

Breastfeeding Attitudes: Association Between Maternal and Male Partner Attitudes and Breastfeeding Intent

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Abstract

Breastfeeding is considered the best infant feeding method, yet initiation and duration rates in the United States are lower than recommended by medical and public health professionals. Positive attitudes toward breastfeeding of the male partner are important in a mother's success at initiating and maintaining breastfeeding. This study measured the infant feeding attitudes of low-income women and their male partners using the Iowa Infant Feeding Attitude Scale (IIFAS), investigated the reliability and validity of the measure in male partners, and examined the associations of the partner's attitudes with the mother's attitudes and intention to breastfeed. A convenience sample of 112 pregnant women and their male partners completed a survey including socio-demographic items, the IIFAS, and their intended infant feeding method in the hospital and in the first few weeks after the infant's birth (breastfeeding, formula feeding, mixed, and don't know). Mother's and partner's IIFAS scores were highly correlated, and higher scores of both mothers and partners were significantly associated with their intentions to breastfeed. With each increased point on mother's and partner's IIFAS scores, the odds that the mother and her partner intended to breastfeed in the first few weeks increased 12% and 20%, respectively. This is the first U.S. study to validate the IIFAS with male partners. Future research on breastfeeding attitudes and attitude-changing interventions is needed to see if improving partners' attitudes toward breastfeeding will also improve mothers' attitudes and if that increases initiation and duration of breastfeeding.

Introduction

BREASTFEEDING INITIATION RATES in the United States have been increasing in the past 40 years, from a low of 22% in 1972 to 76.9% in 2009.^{1,2} However, most states fall short of national objectives for ever breastfed (82%) and 6-month duration (61%) set by the U.S. Department of Health and Human Services Healthy People 2020, particularly for mothers of low socioeconomic and educational levels.^{1,3,4}

A mother's attitude toward breastfeeding is an important predictor of breastfeeding initiation and duration, and decisions about breastfeeding are often made early in pregnancy.^{3,5} The literature suggests that the male partner's attitudes and support are also important in a woman's breastfeeding practices, but the male partner is often excluded from the mother-baby "breastfeeding dyad."^{3,6-8} Expanding the "dyad" to a "triad" recognizes the importance of the male partner in supporting and strengthening breastfeeding efforts.⁸⁻¹⁰ However, little research has been conducted to measure the association between male partners' attitudes and intended infant feeding methods.

Measurement tools to quantify breastfeeding knowledge and attitudes have been developed for and tested on mothers.^{11,12} The exception is the Iowa Infant Feeding Attitude Scale (IIFAS), developed to examine the relationships among mothers' attitudes, intentions, and breastfeeding outcomes, which was tested with men in Scotland.¹³⁻²⁰

The purpose of this research was (1) to examine infant feeding attitudes among pregnant, low-income women and their male partners and (2) to determine how partner attitudes influence infant feeding intentions. The hypothesis was that mother's and partner's attitudes, as measured by the IIFAS, are correlated and that both are associated with intended method of infant feeding. Findings could inform the use of the IIFAS with U.S. men and inform the design of interventions to increase breastfeeding.

Subjects and Methods

Participants

A convenience sample of mother and partner pairs was recruited through a Special Supplemental Program for

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Women, Infants, and Children (WIC) clinic in Honolulu, HI. Couples were included if they were 18 years of age or older, were expecting a child, and could read and write in English. The male partner did not have to be the baby's father. Expectant women and their partners were approached and asked to participate, with a goal of enrolling 100 pairs. Participants were provided a verbal explanation of the study. Pairs who agreed signed a consent form and were thanked with a gift card to a local convenience store.

Of 104 couples approached, 100 women and partners completed a survey in the clinic. The other four couples noted lack of English fluency, discomfort with the study, or lack of time. Another 57 women attending WIC appointments without their partners requested to participate. These women completed the survey and took a survey packet for their partner to complete. Of these, 14 partners mailed completed surveys, but only 12 also returned a signed consent form. This yielded a total sample of 112 mother-partner pairs for analysis. This study was approved by the University of Hawai'i Committee on Human Studies and the Hawai'i Department of Health Institutional Review Board.

