Text

Description automatically generated

Recommendations for breastfeeding best practices in the United States are established by the American Academy of Pediatrics. Currently, the AAP recommends exclusive breastfeeding for the first 6 months with continuation of breastfeeding until 1 year as complimentary foods are introduced.1 After 1 year, breastfeeding can be continued when mutually desired by the infant and mother. The World Health Organization also recommends exclusive breastfeeding for the first 6 months with continued breastfeeding for up to 2 years of age or beyond. Exclusive breastfeeding is defined by WHO as the infant receiving only breastmilk with no other liquids or solids given with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medications. While both of these organizations recommend exclusive breastfeeding until 6 months, research conducted by Naylor has indicated that infants demonstrate developmental readiness for complementary foods between 4 and 6 months of age.

NEXT SLIDE

Graphical user interface, text

Description automatically generated

According to the 2018 Breastfeeding Report Card published by the CDC, over 80% of mothers initiated breastfeeding. By 6 months, 57.6% of infants were receiving some breastmilk but only 24.9% of infants were getting the expert recommendations of exclusive breastmilk at 6 months.7 Due to the manner in which exclusivity is defined, it is possible that this figure is actually underrepresenting the percentage of infants that are being fed in a developmentally appropriate manner at 6 months of age– exclusive breastfeeding with introduction of complimentary foods when the infant demonstrates readiness.

The high initiation rates suggest that there is a strong interest in breastfeeding, but the low compliance with recommendations really sheds a light on just how challenging it is to maintain an exclusive breastfeeding relationship through 6 months.

NEXT SLIDE

But encouraging exclusive breastfeeding remains a public health imperative because we know how big of an impact it has on health. Numerous studies have demonstrated the benefits of breastfeeding to both mother and baby and these benefits are often directly linked to the duration and exclusivity of breastfeeding. For the infant, studies have demonstrated the protective effect of breastmilk against respiratory and gastrointestinal diseases, sudden infant death syndrome (SIDS), childhood leukemia and obesity. For the mother, breastfeeding has been shown to reduce the risk of ovarian and breast cancer and also cardiovascular disease.

NEXT SLIDE

Multiple factors impact a mother’s decision to breastfeed her newborn and maintain the relationship. Lower rates of initiation have been observed in younger, nonwhite and unmarried women; those with less formal education and of a low SES.

Shorter breastfeeding duration has been correlated with various infant characteristics such as lower gestational age and birth weight 58,59 Maternal characteristics that are linked to shorter breastfeeding duration include lower maternal age, educational level, socioeconomic status, primiparity, smoking and high BMI.58

NEXT SLIDE

Efforts to support the breastfeeding mother are often implemented at the health care level. The intervention that has been recognized most as improving breastfeeding outcomes is the UNICEF Baby Friendly Hospital Initiative (BFHI). Numerous maternity care practices that inform the BFHI Ten Steps have been indicated as influential factors on exclusive breastfeeding rates such as Immediate or early skin-to-skin contact between the newborn and the mother and Encouraging the baby to room in with the mother, Pacifier use has been associated with decreased exclusive breastfeeding rates in the past, However recent literature has shown a weak association between pacifier use and breastfeeding. In fact, a study by Hauck et al. found pacifiers may be protective against SIDS.25 As a result of this conflicting evidence, the new 2018 BFHI Standards and Implementation Guidelines encourage counseling mothers on the use and risks of feeding bottles, teats and pacifiers rather than prohibiting their use.73 Structural and organizational aspects of maternal care that positively impact breastfeeding rates include access to lactation consultants74, extensive staff training75, provision of prenatal courses and established breastfeeding policies. Hospitals with a high rate of caesarean births76 and gift acceptance of formula negatively impact breastfeeding rates.77 While all of these maternity care practices affect breastfeeding rates, research has shown that it is the collective impact of these practices that provides the greatest influence on exclusive breastfeeding rates.65 DiGirolamo analyzed data from the IFPS II and compared mothers who experienced 6 “Baby-Friendly” practices (breastfeeding initiation within 1 hour of birth, giving only breastmilk, rooming in, breastfeeding on demand, no pacifiers, fostering breastfeeding support groups) to those who experienced none. They found that the mothers that experienced none were approximately 13 times more likely to discontinue breastfeeding before six weeks.70

