

Breast-feeding Attitudes and Behavior Among WIC Mothers in Texas

Margaret L. Vaaler, PhD¹; Julie Stagg, MSN, RN¹; Sharyn E. Parks, PhD¹;
Tracy Erickson, RD, IBCLC²; Brian C. Castrucci, MA¹

ABSTRACT

Objective: This study explored the influence of demographic characteristics on attitudes toward the benefits of breast-feeding, approval of public breast-feeding, and the use of infant formula. Additionally, the study examined whether attitudes were related to infant feeding practices among mothers enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in Texas.

Design: This study used a cross-sectional design.

Setting: Participants completed questionnaires at WIC clinic sites across Texas.

Participants: Mothers of young children who were receiving WIC benefits.

Main Outcome Measure(s): Attitudes toward the benefits of breast-feeding, attitudes toward public breast-feeding, attitudes toward infant formula, and the choice of infant feeding practice.

Analysis: Descriptive statistics, multivariate ordinary least squares regression, and multinomial logistic regression.

Results: A key finding was that many Hispanic mothers held favorable attitudes toward both breast milk and infant formula. Younger and less educated mothers were least likely to agree with the benefits of breast-feeding. Mothers with positive attitudes toward the benefits of breast-feeding were likely to exclusively breastfeed and use both formula and breast milk.

Conclusions and Implications: Attitudes toward breast-feeding, public breast-feeding, and infant formula and their influence on breast-feeding behavior should inform the curriculum of breast-feeding promotion programs.

Key Words: breast-feeding, attitudes, infant feeding, infant formula (*J Nutr Educ Behav.* 2010;42:S30-S38.)

INTRODUCTION

Attitudes toward breast-feeding are predictive of breast-feeding behaviors, including initiation, duration, and exclusivity.¹⁻³ Breast-feeding is important because it is widely recognized as the preferred method of infant feeding, whereas not breast-feeding is associated with increased risk for short- and long-term illness.^{4,5} In spite of breast milk being the physiologic norm, there are several factors that contribute to mothers' attitudes and subsequent choice of using infant formula as opposed to

breast milk. Some mothers may receive formula in the hospital and may assume it is the equivalent of breast milk.⁶⁻⁸ Other mothers may choose to formula-feed owing to factors related to work demands, conflicting schedules, or convenience.⁹ Another reason mothers may choose formula is that they are unaware of its nutritional inferiority compared to breast milk.¹ Mothers may also choose formula because of the social unacceptability of public breast-feeding. A past study found that of new mothers who intended to breast-feed their infants, only 22% reported

feeling comfortable nursing their baby in the presence of men and women who were not close friends.¹⁰ Using formula may allow some mothers to feel more comfortable feeding their infant among friends and relatives or in public.

The American Academy of Pediatrics (AAP) recommends that mothers feed their infants with breast milk only for the first 6 months of life.¹¹ This recommendation means that the infant receives only breast milk directly or in a bottle, and the child is not given additional food or fluids during that time. Nationally, only 47% of mothers consider 6 months to be the recommended duration for feeding their infants with only breast milk.¹⁰ The AAP's advice is that mothers continue breast-feeding for at least 1 year or longer.¹¹ Despite this recommendation, there is wide variation in the rates of breast-feeding initiation and duration according to characteristics such as ethnicity and socioeconomic status.¹²⁻¹⁵ For example, previous research has shown that compared to

¹Office of Program Decision Support, Texas Department of State Health Services, Austin, TX

²Women, Infants, and Children Program, Texas Department of State Health Services, Austin, TX

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Address for Correspondence: Margaret Vaaler, PhD, Office of Program Decision Support, Texas Department of State Health Services, 1100 W. 49th St. M-350, Austin, Texas 78756; Phone: 512-458-7111 ext. 2428; Fax: 1-866-245-4832; E-mail: mvaaler@yahoo.com

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other mothers, Hispanic mothers, especially those born in Mexico or living along the Texas-Mexico border, were more likely to initiate breastfeeding in the hospital.⁶ Despite evidence of these existing patterns, only a handful of studies have examined the role of breast-feeding attitudes on mothers' choice of infant feeding method.^{1,2,12}

The conceptual framework for this study was based on the Theory of Planned Behavior (TPB). The TPB has been used to explain individuals' beliefs and perceptions about being able to manage specific activities that are necessary for the performance of an intended behavior.¹⁶ Several studies cite the TPB when explaining breast-feeding attitudes and behavior.^{13,17-19} A past study using the TPB found that mothers who used only breast milk to feed their infants had more positive attitudes toward breast-feeding compared to mothers who used infant formula by 8 weeks.¹⁸

Generally, breast-feeding rates among mothers receiving Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) benefits are low.² This study examined attitudes toward breast-feeding among mothers who participated in the WIC infant feeding program in Texas. This study investigated whether WIC mothers' attitudes toward the benefits of breast-feeding, public breast-feeding, and infant formula use varied by their demographic characteristics. Furthermore, the analyses examined the relationship between mothers' breast-feeding attitudes and their choice of infant feeding method, beyond their demographic background.

