding self-efficacy is composed of two parts: (1) outcome expectancy, the belief that a certain behavior will produce a particular outcome; and (2) self-efficacy expectancy, the personal conviction that one can successfully perform those behaviors to produce the desired outcome. It is important to note that mothers may believe a behavior will assist them in continuing to breastfeed but have little confidence in their own ability to execute that behavior.¹⁷ For example, if a mother believes that refraining from formula supplementation is important but is not confident in her ability to maintain her milk supply or determine if the baby is receiving sufficient breast milk, then it is unlikely that she will refrain from formula supplementation. Thus, to employ a behavior successfully, a mother must both believe that it will help produce a certain outcome (eg, continue to breastfeed) and have confidence in performing the specific behavior.

Breastfeeding self-efficacy expectancy is influenced by four main sources of information: (1) performance accomplishments (eg, past breastfeeding experiences), (2) vicarious experiences (eg, watching other women breastfeed), (3) verbal persuasion (eg, encouragement from influential others such as family, friends, lactation consultants, and health care professionals), and (4) physiological responses (eg, fatigue, stress, anxiety).^{17,20} As such, health care professionals can modify a mother's breastfeeding confidence through adjusting these sources of self-efficacy information.¹⁷

Bandura²⁰ has advocated a behavior-specific approach to the study of self-efficacy, arguing that a measure of general self-efficacy in overall ability would be inadequate for tapping an individual's efficacy in

managing tasks associated with a specific behavior. Thus, to measure breastfeeding self-efficacy, Dennis¹⁰ developed and psychometrically tested the Breastfeeding Self-Efficacy Scale (BSES) among middle-class Caucasian mothers. However, non-English-speaking populations are often excluded from clinical research due to the lack of reliable and valid instruments to measure variables of interest. To date, many instruments have been developed and validated among English-speaking populations, with few being translated into other languages and reevaluated psychometrically even though multilingual and multicultural societies will become the norm in the 21st century in the United States.²¹ In particular, it is expected that by the year 2002 there will be more than 52 million Latinos in the United States, making Latinos the largest minority group in the nation.²² Many studies using Latino samples have assumed that methodologies and assessment tools can be used cross culturally. However, this practice disregards possible changes in psychometric properties due to translation bias, and it ignores the impact that culture may have on the meaning of scale items. The purpose of this study was to translate Dennis's BSES into Spanish and retest the psychometric properties among Puerto Rican mothers.

Method

Sample

Participants were recruited in San Juan, Puerto Rico, from a large private hospital during June 2001. Eligible participants were all in-hospital breastfeeding mothers who were (1) 18 years of age or older, (2) able to read and speak Spanish, and (3) at least 37 weeks gestation when they gave birth. Mothers were excluded if they had a factor that could significantly interfere with breastfeeding, such as multiple or high-risk pregnancy (ie, serious medical condition or known birth defect). After screening, 150 potentially eligible women were approached; 50 mothers were ineligible due to bottle-feeding intentions, whereas 100 agreed to participate.

Potential participants were identified by the nurse supervisor after admission to the postpartum unit and approached by a research assistant to further assess eligibility and provide study explanation. After informed consent procedures, approved by the University of Puerto Rico Institutional Review Board, the translated BSES and demographic questionnaire were completed before hospital discharge, usually within 48 hours of delivery. Following completion of the questionnaires,

mothers were asked about their current breastfeeding behavior and placed into one of Labbok and Krasovec's²³ breastfeeding categories.

BSES

The BSES¹⁰ is a 33-item, self-report instrument developed to measure breastfeeding confidence. All items are preceded by the phrase "I can always" and anchored with a 5-point Likert-type scale where 1 = not at all confident and 5 = always confident. As recommended by Bandura,²⁰ all items are presented positively, and scores are summed to produce a range from 33 to 165, with higher scores indicating higher levels of breastfeeding self-efficacy. Content validity of the BSES was based on a literature review, interviews with breastfeeding mothers, and expert judgment using a method recommended by Lynn.²⁴ Following a pilot test, an initial psychometric assessment was conducted with a convenience sample of 130 Canadian breastfeeding women where questionnaires were completed in-hospital and at 6 weeks postpartum.¹⁰ Cronbach alpha coefficient for the scale was .96 with 73% of all corrected item-total correlations ranging between .30 and .70. Responses were subjected to principal components analysis with a varimax rotation, yielding the theorized Breastfeeding Technique and Intrapersonal Thoughts subscales. Support for predictive validity was demonstrated through positive correlations between BSES scores and infant feeding method at 6 weeks postpartum.