NEXT SLIDE

Breastfeeding difficulties that arise early in the postpartum period are frequently cited by the mother as the reason for early breastfeeding cessation. A study by Wagner found a strong association between Difficulties reported early in the postpartum period (day 3 to day 7) early breastfeeding cessation. Of the mothers who intended to only provide breastmilk for the first two months, 50% who reported at least one concern fed their infant formula between 30 and 60 days postpartum compared to only 15% of women who did not report a concern.85 Nearly a quarter of women with at least one breastfeeding concern at day 3 had ceased breastfeeding by 2 months compared with only 3% of women with no breastfeeding concerns.85 Research clearly indicates an increased risk of early breastfeeding cessation in the presence of breastfeeding difficulties. The first weeks postpartum are a critical time for developing the breastfeeding relationship between mother and infant. And when Early difficulties are not resolved it can significantly impact the likelihood that exclusive breastfeeding will be maintained through 6 months.

NEXT SLIDE

As far as we are aware,

* *It is currently unknown how a mother’s perception of support (helpful/unhelpful) in the presence of breastfeeding difficulties may impact breastfeeding intensity through the first 6 months of life.*

NEXT SLIDE

**Objectives**

1. Explore factors that impact whether a mother seeks breastfeeding support when faced with early breastfeeding difficulties
2. Understand how the mother’s perception of breastfeeding support in the presence of breastfeeding difficulties affects breastfeeding intensity.

**Research Questions**

1. What percentage of mothers who report early breastfeeding difficulties receive support and how is that support perceived (helpful/unhelpful)?
2. What effect, if any, does the mother’s perception of support received impact breastfeeding intensity through infants first 6 months of life?

**Hypothesis**

1. Mother’s that perceive breastfeeding support as helpful will engage in higher intensity breastfeeding through infants first 6 months of life when compared to mothers who perceived support as unhelpful.

NEXT SLIDE

The current study utilized the IFPS II dataset to conduct a multinomial logistic regression - this was determined to be an appropriate analysis as the dependent variable contains three categories. Multinomial logistic regression is a classification method that generalizes binary logistic regression to multiclass problems. Binary logistic regression is itself a generalization of ordinary linear regression, where the linear combination of predictors is related to the response variable through the logit function. Essentially, this means that the log-odds of the “success” of the dependent variable is regressed against the predictors. Multinomial logistic regression can be thought of as a series of binary logistic regression models, where one category of the dependent variable is chosen as a reference level, and the other categories are separately regressed against that reference level. This results in a set of predictor coefficients (or Betas) for each level of the dependent variable (except for the reference level). These coefficients each represent the change in the log of the probability of the dependent variable being in a certain level, due to the presence of the associated independent variable. E.g a coefficient of -.5 for WIC participation for high breast feeding intensity indicates that the log of the ratio of the probability for breast feeding intensity = high vs breast feeding intensity = low is decreased by .5 in the presence of wic participation.

IFPS II is a publicly available dataset that was provided upon request from the CDC. The institutional Review Board of Northern Illinois University determined that the current research project met the criteria for exemption. Analysis was performed using R version 3.6.3. statistics.

NEXT SLIDE

IFPS II is a longitudinal study of women and infants conducted by the Food and Drug Administration (FDA) in collaboration with the Centers for Disease Control and Prevention.89 The study is a follow-up to the IFPS I study, which was conducted from 1992-1993. It was designed to collect information about infant feeding patterns through the first year of life as well as data about the mother’s health and diet. Survey topics covered breastfeeding, formula and complementary feeding, infant health, breast-pump use, food allergies, sleeping arrangements, mother’s employment, child care and mother’s dietary patterns.89

The study sample included ~4900 pregnant women. The sampling frame came from a nationally distributed consumer opinion panel of >500,000 households.89 So the management of the consumer opinion panel called for updates of information on pregnancy status, and other demographic issues, of household members and this occured quarterly for a fourth of the households – so over the course of one year, every household should of updated this information. Any households which indicated that a member of their home was pregnant and in their third trimesters were included in the IFPS II mailings. Questionnaires were mailed over a time span of 8 months as updated information became available. Data collection occurred from May 2005 through June 2007.