Measures

The survey included (1) demographic items, (2) the IIFAS, and (3) an infant feeding plan asking about infant feeding intentions. Sociodemographic items included age, education, race/ethnicity, work status, and plans for work or school after birth for both mother and partner, along with expected due date for current pregnancy, number of previous children (if any) and how they were fed, income, and male partner's relationship to the mother.

The IIFAS has 17 items; approximately half of the items are favorable toward breastfeeding, and half are favorable toward formula feeding (the full copy of the Scale is available from de la Mora et al.¹⁵). Items are nongendered and so could be asked of males or females without modification. Respondents are asked to rate each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items that are favorable toward formula feeding are reverse-scored, and the total score is computed by summing the 17 items. Total scores range from 17 to 85, with a higher score indicating more favorable attitudes toward breastfeeding.

The scale has been shown to have good internal reliability and validity in studies in the United States, Australia, Scotland, and Ireland.¹³⁻²¹ In Scotland, Scott et al.¹⁷ and Shaker et al.¹⁸ administered the IIFAS to a sample of low-income expectant women and their partners and found it to be valid in predicting feeding choice. The IIFAS also was found to have acceptable reliability and validity in its Croatian, Romanian, and Chinese translations.²²⁻²⁴

Infant feeding intentions were measured using an infant feeding questions developed by the authors based on other studies describing the IIFAS and on the Centers for Disease Control and Prevention's Infant Feeding Practices Study II Prenatal Survey.²⁵ The four items were (1) plans for infant feeding in the hospital (breastfeeding only, formula feeding only, both breastfeeding and formula feeding, or don't know), (2) plans for infant feeding in the first few weeks after the birth of the child (breastfeeding only, formula feeding only, both breastfeeding and formula feeding, or don't know), (3) if infant feeding options had been discussed with the partner, and

(4) the timing of the mother's infant feeding decision (before conception, between conception and 13 weeks of pregnancy, or after 13 weeks of pregnancy). For questions regarding intent, the four mothers and 10 partners who responded "don't know" were combined with the mothers who intended to both breastfeed and formula feed, resulting in three categories for analysis: breastfeeding only, formula feeding only, and both breastfeeding and formula feeding (including "don't knows"). For purposes of logistic regression, the responses were further collapsed into two groups—breastfeeding only versus formula feeding only, both, and don't know.

Data analysis

Data analysis was conducted using SPSS 18.0 version software (SPSS, Inc., Chicago, IL). Descriptive statistics were calculated to describe the sample population and total attitude scores. Cronbach's α was used to estimate the internal consistency of the IIFAS in mothers, partners, and the total sample. One-way between-groups analysis of variance was used to compare differences in IIFAS mean scores by infant feeding intent for mother and partner. After a scatterplot verified that assumptions of normality, linearity, and homoscedasticity were met, Pearson's correlation was used to examine the association between IIFAS scores of mothers and partners.

Logistic regression was used to model attitudes and intentions of infant feeding to determine how the mother's and partner's attitudes influence a mother's intention to breastfeed, controlling for demographic and other characteristics. In selecting variables to be included in the regression models, a series of χ^2 tests for independence were performed, and crude odds ratios [ORs] were calculated. Crude ORs were used to assess the impact of the individual variables on intent to breastfeed in relation to the adjusted model. Most study variables were not significantly associated with intentions of infant feeding and were not included. Three were significant at the $p < 0.05$ level: Hispanic/Latino ancestry, how the mother or partner fed any previous children, and when the mother had made a decision about infant feeding. When assessing the crude and adjusted ORs for the characteristics of how the mother or partner fed any previous children and when the mothers had made the decision for infant feeding, ORs did not change more than 10%, and thus these variables also were left out of the regression model. Consistent with the research in Scotland,¹⁷ there was a strong positive correlation between mother's and partner's composite IIFAS scores ($r = 0.54$, $p < 0.005$). Because of the strong correlation between mother's and partner's scores, the IIFAS scores were entered into the logistic regression model individually (mother's scores in Model 2 and partner's scores in Model 3) to avoid multicollinearity. Variables were entered into the logistic regression in three steps: (1) demographic factors including age (as a continuous variable), ethnicity, and Hispanic/Latino ancestry (Model 1); (2) demographics plus mother's IIFAS score (Model 2); and (3) demographics plus partner's IIFAS scores (Model 3).