Translation Process

To translate the BSES into Spanish, diverse methods were used to ensure that content, semantic, and technical equivalence was ascertained. For cross-cultural research, content equivalence is established by determining whether the content of each item of the instrument is relevant to the target culture.²⁵ To accomplish this, a team of content experts evaluates the similarity of each item. For this study, three bilingual (in the languages of English and Spanish) breastfeeding experts evaluated the content of each BSES item. After several discussions, all items were considered relevant to Spanish-speaking Puerto Rican mothers with no cultural differences identified.

The essence of semantic equivalence is that the meaning of each item remains the same after translation into the target language.²⁵ The most common and highly recommended procedure for establishing semantic equivalence is back translation.^{26,27} In addition, some researchers²⁸ suggest that blind back translation should

be employed such that one back translates without having knowledge of the original version of the instrument. The initial translation was completed by 3 professional Puerto Rican translators, making it easier to identify those items for which there was consensus and those that required additional work to achieve harmony. Discrepancies between the 3 iterations were discussed and reconciled into a single Spanish version. Two lay Puerto Rican bilinguals, not associated with the project or the breastfeeding field, then back translated the scale into English. The objective in selecting nonprofessional translators was to guard against language not commonly understood by the average Spanish-speaking Puerto Rican mother. The two back translations were judged semantically equivalent to the original BSES by the research team. Specific translation errors were assessed for, including the addition, deletion, or alteration of words that did not appear in the original instrument and the use of poor grammar and syntax, which could negatively affect the meaning and clarity of the items. Pre-testing was completed with several Puerto Rican mothers to evaluate the comprehension and readability of the BSES Spanish version. Finally, to establish technical equivalence, the translated BSES was administered using the paper-and-pencil method with in-hospital breastfeeding mothers, a manner consistent with the original methodological study.¹⁰

Data Analysis Procedures

The reliability of the translated BSES was evaluated using the following criteria: (1) Cronbach alpha coefficient, (2) corrected item-total correlation, and (3) alpha estimate when an item was dropped from the scale. Poorly functioning items were defined as (1) items that when deleted increased the alpha coefficient by more than .10 or (2) items that had a corrected item-total correlation of less than .30.²⁹ To summarize patterns of correlations among items and determine the plausible underlying structures of the BSES, exploratory factor analysis was conducted. Principal components extraction technique was chosen to replicate the methods used by Dennis and Faux.¹⁰

Results

Sample

The mean age of the sample was 27 years (SD = 5.35), with a range from 19 to 41 years. Seventy-three percent of the women were married or common law, and the mean educational level was 14 years (SD = 2.67),

with 62% having at least a baccalaureate education. In relation to employment status, 41% of the women worked full-time, 17% worked part-time, and 42% indicated they were stay-at-home mothers. Eighty-one percent of the participants reported a family annual income of \$30,000 or less with 31% of mothers stating they had an income of less than \$10,000. Seventy-nine percent of participants did not attend prenatal classes for the current pregnancy, and 63% had a vaginal delivery. Fifty percent of the participants were multiparous, with only 56% of these mothers indicating they had previous breastfeeding experience. Finally, at the time of enrollment, 44% of mothers were exclusively breastfeeding, whereas 56% were breastfeeding with some form of supplementation with nonhuman milk.

Reliability

Internal consistency. The Cronbach alpha coefficient for the Spanish version of the BSES was .96 and was not increased by more than .10 if any of the items were deleted. All corrected item-total correlations were positive, with 82% falling within the recommended .30 to .70 range³⁰; 1 item fell below the .30 criterion. Specifically, the item, "I can always depend on my family to support my decision to breastfeed" had a corrected item-total correlation of .19. The BSES mean score was 131.8 (SD = 22.07), with an item mean of 4.01, ranging from 3.39 to 4.45, and an item variance of 0.97, ranging from 0.73 to 1.38. The mean interitem correlation was .65, ranging from .19 to .82.