NEXT SLIDE

In order to assess the mother’s perception of received support for breastfeeding difficulties, a question from the Neonatal questionnaire was utilized. This questionnaire was intended to be completed at infant age of 4.3 weeks. Question 36 asks the mother “Did you have any of the following problems breastfeeding your baby during your first 2 weeks of breastfeeding? And instructs them to place an ‘X’ for all that apply. Question 38 asks the mother “Did you get any help with these problems from a health professional, a lactation consultant, or a breastfeeding support group?”. If the mother responded ‘Yes’ they were directed to Q. 39, “Did the help you received solve the problem(s) or make them better?” Mothers could respond on a Likert scale from ‘No, not at all (1)’ to ‘Yes, very much (5)’. Mothers that marked either ‘4’ or ‘5’ for this question were categorized into the “Difficulties, Helpful Support” category. Mothers that marked either ‘1’ or ‘2’ were categorized into the “Difficulties, Unhelpful Support” category. Mothers that marked a ‘3’ were categorized as “Inconclusive” and used as a reference point between the response levels of “Helpful” and “Unhelpful”. Mothers that marked ‘No’ for Q.38 were categorized into ‘Difficulties, no support’. Mothers that marked “I had no problems” on Q.36 were categorized into ‘No difficulties.’

NEXT SLIDE

While exclusive breastfeeding is the gold standard, as we discussed earlier, less than a quarter of mothers are actually able to meet this recommendation. Measuring breastfeeding intensity, rather than exclusive, partial and never, allows for greater nuance when evaluating the breastfeeding relationship. Partial breastfeeding represents an extremely wide range of behaviors. For example, say there are two mothers that both provide their infants eight feedings over the course of a day. Mother A provides 1 feeding of breastmilk and 7 feedings of formula. Mother B provides 7 feedings of breastmilk and 1 feeding of formula. Technically both of these mother’s would be categorized into the partial breastfeeding group despite the fact that Mother B is providing her infant nearly 90% breastmilk compared with Mother A’s 12%. Researchers have found that high breastfeeding intensity is significantly associated with longer duration of breastfeeding

Breastfeeding intensity was calculated as a percentage of breastmilk feedings at months 1 through 6. The neonatal questionnaire was used to assess breastfeeding intensity at infant age 1 month. And the postnatal questionnaires were used for months 2-6. . At each timeframe, breastfeeding intensity was calculated by dividing the total number of weekly breastfeeds by the total number of feedings per week which provided a percentage to categorize the participants. Previous literature described high-intensity as greater than 80%, medium-intensity as 20-80% and low-intensity as less than 20%. The current research study followed these same designations to promote continuity between breastfeeding research.

NEXT SLIDE

Based on the literature review, the following variables were considered for inclusion in final regression model: BFHI exposure; Maternal age; Race/ethnicity; Education; Parity; income level; BMI; and Attitude towards breastfeeding. Research from DiGirolamo demonstrated that only 6 of the 10 BFHI steps can be ascertained from the dataset.70 For the purposes of this study, exposure to those 6 BFHI steps was used to create the ‘BFHI Exposure’ control variable.

At each time point, a bidirectional stepwise regression was performed to determine control variables to be included.

NEXT SLIDE

For each month (1:6), both a full and a control model were fit according to the following structure:

Full Model: Breastfeeding Intensity at *ith* Month ~ Perception of Support + Control Variables

Control Model: Breastfeeding Intensity at *ith* Month ~ Control Variables

Each model is a multinomial logistic regression. The control variables used at each month were determined from a bidirectional stepwise regression using the Akaike Information Criterion.93 Once the full and control models were fit, a likelihood ratio test was performed between the two. By leveraging the results of the likelihood ratio test, conclusions can be drawn regarding the significance that perception of support plays in predicting breastfeeding intensity at each time interval.

NEXT SLIDE

This figure depicts the progression through the dataset to delineate relevant participants for model inclusion. Participants that reported no breastfeeding difficulties (n=480) and those who did not receive support for early breastfeeding difficulties (n=1270) were excluded from the final model. 1283 Participants reported that they received support and were further categorized into ‘Helpful Support’ (n=775), ‘Inconclusive’ (n=251) and ‘Unhelpful Support’(n=257).

NEXT SLIDE

The likelihood ratio tests between the full and control models at each time point provided test statistics that correlated to p-values of <0.001. This indicates that the inclusion of the perception of support variable was better able to explain the variance in breastfeeding intensity across all months tested.

In the interest of time, I will go over the full coefficient model tables for months 1, 3 and 6 though you can find the full tables for each month in my thesis.

Bidirectional stepwise regression determined control variables for the one-month interval to be BFHI exposure, education, parity, BMI and breastfeeding attitude. The sample size for the 1-month interval was n=1080. For each variable, a coefficient and corresponding relative risk ratio was computed for both medium and high intensity breastfeeding. Low intensity was set as the reference level. The table includes a sample size for each variable and also indicates the reference level.