Results

Characteristics of sample population

As shown in Table 1, the majority of mothers and partners were married (75%), were less than 27 years old (71%

TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS OF THE MOTHERS AND PARTNERS COMPLETING THE THREE-PART SURVEY

	Mothers (n = 112)	Partners (n = 112)
Mean (range) age (years)	25.7 (19–42)	27.5 (19–52)
Married	83 (74.1)	85 (75.9)
Education		
≤HS/GED	46 (41.1)	46 (41.1)
>HS/GED	66 (58.9)	65 (58.0)
Missing	0	1 (0.9)
Health insurance	109 (97.3)	104 (92.9)
Trimester at baseline		
First	14 (12.5)	14 (12.5)
Second	42 (37.5)	42 (37.5)
Third	56 (50.0)	56 (50.0)
Other children	52 (46.4)	54 (48.2)
Children exclusively breastfed (among those with children)	14 (12.5)	16 (14.3)
Current work status		
Working for wages/ self-employed	33 (29.5)	95 (84.8)
Not employed/unable to work	36 (32.1)	13 (11.6)
Student	10 (8.9)	2 (1.8)
Homemaker	31 (27.7)	2 (1.8)
Missing	2 (1.8)	0
Work plans after the baby is born		
Return to work/school	63 (56.3)	96 (85.7)
Homemaker	38 (33.9)	2 (1.8)
Other	11 (9.8)	10 (8.9)
Missing	0	4 (3.4)
Planned mean (range) weeks to be home before returning to work/school?	10.9 (0–52)	2.6 (0–16)
Race/ancestry		
White	50 (44.6)	50 (44.6)
Native Hawaiian/ Pacific Islander	25 (22.3)	27 (24.1)
Asian	22 (19.6)	8 (7.1)
Black/African American	7 (6.3)	12 (10.7)
Native American/ Alaska Native	0	10 (8.9)
Missing	8 (7.1)	5 (4.5)
Hispanic/Latino	20 (17.9)	21 (18.8)

Data are number (%) unless indicated otherwise.
HS/GED, high school/general education degree.

and 57%, respectively), had attended some college or technical school (59% and 58%, respectively), and had health insurance (97% and 93%, respectively). Half completed the survey during the mother's third trimester. Of the 112 pairs, 46% had other children; 27% of these women had exclusively breastfed them. Among mothers, 30% were working for wages, and 9% were students; 56% indicated they would return to work (38%) or school (18%) after the baby's birth. Among male partners, about 85% were working for wages. Mean weeks planned to be at home with the baby before returning to work or school was 10.9 weeks for mothers and 2.6 weeks for partners. Almost half of the mothers and the partners identified themselves as white (45%). Other groups were Native Hawaiian/Pacific

Islander (22% of mothers and 24% of partners), then Asian (20% of mothers and 7% of partners), and African American (6% of mothers and 11% of partners). Approximately 20% of the mothers and the partners were of Latino/Hispanic ancestry.

Reliability and validity

Internal reliability was very good for mothers ($\alpha=0.80$), partners ($\alpha=0.78$), and mothers and partners combined ($\alpha=0.86$). Validity of the IIFAS was examined by associating scores with mother's and partner's intended methods of infant feeding. In this sample, the overall IIFAS mean score was 65 for mothers and 62 for partners. The results of the analysis of variance suggested that women who intended to breastfeed in the hospital and in the first few weeks had significantly higher IIFAS scores (67.6 and 67.5, respectively) than the mothers who intended to formula feed (50.0 and 51.3, respectively). The effect sizes, calculated by dividing between-groups sum of squares by the total sum of squares, were large between intended feeding groups for mothers and partners, ranging from 0.22 to 0.31 (Table 2).