Construct Validity

Factor analysis. The principal components factor analysis yielded a 4-factor solution with eigenvalues greater than 1 in the unrotated matrix. To promote a more interpretable factor solution, a principal components extraction with varimax rotation (orthogonal) was performed.³¹ Based on a scree test and the results from the original study,¹⁰ a 2-factor solution was requested. A factor loading of 0.32 was required for an item to be retained for further analysis²⁹; this criterion resulted in the immediate deletion of 1 item: "I can always depend on my family to support my decision to breastfeed." Following this initial item assessment, the specific criteria used to guide factor analytic decisions were based on the magnitude of the factor loading of an item on one particular factor versus another, the difference of at least 0.05 when an item loaded on more than one factor

(cleanness), and the conceptual fit of the item with other items on the subscale.¹⁰

The requested analysis yielded two factors with eigenvalues greater than 1 that explained 53.5% of the variance. Factor 1 had an eigenvalue of 11.99, which explained 36.4% of the variance and consisted of 18 items with loadings ranging from 0.87 to 0.35. The Cronbach alpha coefficient was .94. Factor 1 was congruent with the theorized Intrapersonal Thoughts subscale in Dennis' original study¹⁰ and depicted maternal attitudes and beliefs toward breastfeeding (see Table 1). Factor 2 had an eigenvalue of 5.63, which explained 17.1% of the variance. Fourteen items loaded on this factor, ranging from 0.72 to 0.50; the Cronbach alpha coefficient was .89. Inspection of the items revealed that Factor 2 was similar to the theorized Breastfeeding Technique subscale¹⁰ and included items representing maternal skills and recognition of specific tasks and principles required for successful breastfeeding.

Seven items that previously loaded on the Breastfeeding Technique subscale¹⁰ now loaded on the Intrapersonal Thoughts subscale; 3 of these items loaded simultaneously on both factors. Employing a 0.40 loading criterion, items were inspected across both factors to assess loading complexity; 7 items loaded simultaneously on both factors. All items loaded cleanly except for the following item: "I can always comfortably breastfeed with my family members present."

Comparison of contrasted groups. According to Bandura,¹⁹ performance attainment through previous experience has a significant influence on self-efficacy. Replicating the original BSES study,¹⁰ it was hypothesized that multiparous women with previous breastfeeding experience would report higher BSES scores when compared to primiparous women. To investigate this hypothesis, a known group analysis was conducted, and significant differences in antenatal breastfeeding self-efficacy scores were found between mothers with no prior breastfeeding experience ($\bar{x} = 124.60 \pm 26.88$) and mothers who breastfed a previous child ($\bar{x} = 140.16 \pm 14.55$) ($t = 2.45$, $P = .02$).

Predictive Validity

The use of the questionnaire postnatally precludes an assessment of predictive validity of the instrument within this cohort. However, initial evidence for predictive validity was determined through the examination of participants' self-efficacy scores and breastfeeding

Table 1. Breastfeeding Self-Efficacy Scale Items With Principal Components Varimax Factor Loadings