METHODS

Study Design

Staff at the Texas Department of State Health Services and at the Texas WIC program developed an infant feeding practices survey to describe infant feeding practices among the population of women receiving WIC benefits. The survey included questions on infant feeding practices (ie, breast-feeding, formula feeding, and introduction of complementary food), attitudes toward breast-feeding, and reasons why women

chose not to breastfeed. Approval by the Institutional Review Board at the Texas Department of State Health Services, and written consent was obtained. This study used a cross-sectional survey design. Questionnaires were administered in both English and Spanish to mothers during their child's 1-year WIC certification for renewal of benefits from May to October of 2007.

Sample

Mothers who chose to breastfeed their infant and those who did not breastfeed their infant were included in the sample of WIC mothers. In total, 6,455 mothers completed the survey. Of these participants, 5,433 responded that they were the biological mother and enrolled in WIC during their pregnancy, and thus met survey inclusion criteria. Only respondents with complete data on variables of interest were included in the study, thus producing a final sample size of 4,080.

Measures

Attitudes toward breast-feeding were measured using 3 mean indices. Each index was calculated as the mean of participants' responses to a series of questions. All responses were Likert scaled and coded such that 5 = strongly agree and 1 = strongly disagree. A *benefits of breast-feeding index* was created according to respondents' agreement with the following statements: "The benefits of breast-feeding outweigh any difficulties/inconveniences that mothers may encounter," "Breast-feeding allows you to control your time more than formula feeding," "People in your community think it is important for women to breastfeed," "Your family thinks mothers should breastfeed," "Mothers who breastfeed are closer (more bonded) to their infants than mothers who use formula," and "I would encourage my friends to breastfeed" (Cronbach $\alpha = 0.72$). An *acceptance of public breast-feeding index* was created according to respondents' agreement with: "I would be comfortable (not embarrassed) if I saw a woman breast-feeding," "It is okay for women to breastfeed in public places like restaurants, parks, etc.,"

"It is okay for women to breastfeed if there are men in the room," and "It is okay for women to breastfeed if there are other women in the room" (Cronbach $\alpha = 0.67$). Finally, the *formula index* was created based on respondents' agreement with: "In the long run, formula fed babies are just as healthy as breastfed babies" and "Newly developed formulas are just as good for infants as breast milk" (Cronbach $\alpha = 0.63$).

Mothers were grouped according to their age (15-17 years, 18-29 years, and 30 years of age and older) and education level (high school diploma or less, some college, and college graduate). Furthermore, categories representing WIC mothers' ethnicity and language spoken at home were constructed: (1) English-speaking non-Hispanic, (2) English-speaking Hispanic, and (3) Spanish-speaking Hispanic. The Spanish-speaking non-Hispanic group was too small ($n = 30$) for meaningful statistical analysis; therefore, they were excluded from the study. A dummy variable flagged whether mothers lived in a metropolitan area. Finally, a border status variable represented whether mothers lived in 1 of 32 counties along the Texas-Mexico border. Three dummy variables were created that represented whether infants were breastfed only, formula fed only, or both breastfed and formula fed within the previous year. If infants were both breastfed and formula fed, their mothers answered, "Yes" to "Was child ever breastfed/fed pumped breast milk?" and responded, "Formula" to "Was child given food/drink other than breast milk?" If infants were fed only formula, their mothers answered, "No" to "Was child ever breastfed/fed pumped breast milk?" and responded, "Formula" to "Was child given food/drink other than breast milk?" Finally, if infants were only breastfed (or fed breast milk in a bottle) within their first year of life, their mothers answered, "Yes" to "Was child ever breastfed/fed pumped breast milk?" and did not report that their child was ever given formula (or any other liquid, eg, cow's milk).

Data Analysis

Descriptive statistics (mean \pm standard deviation [SD]) were calculated

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