

Introduction:

The AAP (American Academy of Pediatrics), AAFP (American Academy of Family Physicians), ABFM (Academy of Breastfeeding Medicine) and WHO (World Health Organization) recommend exclusive breastfeeding for the first six months of life¹. Exclusive breastfeeding is defined as feeding only on human milk with no supplementation of any kind, including water or non-human milk. Exceptions are for vitamins, minerals and medications. This study is coming at a time when Unity Point Methodist is in the process of securing its Baby Friendly designation. Breastfeeding, with its key health benefits for infants including reducing risk of asthma and SIDS, is a key strategy to improve Public Health. Maternal benefits of breastfeeding also include decreased risk of breast cancer, ovarian cancer, postpartum depression, hypertension, cardiovascular disease, and type 2 diabetes mellitus. Infants who are breastfed have a decreased risk of atopic dermatitis and gastroenteritis and have a higher IQ later in life². Skin-to-skin contact at birth, early initiation of breastfeeding, lactation support, the Baby-Friendly Hospital Initiative (BFHI), breastfeeding education, and following professional recommendations are important for the initiation and continuation of breastfeeding(2)

OBJECTIVES

Breastfeeding rates among our populations at our Family Medical Center and Carver Clinics are not optimal. During our Maternal Newborn Pediatrics Service (MNPS) rotations, we observed that many FMC postpartum women who formula fed their newborns had a lack of understanding of the benefits of breastfeeding. Many of these women were not able to articulate the advantages of breastfeeding for themselves or their newborn. A prior study conducted by Drs. Dobbins, Beri and Kaur (2015) on our Family Medical Center population had noted that the rate of exclusive breastfeeding was below the Illinois average. The US Public Health Services 'Healthy People 2020' set national breastfeeding goals of 81.9% of babies breastfeeding at birth, 60.6% at 6 months and 34.9% at 1 year. The US has not met its breastfeeding goals. From the CDC's annual survey of breastfeeding rates, and the Department of Health and Human Services Healthy People 2020 objective, Illinois average is 81.1 percent of mothers breastfeeding at least once, which put Illinois at No. 29 in the nation for percentage of mothers who initiated breastfeeding (3). According to a survey in the United Kingdom, up to 81% of mothers initiated breastfeeding at birth; however, the rate dropped to 42% by six months, and 71% of breastfeeding mothers reported a concern with breastfeeding. This is comparable to data in the United States showing 81.1% of capable women initiate breastfeeding, 51.8% continue for six months, and 30.7% continue for 12 months(3).

Notably, the population we serve are of low socioeconomic status, with access to WIC (Women, Infants, Children), a governmental service which provides formula to low-income or unemployed mothers. Teenage pregnancy is also common, and many have not completed secondary or post-secondary education. The ethnic populations we primarily serve are also African American and Hispanic mothers. Previous research has suggested that these aforementioned groups are most vulnerable to low breastfeeding rates(3). Some studies have suggested that focused support and education to pregnant women during the antenatal period has improved their breastfeeding rate(4). Our study's aim was to target these vulnerable populations with standardized education during their first trimester and determine whether this educational intervention impacted their decision to breastfeed, and as a result, overall breastfeeding rates.

METHODS:

Inclusion criteria were pregnant females who received prenatal care at the Family Medical Center from their first trimester. Pregnant females who received prenatal care outside of the FMC or received care at FMC after their first trimester were excluded.

Participants in the study for the year 2017/2018 were enrolled during their initial or subsequent prenatal visits in their first trimester by signing consent forms and filling out an antenatal survey. The survey encompassed certain variable including race, educational qualifications, relationship status and if they had ever received breastfeeding education. Patients were then given standardized breastfeeding education during their second trimester of pregnancy by Resident Physicians. A postpartum survey was then administered at their 6-week postpartum checkup to ascertain if they were breastfeeding, what form of support they received while initiating breastfeeding, any barriers to breastfeeding exclusively for those who were not and if the education they received played any role in helping their decision.

A retrospective chart review was also carried out on all deliveries by FMC patients in the year 2015/2016 and this served as the control group.

RESULTS

A total of 144 charts were reviewed for the year 2015/2016 of which 14 patients were lost to follow up (1 baby was adopted out, 2 patients are now deceased, 2 fetal demise and 9 charts did not have documentation regarding mother's choice of feeding). 130 was the total number used for analysis as below.