Item	Factor 1	Factor 2
Factor 1—Intrapersonal Thoughts		
Continue to breastfeed my baby for every feeding	.78	.31
<i>Cuán segura te sientes de siempre poder lograr el amamantamiento de tu bebé en cada una de sus alimentaciones</i>		
Determine that my baby is getting enough milk	.77	.05
<i>Cuán segura te sientes de siempre poder determinar si tu bebé esta tomando suficiente leche del pecho</i>		
Manage the breastfeeding situation to my satisfaction	.74	.42
<i>Cuán segura te sientes de siempre poder manejar la situación del amamantamiento a tu satisfacción</i>		
Focus on getting through one feed at a time	.73	.34
<i>Cuán segura te sientes de siempre poder concentrarte para lograr terminar una alimentación a la vez</i>		
Breastfeed my baby without using formula as a supplement	.72	.28
<i>Cuán segura te sientes de siempre poder lactar a tu bebé, sin tener que utilizar la leche artificial como suplemento</i>		
Successfully cope with breastfeeding like I have with other challenging tasks	.71	.41
<i>Cuán segura te sientes de siempre poder enfrentar con éxito el amamantamiento según has enfrentado otros retos en tu vida</i>		
Feed my baby with breast milk only	.70	.17
<i>Cuán segura te sientes de siempre poder alimentar tu bebé con leche materna solamente</i>		
Refrain from bottle feeding for the first 4 weeks	.69	.14
<i>Cuán segura te sientes de siempre poder evitar la utilización de la alimentación por botella durante las primeras 4 semanas</i>		
Keep feeling that I really want to breastfeed my baby for at least 6 weeks	.68	.36
<i>Cuán segura te sientes de siempre poder mantener el deseo de querer amamantar a tu bebé por lo menos por 6 semanas</i>		
Manage to keep up with my baby's breastfeeding demands	.67	.30
<i>Cuán segura te sientes de siempre poder satisfacer las demandas de amamantamiento de tu bebé</i>		
Keep wanting to breastfeed	.67	.44
<i>Cuán segura te sientes de siempre poder mantener el deseo de lactar</i>		
Stay motivated to breastfeed my baby	.61	.38
<i>Cuán segura te sientes de siempre poder mantenerte motivada para amamantar a tu bebé</i>		
Be satisfied with my breastfeeding experience	.61	.35
<i>Cuán segura te sientes de siempre poder sentirte satisfecha con tu experiencia de amamantar</i>		
Motivate myself to breastfeed successfully	.61	.43
<i>Cuán segura te sientes de siempre poder desear lograr lactar con éxito</i>		
Maintain my milk supply by using the "supply and demand" rule	.58	.35
<i>Cuán segura te sientes de siempre poder mantener tu producción de leche, utilizando la regla de "oferta y demanda"</i>		
Monitor breast milk by keeping track of my baby's urine and bowel movement	.52	.25
<i>Cuán segura te sientes de siempre poder vigilar cuanta leche de pecho tu bebé esta tomando, manteniendo un conteo de sus evacuaciones y orina</i>		
Accept the fact that breastfeeding may temporarily limit my freedom	.50	.39
<i>Cuán segura te sientes de siempre poder aceptar el hecho de que temporariamente el amamantamiento limita tu tiempo</i>		
Deal with the fact that breastfeeding can be time consuming	.50	.39
<i>Cuán segura te sientes de siempre poder enfrentar el hecho de que lactar consume tiempo</i>		
Factor 2—Technique		
Tell when my baby is finished breastfeeding	.07	.87
<i>Cuán segura te sientes de siempre poder reconocer cuando tu bebé ha terminado de lactar</i>		
Position my baby correctly at my breast	.22	.77
<i>Cuán segura te sientes de siempre poder posicionar a tu bebé correctamente en el pecho</i>		
Feel if my baby is sucking properly at my breast	.28	.75
<i>Cuán segura te sientes de siempre poder aceptar el hecho de que temporariamente el amamantamiento limita tu tiempo</i>		
Recognize the signs of a good latch	.23	.73
<i>Cuán segura te sientes de siempre poder reconocer cuando tu bebé ha logrado un buen agarre al pecho</i>		
Count on my friends to support my decision to breastfeed	.02	.73
<i>Cuán segura te sientes de siempre poder confiar en tus amistades para que te apoyen con la lactancia</i>		
Ensure that my baby is properly latched on for the whole feeding	.37	.71
<i>Cuán segura te sientes de siempre poder asegurar que tu bebé esta obteniendo un agarre apropiado al pecho a través de toda la alimentación</i>		
Manage to breastfeed even if my baby is crying	.15	.69
<i>Cuán segura te sientes de siempre poder calmar a tu bebé cuando esta llorando para poder amamantarlo</i>		
Keep my baby awake at my breast during a feeding	.22	.66
<i>Cuán segura te sientes de siempre poder mantener el bebé despierto a tu pecho durante todo el amamantamiento</i>		
Feed my baby every 2-3 hours	.51	.60
<i>Cuán segura te sientes de siempre poder alimentar a tu bebé cuando este lo pida</i>		
Finish feeding my baby on one breast before switching to the other breast	.47	.58

(continued)