NEXT SLIDE

For Baby Friendly Exposure variable we assessed the number of steps each mother was exposed to. The reference level was set at 1 as the sample size of participants at the 0 level was too small to provide statistical analysis. We found that Exposure to 4 or more Baby-Friendly Hospital Initiative steps was correlated to statistically significant risk ratios for high intensity breastfeeding. For mothers exposed to 4 steps, the risk ratio for high intensity breastfeeding was 2.53 (95% CI: 1.30-4.91). For those exposed to 5 steps, the risk ratio was 4.92 (95% CI:2.22-10.90). For those exposed to 6 steps, the risk ratio was 6.81 (95% CI: 2.00-23.17). When we look at the sample size for 6 steps we see that there were only 71 participants that experienced all six steps. This may contribute to the large confidence interval.

NEXT SLIDE

A positive breastfeeding attitude was associated with low intensity breastfeeding. This is incongruent with findings within published literature concerning maternal attitude towards breastfeeding. For this study, at each month that breastfeeding attitude was included as a control variable, mothers with a positive breastfeeding attitude were less likely to breastfeed at a high intensity. We also found that positive attitude was correlated with a lower rate of receiving support and perceiving that support as helpful. I suspect this is due to the manner in which breastfeeding attitude was measured for the study. We used a question on the prenatal questionnaire which stated “Babies should be exclusively breastfed (fed only breastmilk) for the first 6 months” and it allowed mothers to respond on a scale from “strongly disagree” to “strongly agree”. Mother’s that marked “strongly agree” were categorized as having a positive attitude while all other responses were categorized as having a negative attitude. These exact categorizations were employed by Nnebe-Agumadu in published research using the IFPS II dataset to demonstrate maternal attitude as a predictor of exclusive breastfeeding at 3 months. The findings from this study call into question the accuracy of using a single question and single response for assessing breastfeeding attitude. The Iowa infant feeding attitudes scale (IIFAS) is a reliable, validated scale which includes 17 items with a 5-point Likert scale.102 The total IIFAS score can range from 17 to 85 with higher scores reflecting a positive breastfeeding attitude.102 While some of the items were included on the IFPS II questionnaires, the entirety of the scale was not available. I feel it is imperative for future iterations of the IFPS to include a validated scale assessing breastfeeding attitude. Research strongly indicates maternal breastfeeding attitude is a predictor of breastfeeding behavior and therefore must be accounted for in any dataset that aims to describe breastfeeding.

NEXT SLIDE

Nulliparity was associated with a risk ratio of 0.57 (confidence interval of 0.39 to 0.83) for high intensity breastfeeding at month 1. This suggests that greater support for first time mothers may be warranted to encourage increased breastfeeding intensity.

NEXT SLIDE

College level education, when compared to a High School education, was significant for both medium and high intensity breastfeeding. The risk ratio of medium intensity breastfeeding was 2.42 (95% CI:1.30-4.49) and high intensity was 4.56 (95% CI:2.62-7.94).

NEXT SLIDE

BMI at month 1 did not provide statistically significant differences between breastfeeding intensity ratios as confidence intervals all included 1.

NEXT SLIDE

For Perception of Support, the variable of interest, we found at the one-month time period that the risk ratio for high intensity breastfeeding compared to low intensity was 4.18 (95% CI:2.62-6.66) when the participant was exposed to helpful support. Unhelpful support had a risk ratio of 0.32 (95% CI:0.20-0.53) at the high intensity breastfeeding level. When evaluating medium intensity breastfeeding the risk ratio for helpful support was 2.66 (95% CI:1.54-4.60) and unhelpful support 0.42 (95% CI:0.23-0.76). So pretty strong evidence to suggest that perception of support is predictive of breastfeeding intensity.

NEXT SLIDE

At month 3, Bidirectional stepwise regression determined control variables to be BFHI exposure, education, parity, income, WIC participation and breastfeeding attitude. The sample size for the three-month interval was n=878. Again, Exposure to 4 or more Baby-Friendly Hospital Initiative steps was correlated to statistically significant risk ratios for high intensity breastfeeding. For mothers exposed to 4 steps, the risk ratio was 2.29 (95% CI: 1.22-4.30). For those exposed to 5 steps, the risk ratio was 5.38 (95% CI:2.55-11.36). For those exposed to 6 steps, the risk ratio was 6.75 (95% CI: 2.43-18.73). DiGirolamo’s research demonstrated a dose-related response relationship between number of steps and any breastfeeding at 6 weeks. The current study adds significant weight to these findings by categorizing breastfeeding behavior with intensity ratios, rather than any breastfeeding, and by evaluating through 6 months. As public health initiatives aim to increase the proportion of mothers engaging in exclusive breastfeeding, understanding the factors that differentiate between low and high intensity breastfeeding will allow for more effective interventions. This study indicates that exposure to 4 or more BFHI steps is correlated to higher intensity breastfeeding and further confirms the importance of encouraging hospitals to implement baby-friendly maternity care practices.