Pre education:

Patient age 25.2 ± 5.8

**BREASTFEEDING
DATA 2015/2016**

BREAST	52
BOTTLE	60
BOTH	18
LOST	14

Rate of breastfeeding = (52+18)/130=0.538=53.8%

95% confidence interval is [45.2%, 62.4%]

For the year 2017/2018, only 17 surveys were collected. This is by no means the number of deliveries at FMC for the year. However multiple patients did not meet the inclusion criteria and as such, were excluded, chiefly for seeking prenatal care at FMC after their first trimester.

<i>Variables</i>	<i>N=17(%)</i>
AGE	
N	17
Mean ± SD	26.0 ± 6.1
Missing	0
RACE	
AA	8 (47.1)
ASIAN	1 (5.9)
CAUCASIAN	7 (41.2)
HISPANIC	1 (5.9)
Missing	0
Education_level	
GRADE 10-12	13 (76.5)
MASTERS or M	2 (11.8)
SOME COLLEGE	2 (11.8)
Missing	0
Employment_status	
EMPLOYED	10 (58.8)

<i>Variables</i>	<i>N=17(%)</i>
UNEMPLOYED	7 (41.2)
Missing	0
RELATIONSHIP STATUS	
IN RELATIONSHIP	4 (23.5)
MARRIED	6 (35.3)
SINGLE	7 (41.2)
Missing	0
WIC	
NA	1 (5.9)
NO	1 (5.9)
YES	15 (88.2)
Missing	0
BREASTFEEDING EXPERIENCE	
NO	5 (29.4)
YES	12 (70.6)
Missing	0
BREAST OR BOTTLE	
BOTH	4 (23.5)
BOTTLE	3 (17.6)
BREAST	9 (52.9)
NA	1 (5.9)
Missing	0
DELIVERY METHOD	
C SECTION	4 (23.5)
FETAL DEMISE	1 (5.9)
VAGINAL	12 (70.6)
Missing	0
LACTATION SUPPORT	
NA	1 (5.9)
YES	16 (94.1)
Missing	0

After education:

Rate of breastfeeding= (4+9)/16=0.813=81.3% 95% confidence interval is [62.2%, 100%]

Patients “LOST” and “NA” were excluded from the calculation.

z-test for independent proportions was used to compare the rates of breastfeeding before and after education. Here since after education, we do not have enough sample size to adjust for other factors such as education level, employment status, marital status and age.

z-test p_value = 0.018, at significance level of 0.05, the rate of breastfeeding after education may be greater than the rate of breastfeeding before education. However, we do need larger sample size to adjust for other factors to make a firm conclusion.

The 95% confidence interval for the difference between the rates after and before education is [6.4%, 48.4%].

Note: here the difference is rate after minus rate before education.

Note: Interpretation of 95% CI

For example, for the difference of rates between after and before education: we are 95 percent confident that the difference between the two population proportions is somewhere between 6.4% and 48.4%. If we were to repeat the study many times and compute confidence interval in the same way, about 95 percent of the intervals would include the difference between the population proportions.

DISCUSSION

Overall, the rate of breastfeeding in the intervention group (81.3%) was higher than in the control group (53.8%). However, sample size is not enough for significance and the study design was also not able to correlate for any causation or if the education provided antepartum had any impact on patients' decision to breastfeed. The impact of other variables including educational level, relationship status and previous breastfeeding experience was also not well delved into. Some barriers identified include not enough family support, some mothers wanted to return to work and were not sure they would have adequate support for pumping while on the job. One had a difficult labor and as such was not interested. Another was treated presumptively for endometritis after a difficult labor which ended in a c section.

Most mothers had access to and utilized WIC but did not indicate if this was a factor in their decision to not continue breastfeeding exclusively. Rate of breastfeeding after education was 81.3%, which is still below the Healthy People 2020 goal of 81.9%, but above Illinois average of 81.1%. According to the UK survey mentioned earlier, the top three reasons why women discontinued breastfeeding were concerns about insufficient milk supply (31%), inadequate latching (19%), and painful nipples or breasts (12%) but these were not significant barriers in this study, though these are common concerns we hear voiced when rounding on postpartum mothers.

LIMITATIONS AND FUTURE RECOMMENDATIONS

A major limitation of the study is the poor sample size. Future recommendation would be to expand the study period so as to include more patients. This will give enough data to establish if there is any causation between increase in breastfeeding rates and education provided. Study also needs to expand beyond just initiation of breastfeeding to include those still exclusively breastfeeding at 3, 6 and 12 months. This would serve well towards establishing if we are actually meeting our Healthy People 2020 goals at the FMC. One suggestion would also be to have a standard postpartum visit documentation template to include all crucial aspects of the visit, in case of needing to perform retrospective chart review in the future. This would help minimize number of charts which would be categorized as lost to follow up.

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