Table 1 Continued

Item	Factor 1	Factor 2
<i>Cuán segura te sientes de siempre poder terminar de amamantar a tu bebé en un pecho, antes de cambiar al otro pecho</i> Take my baby off the breast without pain to myself	.23	.55
<i>Cuán segura te sientes de siempre poder separar al bebé del pecho sin que te dé dolor</i> Comfortably breastfeed in public places	.35	.48
<i>Cuán segura te sientes de siempre poder amamantar cómodamente en lugares públicos</i> Comfortably breastfeed with my family members present	.44	.47
<i>Cuán segura te sientes de siempre poder amamantar cómodamente con los miembros de tu familia presentes</i> Hold my baby comfortably during breastfeeding	.30	.46
<i>Cuán segura te sientes de siempre poder sostener a tu bebé en tus brazos cómodamente durante el amamantamiento</i> Depend on my family to support my decision to breastfeed	.15	.21
<i>Cuán segura te sientes de siempre poder depender de tu familia para que te apoye en tu decisión de lactar</i>		

level; significant mean differences were found among mothers who were exclusively breastfeeding ($\bar{x} = 139.64 \pm 17.38$) and mothers who were breastfeeding with some form of supplementation ($\bar{x} = 126.17 \pm 23.46$) ($t = 2.96, P < .001$).

Discussion

The results from this psychometric investigation are consistent with Dennis's original study¹⁰ conducted with an English-speaking population and suggest that the Spanish version of the BSES is a valid and reliable measure of breastfeeding confidence among Puerto Rican mothers. The translation process was rigorously conducted to ensure that equivalence was established. Specifically, with the use of professional translators, content equivalence was determined as each item was examined for cultural similarity while lay translators ensured semantic equivalence through blinded back translations. The use of these lay translators also ascertained cultural relevance, as they were familiar with the Puerto Rican customs and lifestyle. It is important to note that all of the translators strived to achieve as much similarity as possible to the original BSES in grammatical structure, concepts, word complexity, meaning, and wording. Finally, face validity was assessed through a pilot test with several breastfeeding mothers to ensure the instrument had acceptable readability and comprehension.

In addition to establishing equivalence, the psychometric properties of the translated BSES were assessed. Consistent with Dennis,¹⁰ the overall BSES Cronbach alpha coefficient was .96, exceeding the recommended alpha for established instruments.²⁹ The average interitem correlations were above the expected standard, and all item-total correlations were at least .30 except for 1.

Similar to the "baby's father" support item in the original study, the family support item performed poorly with this sample. This low item-total correlation may indicate that perceptions of support is not a salient variable related to maternal confidence once a mother has decided to breastfeed. Research suggests that mothers with supportive informal networks are significantly more likely to initiate breastfeeding.^{32,33}

Using principal components extraction with a varimax rotation, exploratory factor analysis was conducted and yielded an interpretable two-factor solution that accounted for a large proportion of item variance. The two factors, Intrapersonal Thoughts and Breastfeeding Technique, were defined by 18 and 14 items, respectively, and internal consistency estimates for both subscales were above 0.80 (Table 1). While this two-factor solution replicated the original study,¹⁰ 7 items that previously loaded on the Breastfeeding Technique subscale currently loaded on the Intrapersonal Thoughts subscale. This difference is similar to another study recently completed by Dennis and colleagues (unpublished data) with an Australian population ($N = 300$), which was much larger than the original investigation resulting in increased factor stability. All items loaded cleanly except for 1, and 7 items loaded above 0.40 on both factors. These preceding results suggest that item reduction is required, and Dennis (unpublished data) has just completed a study with 491 Canadian mothers to refine the original BSES and psychometrically assess the revised BSES-short form (BSES-SF). Further support for construct validity was established when multiparous women with previous breastfeeding experience had significantly higher BSES scores when compared to women with no prior breastfeeding experience. Finally, similar to Dennis's Canadian and Australian studies, mothers with higher BSES scores were signifi-

cantly more likely to be exclusively breastfeeding, providing initial evidence for predictive validity. These results are equivalent to those reported by Dennis¹⁰ and suggest that the translated BSES is a valid instrument in identifying high-risk Puerto Rican mothers.

Building on the results from the Canadian¹⁰ and Dennis's Australian studies, the BSES Spanish version has diverse utility for clinical practice. It has the potential to be used not only to identify mothers at high risk to prematurely discontinue breastfeeding but also to assist health care professionals in planning individualized interventions to meet the unique needs of their breastfeeding clients.¹⁷ For example, any low-scoring items could be used to identify areas to promote confidence-building strategies, while high-scoring items could be identified as strengths warranting recognition and reinforcement. In addition, any mother who has been identified as having low breastfeeding self-efficacy should have the opportunity to receive additional support. Given the financial and time constraints currently influencing the provision of health care, it is reasonable to target new mothers with low breastfeeding self-efficacy who are at increased risk to prematurely discontinue.