NEXT SLIDE

At three months, we found that any college experience was correlated to an increased risk ratio for high intensity breastfeeding. %). Education level has been indicated in research as a predictive factor in breastfeeding initiation, intensity and duration, with low educational status correlated to suboptimal breastfeeding outcomes.97–99 Findings from this study suggest that those with a high education level are more likely to engage in high intensity breastfeeding. While the risk ratios for low levels of education did not provide any conclusive answers, we did find that that those with lower levels of education were less likely to seek support for difficulties that arise in the early post-partum period. This may provide some explanation as to why lower educational status is connected with low-intensity and duration breastfeeding in the literature. Further research, with a more representative sample, is absolutely warranted to elucidate the relation, if any.

NEXT SLIDE

At the three-month time period, the risk ratio for high intensity breastfeeding compared to low intensity was 2.87 (95% CI:1.84-4.47) when the participant was exposed to helpful support. Unhelpful support had a risk ratio of 0.35 (95% CI:0.21-0.59) at the high intensity breastfeeding level. When evaluating medium intensity breastfeeding the risk ratio for helpful support was 1.69 (95% CI:0.94-3.03) and unhelpful support 0.22 (95% CI:0.10-0.50).

NEXT SLIDE

Bidirectional stepwise regression determined control variables for the 6-month interval to be BFHI exposure, education, parity, WIC participation and breastfeeding attitude. The sample size for the 6-month interval was n=793. Exposure to 4 or more BFHI steps was correlated to statistically significant risk ratios for both high and medium intensity breastfeeding. For mothers exposed to 4 steps, the risk ratio for high intensity breastfeeding was 2.28 (95% CI: 1.09-4.76). For medium intensity risk ratio was 3.63 (95% CI:1.67-7.92). For those exposed to 5 steps, the risk ratio at high intensity was 4.18 (95% CI:1.89-11.92) and at medium intensity 5.30 (95% CI: 2.28-12.33). For those exposed to 6 steps, the risk ratio at high intensity was 4.64 (95% CI: 1.80-11.92) and medium intensity 4.16 (95% CI:1.49-11.55). Again, these findings are very significant when discussing the impact of baby-friendly practices. These findings suggest that the effects persist across the entire 6 months of the infants life. Due to limitations of the dataset, only 6 of the 10 steps could be evaluated. Further research that can include exposure to all ten steps is warrented.

NEXT SLIDE

WIC participation is associated with a risk ratio of 0.52 (0.31-0.89) for high intensity breastfeeding. This finding supports the findings in the literature that associate WIC participation with decreased rates of exclusive breastfeeding.

NEXT SLIDE

At the six-month time period, the risk ratio for high intensity breastfeeding compared to low intensity was 1.40 (95% CI:0.87-2.24) when the participant was exposed to helpful support. Unhelpful support had a risk ratio of 0.33 (95% CI:0.17-0.65) at the high intensity breastfeeding level. When evaluating medium intensity breastfeeding the risk ratio for helpful support was 2.04 (95% CI:1.26-3.29) and unhelpful support 0.58 (95% CI:0.31-1.09). The risk ratio at month 6 for high intensity breastfeeding was the first to not show significance, although mothers who received helpful support were 2 times more likely to be breastfeeding at medium intensity. We also saw that mothers who indicated breastfeeding support was unhelpful were 67% less likely to engage in high intensity breastfeeding by 6 months. These findings suggests that the mother’s initial response to breastfeeding support is predictive of breastfeeding behaviors through 6 months. A study by Cernadas et al. evaluated factors that influenced the duration of exclusive breastfeeding during the first 6 months of life and found a significant association between longer duration breastfeeding and positive maternal attitudes, adequate family support, good mother-infant bonding, appropriate suckling technique and no nipple problems.96 Suckling technique and nipple problems are frequently cited in early breastfeeding difficulties. Our research builds on the research conducted by Cernadas and demonstrates that increasing duration of breastfeeding is correlated with helpful support to correct those breastfeeding difficulties. The findings from this research can be leveraged to deliver more immediate feedback to the caregivers providing breastfeeding support in the postnatal period. Mother’s indicating unhelpful support are at increased risk for low intensity breastfeeding and can be targeted for further interventions.