When asked how they intended to feed their babies, 60% of mothers and 58% of partners indicated they would breastfeed in the hospital, and 71% of mothers and 63% of partners indicated they would breastfeed in the first few weeks of the infant's life. Mothers were less likely to intend to breastfeed if they were of Hispanic/Latino ancestry. A χ^2 test revealed that all mothers who had breastfed their previous children intended to breastfeed this next child. Most mothers and partners had discussed (78% and 72%, respectively) and chosen (63% and 53%, respectively) their infant feeding method prior to becoming pregnant.

There were no statistically significant differences detected between the IIFAS scores of the pairs who had discussed feeding options and those that had not. Also, no significant differences were detected in IIFAS scores of the mothers by timing of their infant feeding decisions. The IIFAS scores of the partners who did not know when the mother had made her feeding decisions were significantly lower than those who knew she had decided either before she got pregnant or at 13–40 weeks.

Infant feeding attitudes and intentions

Logistic regression was used to assess the strength of mother's and partner's attitudes on the mother's intent to breastfeed only in the hospital and in the first few weeks (Table 3). Independent variables included mother's age (continuous), ethnicity, and Hispanic/Latino ancestry, as well as IIFAS scores (continuous) for mother (Model 2) and partner (Model 3). There was a significant association with mother's and partner's breastfeeding attitudes and mother's intent to breastfeed only. Specifically, with each point increase in IIFAS score, the odds that the mother intended to breastfeed in the first few weeks increased 19–20% (OR=1.19, 95% confidence interval [CI]=1.08–1.30 for partner's IIFAS score; OR=1.20, 95% CI=1.10–1.32 for mother's IIFAS score). Findings were similar, but less strong, with intentions to breastfeed in the hospital. Specifically, with each point increase in the IIFAS score, the odds of the

TABLE 2. RESULTS OF ANALYSIS OF VARIANCE FOR DIFFERENCES IN IOWA INFANT FEEDING ATTITUDE SCALE MEAN SCORES BY INFANT FEEDING INTENT FOR MOTHER AND PARTNER

	n (%)	Mean IIFAS scores	SD	F	p value	Effect size
Mother						
In hospital			8.1	21.5	<0.01	0.28
Breastfeeding only	67 (59.8)	67.6				
Formula feeding only	8 (7.1)	50.0	7.1			
Both	37 (33.0)	62.5	6.5			
First few weeks			8.1	24.9	<0.01	0.31
Breastfeeding only	79 (70.5)	67.5				
Formula feeding only	9 (8.0)	51.3	7.7			
Both	24 (21.4)	60.2	4.3			
Partner						
In hospital				19.1	<0.01	0.27
Breastfeeding only	65 (59.6)	65.9	7.2			
Formula feeding only	6 (5.5)	51.8	1.7			
Both	38 (34.9)	58.7	7.6			
First few weeks				9.6	<0.01	0.22
Breastfeeding only	71 (65.7)	65.2	7.2			
Formula feeding only	6 (5.6)	53.8	3.7			
Both	31 (28.7)	58.4	8.2			

IIFAS, Iowa Infant Feeding Attitude Scale.

mother intending to breastfeed in the hospital increased by 10–12% (OR=1.10, 95% CI=1.03–1.18 for partner’s IIFAS; OR=1.12, 95% CI=1.05–1.20 for mother’s IIFAS). Also shown in Table 3 is that model fit improved with the addition of mother’s or partner’s IIFAS scores.

Discussion

An important finding in this study is that the odds of the mother’s intent to breastfeed in the first few weeks of the baby’s life increases by 20% with each point increase on her

TABLE 3. LOGISTIC REGRESSION OF MOTHER’S DEMOGRAPHIC VARIABLES AND MOTHER’S AND PARTNER’S IOWA INFANT FEEDING ATTITUDE SCALE SCORES ON MOTHER’S INTENT TO BREASTFEED