Following the BSES assessment and individualized plan of care, health care professionals could implement confidence-building strategies to maintain breastfeeding. For example, breastfeeding performances done well could be positively reinforced with decisions made about how to improve future activities.¹⁷ Self-efficacy gains through observational learning can be maximized in the postpartum period by health care professionals striving to make the unobservable breastfeeding skills, such as envisioning successful performances and thinking analytically to solve problems, apparent to the mother.¹⁷ Finally, breastfeeding self-efficacy can be increased through vicarious experience^{17,20} with the importance of peer support as a strategy to increase breastfeeding duration recently highlighted.⁹ For example, in a randomized controlled trial of 256 primiparous women, breastfeeding mothers who received telephone-based peer (mother-to-mother) support were 2 times more like to continue to breastfeed, and do so exclusively, than mothers who did not receive the supportive intervention.³⁴ These peer volunteers provided positive role modeling, verbal persuasion, anticipatory guidance, social comparison, and a link between mothers in the community and health care professionals.³⁵ When asked to evaluate their peer support experience, the majority of mothers felt their peer volunteer

increased their confidence to breastfeed and were very satisfied with the support received; all participants who received peer support believed every new breastfeeding mother should be offered this intervention.³⁶

While this study provides additional support for the reliability and validity of the BSES and there is sufficient evidence to suggest the Spanish version of BSES is ready for clinical use, as with any instrument, validation is an iterative process. As such, future research is required to evaluate the psychometric properties of the translated BSES with diverse Spanish-speaking mothers and to further establish predictive validity through follow-up assessments in the postpartum period.

References

1. Lawrence RA. *A Review of the Medical Benefits and Contraindications to Breastfeeding in the United States* [maternal and child health technical information bulletin]. Arlington, VA: National Center for Education in Maternal and Child Health; 1997.
2. American Academy of Pediatrics, Work Group on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*. 1997;100:1035-1039.
3. Canadian Paediatric Society, Dietitians of Canada and Health Canada. *Nutrition for the Healthy Infant*. Ottawa, Canada: Minister of Public Works and Government Services; 1998.
4. Naylor AJ, Morrow AL. *Developmental Readiness of Normal Full Term Infants to Progress From Exclusive Breastfeeding to the Introduction of Complementary Foods: Reviews of the Relevant Literature Concerning Infant Immunologic, Gastrointestinal, Oral Motor and Maternal Reproductive and Lactational Development*. Washington, DC: Wellstart International and the LINKAGES Project/Academy for Educational Development; 2001.
5. US Department of Health and Human Services. *Healthy People 2010*. Conference ed., in 2 vols. Washington, DC: US Department of Health and Human Services; 2000.
6. Ryan AS. The resurgence of breastfeeding in the United States. *Pediatrics*. 1997;99:E12.
7. Barber C, Abernathy T, Steinmetz B, Charlebois J. Using a breastfeeding prevalence survey to identify a population for targeted programs. *Can J Public Health*. 1997;88:243-245.
8. Bourgoin G, Lahaie N, Rheame B, Berger M, Dovigi C, Picard L, et al. Factors influencing the duration of breastfeeding in the Sudbury region. *Can J Public Health*. 1997;88:238-241.
9. Dennis C-L. Breastfeeding initiation and duration: A 1990-2000 literature review. *JOGNN*. 2002;3:12-32.
10. Dennis C-L, Faux S. Development and psychometric testing of the Breastfeeding Self-Efficacy Scale. *Res Nurs Health*. 1999;22:399-409.
11. Buxton K, Gielen A, Faden R, Brown H, Paige D, Chwalow J. Women intending to breastfeed: Predictors of early infant feeding experiences. *Am J Prevent Med*. 1991;7:101-106.
12. Ertem IO, Votto N, Leventhal JM. The timing and prediction of the early termination of breastfeeding. *Pediatrics*. 2001;107:543-548.
13. Hill P, Humenick S. Development of the H & H Lactation Scale. *Nurs Res*. 1996;45:136-140.
14. Loughlin H, Clapp-Channing N, Gehlbach S, Pollard J, McCutchen T. Early termination of breast-feeding: Identifying those at risk. *Pediatrics*. 1985;75:508-513.
15. O'Campo P, Faden R, Gielen A, Wang M. Prenatal factors associated with breastfeeding duration: Recommendations for prenatal interventions. *Birth*. 1992;19:195-201.