NEXT SLIDE

This graph depicts the average breastfeeding intensity at each month by the perception of support. Participants with breastfeeding difficulties that did not receive support (No Support) are provided as a reference point. Average breastfeeding intensity ratios is along the y-axis. This graph provides a depiction of the decrease in breastfeeding intensity over time among the groups.

NEXT SLIDE

In order to understand breastfeeding difficulties in relation to perception of support, we categorized the difficulties according to how mothers perceived support. We found that the breastfeeding issues that were most likely to receive ‘Helpful Support’ included ‘Breasts were infected or abscessed’, ‘mom had a clogged milk duct’ and ‘mom had trouble getting milk flow to start’

NEXT SLIDE

The issues that were least likely to receive helpful support included ‘it took too long for milk to come in’ ‘nipples were sore, cracked or bleeding’ and ‘baby was not interested in nursing’ Aggregating mothers’ perception of support by breastfeeding difficulties allows us to evaluate those issues which are frequently indicated in unhelpful support. A study by Feenstra found that early breastfeeding problems, sore nipples being a prominent problem, were significantly correlated with early breastfeeding cessation.103 A study by Brownell et al. found an association between delayed lactogenesis II, defined as greater than 3 days for milk to come in, and an increased risk of breastfeeding cessation at 4-weeks postpartum (OR1.62 [95%CI 1.14-2.31]).104 This research adds to these findings by identifying those problems as ones that are the least likely to receive support that is perceived as helpful. Further research on intervention programs and caregiver training could focus on evaluating the support practices that are best suited to address those specific difficulties.

NEXT SLIDE

Strengths of the current research study include the utilization of breastfeeding intensity ratios. This provides a more nuanced understanding breastfeeding behaviors and allows us to evaluate those practices that will help move the needle in the direction of exclusive breastfeeding. As far as we are aware, this is the first study to evaluate the impact of mother’s perception of support on breastfeeding intensity through 6 months.

A limitation in this study was the inability to differentiate between the caregivers providing breastfeeding support. The IFPS II question asks, “Did you get any help with these problems from a health professional, a lactation consultant, or a breastfeeding support group?” This allows for a wide range of expertise regarding breastfeeding knowledge and the ability to provide appropriate, evidenced-based support. Research has continually indicated the effectiveness of lactation consultants at increasing exclusivity and duration of breastfeeding.91 Peer support has also been indicated as an effective tool for increasing breastfeeding duration.105 Despite this, it is possible that certain providers are more equipped to handle specific breastfeeding issues. Lactation consultants are required to complete extensive education and training in breastfeeding matters. One could posit that lactation consultants are therefore better prepared to address breastfeeding difficulties than healthcare workers or breastfeeding support groups. In order to test this hypothesis, future iterations of the IFPS would need to differentiate between caregivers in order to compare the effectiveness of support. It would also allow for analysis of who moms are most likely to seek support from for specific issues.

A major limitation of the IFPS II study is that the sample, while well distributed across the United States, was not representative of the population.89 This limitation is consequently extended to the findings of this study. By utilizing a nonrandom sample, white women, women of higher socioeconomic status, women who could read English, and women from households with a stable mailing address where overrepresented within the IFPS II data. Results therefore cannot be generalized to the overall US population of pregnant women and new mothers. Further research is warranted to identify whether the results from this study could be replicated when using a representative sample.

And, as discussed earlier, this research lacked a validated scale to assess breastfeeding attitude.

NEXT SLIDE

Exclusive breastfeeding through 6 months has been designated as the optimal feeding pattern, but data has clearly indicated that few mothers are reaching that goal. Evaluating breastfeeding behaviors using intensity ratios allows for a more detailed understanding of breastfeeding behaviors and what factors impact the level of intensity. Identifying those factors that encourage mothers to breastfeed at a high intensity, versus medium or low intensity, will allow us to move in the direction of exclusive breastfeeding. Findings from this study can be leveraged to deliver more immediate feedback to caregivers providing breastfeeding support. Further research and intervention programs could focus on evaluating support practices that are best suited to address those difficulties that are frequently indicated as receiving unhelpful support. Another iteration of IFPS would allow for the examination of how the 2018 BFHI revisions impacted the likelihood that mothers seek support in the presence of breastfeeding difficulties. The relationship between education level and breastfeeding support, and the resulting impact on breastfeeding outcomes, also warrants further investigation.