	Odds ratio (95% confidence interval)		
	Model 1 (demographic characteristics)	Model 2 (demographic characteristics, mother’s IIFAS score)	Model 3 (demographic characteristics, partner’s IIFAS score)
Intent in the hospital			
Mother’s age	1.02 (0.94–1.12)	0.99 (0.90–1.09)	1.01 (0.93–1.11)
Mother’s race/ethnicity			
White	Reference		
Asian	1.63 (0.49–5.40)	1.31 (0.37–4.68)	1.56 (0.45–5.46)
Black/African American	0.39 (0.74–2.06)	0.29 (0.05–1.72)	0.79 (0.13–4.87)
Native Hawaiian/Pacific Islander	0.88 (0.31–2.52)	0.82 (0.27–2.53)	0.90 (0.30–2.69)
Hispanic/Latino	0.23 (0.06–0.86)	0.23 (0.06–0.92)	0.19 (0.05–0.78)
Mother’s IIFAS score		1.12 (1.05–1.20)	
Partner’s IIFAS score			1.10 (1.03–1.18)
2 log likelihood	124.44	111.17	114.15
Difference from Model 1		13.27, <i>p</i> <0.001	10.29, <i>p</i> <0.01
Intent the first few weeks			
Mother’s age	1.02 (0.92–1.14)	0.98 (0.88–1.10)	1.02 (0.92–1.14), 0.71
Mother’s race/ethnicity			
White	Reference		
Asian	3.14 (0.79–12.54)	2.43 (0.53–11.07)	3.08 (0.69–13.79), 0.14
Black/African American	0.70 (0.13–3.74)	0.46 (0.07–3.23)	2.67 (0.37–19.32), 0.14
Native Hawaiian/Pacific Islander	3.98 (1.01–15.71)	5.15 (1.09–24.25)	5.06 (1.15–22.29), 0.03
Hispanic/Latino	0.24 (0.07–0.90)	0.20 (0.04–0.99)	0.15 (0.03–0.72), 0.02
Mother’s IIFAS score		1.20 (1.10–1.32)	
Partner’s IIFAS score			1.19 (1.08–1.30), 0.00
2 log likelihood	105.67	82.89	86.80
Difference from Model 1		22.78, <i>p</i> <0.001	18.87, <i>p</i> <0.001

Demographic characteristics included mother’s age as a continuous variable, race/ethnicity, and Hispanic/Latino ancestry. IIFAS, Iowa Infant Feeding Attitude Scale.

IIFAS score and 19% with each point increase on the partner's score. When added to the logistic regression model, the mother's (Model 2) and partner's (Model 3) IIFAS score improved the model fit.

Another interesting finding is that the percentage intending to breastfeed in the hospital was lower than the percentage intending to breastfeed in the first few weeks for both mothers (60% versus 71%) and partners (58% versus 63%). It may be that this population expected bottle and formula use in the hospital because of the free formula provided at the hospital or that they expect their newborns to be in a nursery and separated from the mother for a period of time. Further research should be conducted to examine misperceptions couples may have about infant feeding during their hospital stay.

As in past studies, we found that the IIFAS was a reliable and valid scale to use to measure breastfeeding attitudes in our population of mothers. A unique finding of this study is that the IIFAS also appears to be reliable and valid in measuring breastfeeding attitudes of the male partners in a U.S.-based population. The IIFAS successfully predicted intended method of infant feeding, with higher mean scores of mothers and partners who intended to breastfeed.

Similar to findings from a study of low-income women and their partners in Scotland,¹⁷ the IIFAS scores of the mother and her partner were highly correlated, suggesting that couples shared similar views about infant feeding.^{17,18} The Scotland-based investigators asserted that the partners' attitudes could be considered a proxy for the mother's attitude, suggesting that improving the partner's attitudes of infant feeding could improve the mother's attitudes (or vice versa). The finding also suggests that a partner with poor attitudes should be a target of future interventions and that research should test the ability of partner-focused interventions to increase the odds that the mother will breastfeed.

Another question is whether a partner with more positive attitudes toward breastfeeding than the mother could favorably influence the breastfeeding attitudes and intentions of the mother. For example, a mother's attitudes and intentions could be measured before and after her partner completes a partner-focused intervention, and over-time scores compared. If scores increase after the partner's participation, it would suggest that the male partner can have a positive effect on the mother's attitudes and intentions.