16. Segura-Millan S, Dewey K, Perez-Escamilla R. Factors associated with perceptions of insufficient milk in a low-income urban population in Mexico. *J Nutr.* 1994;124:202-212.
17. Dennis C-L. Theoretical underpinnings of breastfeeding confidence: A self-efficacy framework. *J Hum Lact.* 1999;15:195-201.
18. Bandura A. *Social Foundation of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs, NJ: Prentice Hall; 1986.
19. Bandura A. Self-efficacy mechanism in human agency. *Am Psychologist.* 1982;37:122-147.
20. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol Rev.* 1977;84:191-215.
21. Capitulo KL, Cornelio MA, Lenz ER. Translating the short version of the Perinatal Grief Scale: Process and challenges. *Applied Nurs Res.* 2001;14:165-170.
22. US Census Bureau: Population Projections Branch. *Current Population Reports: P25-1130 Population Projections of the United States by Age, Sex, Race, and Hispanic Origin.* Washington, DC: Government Printing Office; 1996.
23. Labbok M, Krasovec K. Toward consistency in breastfeeding definition. *Stud Fam Plan.* 1990;21:226-230.
24. Lynn MR. Determination and quantification of content validity. *Nurs Res.* 1986;35:382-385.
25. Flaherty JA, Gaviria M, Pathak D, Mitchell T, Wintrob R, Richman J, et al. Developing instruments for cross-cultural psychiatric research. *J Nervous Mental Dis.* 1988;176:257-263.
26. Brislin RW. Back-translation for cross-cultural research. *J Cross-Cultural Psychol.* 1970;1:185-216.
27. Chapman DW, Carter JF. Translation procedures for the cross cultural use of measurement instruments. *Educational Evaluation Policy Analysis.* 1979;1:71-76.
28. Butcher JN. Cross-cultural research methods in clinical psychology. In: Kendall P, Butcher JN, eds. *Handbook of Research Methods in Clinical Psychology.* New York, NY: John Wiley; 1982:273-308.
29. Nunnally JC, Bernstein IH. *Psychometric Theory.* 3d ed. New York, NY: McGraw-Hill; 1994.
30. Ferketich S. Focus on psychometrics: Aspects of item analysis. *Res Nurs Health.* 1991;14:165-168.
31. Tabachnick B, Fidell L. *Using Multivariate Statistics.* 4th ed. New York, NY: HarperCollins; 2001.
32. Giugliani E, Bronner Y, Caiaffa W, Vogelhut J, Witter F, Perman J. Are fathers prepared to encourage their partners to breast feed? A study about fathers' knowledge of breast feeding. *Acta Paediatrica.* 1994;83:1127-1131.
33. Humphreys A, Thompson N, Miner K. Intention to breastfeed in low-income pregnant women: The role of social support and previous experience. *Birth.* 1998;25:169-174.
34. Dennis C-L, Hodnett E, Gallop R, Chalmers B. The effect of peer support on breastfeeding duration among primiparous women: A randomized controlled trial. *CMAJ.* 2002;166:21-28.
35. Dennis, C-L. Peer support in a health care context: A concept analysis. *Int J Nurs Studies.* In press.
36. Dennis C-L. Breastfeeding peer support: Maternal and volunteer perceptions from a randomized controlled trial. *Birth.* 2002;29:169-176.

Resumen

Traducción y validación de la escala de auto-eficacia de la lactancia materna a Español: datos de una población puertorriqueña

Muchas madres interrumpen la lactancia prematuramente mayormente debido a dificultades que a preferencia materna. Las investigaciones han mostrado que un factor pronóstico significativo en la duración de la lactancia es la confianza materna. La Escala de Auto-eficacia de la Lactancia (BSES), se desarrolló y se probó sicométricamente en madres de habla inglesa utilizando la teoría de auto-eficacia como el concepto básico para medir la confianza en la lactancia materna,. El propósito de este estudio metodológico fue de traducir el BSES a Español y determinar las características sicométricas del BSES en un grupo de 100 mujeres puertorriqueñas. La evaluación sicométrica del estudio original se replicó incluyendo consistencia, componentes principales del factor de análisis, y comparando entre los grupos de contraste. Este estudio es el primero en examinar las características sicométricas de la versión en Español del instrumento BSES utilizado en el hospital y muestra evidencia de su confianza y validez.