The IIFAS may be a good tool for use in WIC. As WIC enrollment increases, it would be helpful to increase the proportion of WIC clients who breastfeed, as these clients are less costly for WIC to serve than are WIC clients who formula feed. The IIFAS is easy to administer, as the majority of participants in this study completed it in 5 minutes while waiting for their WIC appointment. Its completion could be incorporated in the initial WIC visit, when new clients meet with WIC staff to document background, financial, medical, and diet information. IIFAS scores could identify women and partners for intervention who are more negative toward breastfeeding. The IIFAS could help identify specific misconceptions about breastfeeding held by clients.

Nine of the IIFAS items are favorable toward formula feeding, and more than 50% of the mothers and partners were neutral toward or agreed with many of these items. For example, approximately 62% of partners were neutral or agreed with the statement, "Formula is as healthy for an infant as breastmilk." This presents an opportunity for WIC counselors

to correct this misconception and emphasize the health differences between formula and breastmilk for both mother and baby. They could provide clients with appropriate literature, supplemental videos, and Web sites and suggest a meeting with a WIC breastfeeding peer counselor to reinforce this message.

Also, WIC provides breastfeeding education to pregnant women at each appointment, and several local hospitals provide free or low-cost breastfeeding education classes. However, these classes primarily target women.²⁶ Because education is an important component in increasing positive attitudes, the male partners should be included in educational efforts and the breastfeeding decision-making process from preconception. U.S. programs could use the IIFAS to measure the effectiveness of such interventions. For example, it was recently used to compare pre- and post-training participant attitudes in a 20-hour United Nations International Children's Emergency Fund/World Health Organization breastfeeding training course for health professionals in Croatia, and IIFAS scores were significantly higher post-training.²³

There were several limitations to this study. First, the WIC population is not representative of the greater U.S. population, but it is a low-income population, and low-income women are less likely to breastfeed than women with higher incomes.^{3,4} Second, the sampled Honolulu population is not representative of Hawai'i or the greater U.S. population. However, Honolulu scores were in line with scores reported elsewhere (e.g., higher than those reported in studies in other U.S. sites, Australia, Scotland, and Ireland but equivalent to the Chinese study and lower than the Romanian and Croatian studies). Third, not all women bring their partners to clinic appointments. During the study time frame, researchers observed that approximately 30% of women brought their partners. These women and their partners may be fundamentally different from mothers and partners who do not attend WIC appointments together. Fourth, surveys were administered to mothers and partners while they waited for their WIC appointment. Thus, they may have influenced each other's responses to IIFAS items, increasing the likelihood that scores would be correlated. However, Shaker et al.¹⁸ and Scott et al.¹⁷ found a similarly high mother-partner correlation in the IIFAS scores even though they separated mothers and partners while completing the IIFAS. Also, although it was explained that participation in the study would not affect services received in the clinic, results could be more positive toward breastfeeding because participants were giving socially acceptable answers.¹⁹ However, if participants were truly reacting to the environment and survey, we would have expected even higher mean composite scores than observed. Also, in creating a total IIFAS score, each question is treated equally, and it is possible that some items may have more predictive value than others. Finally, the sample size of the study was relatively small and ethnically diverse, resulting in imprecise race/ethnicity-specific estimates.

Although results should be interpreted with caution because attitudes are self-reported and cross-sectional, results suggest that changing a modifiable behavior, such as encouraging those with less positive attitudes about breastfeeding to become more positive, may have a real effect on breastfeeding rates.

Conclusions

This study was the first to administer the IIFAS to WIC clients in Hawai'i and the first in the United States to administer the IIFAS simultaneously to mothers and male partners. The IIFAS had good reliability in this population, higher mother's and partner's IIFAS scores were significantly associated with mothers' intention to breastfeed, and mother's and partner's scores were highly correlated and equally important in their association with intent to breastfeed.

Without the informal support of the male partner, women are more likely to choose bottle feeding. Changing the negative attitudes and perceptions of breastfeeding in male partners could be one method to increase breastfeeding rates in the United States. Tools, such as the IIFAS, can be used to understand modifiable characteristics, like the negative attitudes of male partners. It also can be used to identify those with negative attitudes who may benefit from intervention. Finally, it can be helpful in developing interventions that can address misconceptions about infant feeding and encourage more male partners to support mothers in breastfeeding initiation, duration, and exclusivity.

Disclosure Statement

No competing financial interests exist.

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