Mother's reactions to a skills-based breastfeeding promotion intervention

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Abstract

We interviewed women who participated in a breast-feeding promotion intervention study about whether and how participation affected their infant feeding choices, and if they would recommend such an intervention to others. The larger study, a randomized controlled trial (RCT) of an individualized, pre- and post-natal lactation consultant (LC) intervention, enrolled 382 low-income primarily Black and Hispanic women in New York City. Twenty-one women completed qualitative exit interviews for this study (11 from the Intervention group and 10 Controls). Several of the Controls stated that the post-partum study interviews were a source of support, and made them more conscious of how they fed their infant. The Intervention Group was asked about contacts with the study 'Mother-Baby specialist' (i.e. LC), including what was and wasn't helpful. The Intervention Group participants described the Mother-Baby Specialist as key in their decision to initiate and maintain breastfeeding. They credit her direct skills and positive reinforcement with their confidence and perseverance to breastfeed. The success of the intervention is attributed to technical assistance from a trained lactation consultant within the context of a relationship built on encouragement, guidance and support.

Keywords: breastfeeding, randomized controlled trial, qualitative research, interview, lactation consultant, exit interview.

Introduction

Healthy People 2010 imposes a goal of 75% breast-feeding in the early post-partum period, and 50%

continuing to breastfeed to 6 months (US Department of Health & Human Services, 2000a). A Department of Health and Human Services blueprint outlines a governmental strategy for moving toward these goals (US Department of Health & Human Services, 2000b). A federally financed social marketing campaign, launched in 2004, for the first time, emphasizes the risks of not breastfeeding, and the importance of exclusively breastfeeding for 6 months

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(The National Breastfeeding Awareness Campaign, 2005). Within this context, how women *view and accept* the breastfeeding support efforts that are increasingly being offered will bear on their success.

There is no dearth of literature on the factors associated with breastfeeding, or the results of breast-feeding promotion interventions. As several meta-analyses and reviews confirm the most effective interventions combine information and guidance with long-term and intensive support (Renfrew & Lang, 2000a, 2000b, 2000c; Sikorski & Renfrew, 2000; de Oliveria *et al.*, 2001; US Preventive Services Task Force, 2003).

There is, however, little data on how women react to the breastfeeding support initiatives they are offered. A study in the UK (where midwifery is extant) found that women valued practical demonstrations and being shown how to feed their baby, rather than being told how to (Hoddinott & Pill, 2000). Women in a Canadian randomized controlled trial (RCT) reported that peer volunteers assisted them in reaching their breast-feeding goals – although the peer volunteers recommended providing aid only to women who want peer support (Dennis, 2002). A qualitative exploration of the breast-feeding experiences of low income women in the USA – who are among those least likely to breast-feed in that country – did not focus on the peer support the women received (Locklin, 1995).

In the USA, unlike in the UK, most pre- and post-natal care is delivered by physicians. While there are various programmatic and community-based resources, there is no standardized breast-feeding education or support system. Routine public health post-partum home visiting is not standard practice, and is generally not paid for by public or private health insurance. While it is standard policy for breast-fed babies in the US to have a pediatric visit in the first 2–3 days after birth (American Academy of Pediatrics, 2005), only 50% of US physicians surveyed rate themselves as effective in counselling breast-feeding women or know the appropriate clinical management for selected breast-feeding complications (Freed *et al.*, 1995).

This paper reports on a qualitative analysis of exit interviews conducted with women who had been

involved in an RCT of a multi-component, skills-based breast-feeding intervention. The RCT's primary outcome measures were infant feeding patterns and health care use in the first 12 months of life. The intervention employed in-person, individualized lactation support spanning the pre- and post-natal periods, including home and hospital visits. As cited above, this type of face-to-face, sustained, direct assistance is the most effective for increasing breastfeeding.

For this study, qualitative telephone interviews at the participant's exit from the trial, shortly after the baby's first birthday were designed to gather feedback about whether and how the study impacted on infant feeding practices. The Intervention group participants responded to specific queries about their contacts with the lactation consultant (LC), including what was and was not helpful. After describing the intervention components to Control group participants, they were asked whether they would seek or recommend such services to others. Respondents were comprised of a subsample of RCT participants.

Materials and methods

Study setting and design

Pre-natal patients at two Bronx, New York health centres serving low-income, primarily Black and Hispanic patients were eligible. Bi-lingual English–Spanish study staff recruited participants, and obtained their written informed consent to participate in the trial. Eligible women who agreed to participate were randomized into the Specialist (intervention) or Regular Care (control) group, using an undisclosed blocking factor, and stratified by centre. Series of envelopes containing the treatment assignment were given to the research assistant at the site, with instructions to open the envelopes in sequence and assign the women to the corresponding intervention or control group. For ease of understanding, the terms 'Specialist' and 'Regular Care' were used with participants.

Participants completed a baseline interview during the prenatal period, covering demographics, previous breast-feeding experience, intention to breastfeed

and knowledge about breastfeeding. Eight post-natal follow-up interviews were scheduled for at 1, 2, 3, 4, 6, 8, 10 and 12 months post-partum to assess detailed weekly infant feeding information and infant health service use.

The study was conducted by faculty researchers at the medical centre affiliated with the participating sites. The research was financed by several federal agencies. All research procedures and protocols were reviewed and approved by the Institutional Review Board of Montefiore Medical Center in Bronx, New York.

Trial enrolment

A total of 382 women (385 maternal/infant dyads, owing to three sets of twins) were randomized into the study ($n = 188$ Intervention, $n = 194$ Control). Of these, 21 maternal/infant dyads were excluded at contact for post-natal follow-up ($n = 15$ Intervention, $n = 6$ Control). Exclusions included: (1) mothers of twins (a decision was made after data collection was complete to exclude from analyses, $n = 2$ Intervention, $n = 1$ Control); (2) women who chose to withdraw from the study ($n = 3$ Intervention, $n = 2$ Control); and (3) women who miscarried or terminated their pregnancy ($n = 8$ Intervention, $n = 2$ Control) since Baseline. Of the remaining 364 women ($n = 175$ Intervention, $n = 189$ Control) after exclusions, at least one post-natal follow up was obtained for 304 women ($n = 145$ Intervention, $n = 159$ Control).

Description of the intervention

Prenatal

A study LC met individually with Intervention group women twice pre-natally, attempted post-partum hospital and home visits, and was available for phone consultation up to 12 months. The initial prenatal meeting first focused on trust and rapport, then educational content. The LC assessed feeding intentions and discussed breastfeeding's benefits. A flip-chart depicting the physiology of breastfeeding and colour

pamphlets was reviewed. The second meeting addressed what to expect post-partum, and specifics on how to initiate breastfeeding in the hospital, e.g. latch-on, positioning, importance of early initiation, demand-feeding. Practice with a culturally appropriate lactation doll and nipple was offered.

Post-natal

We sought to identify women in the hospital for LC visits through daily faxes of women on the Labour & Delivery floors of the hospital that served as delivery site for both health centres. LCs also phoned Intervention group women weekly as their expected delivery date neared. Initial hospital and home visits provided instruction in latching on, proper positioning and other techniques to avoid common breastfeeding complications, and pump use. Note, while a 'hands-off' technique has achieved success in the UK and may empower women (Ingram *et al.*, 1992), LCs did not, as a matter of practice, employ this technique, nor is it a universal practice in the USA. After breastfeeding was established, topics included: (1) frequency of feeding, (2) confidence, (3) stooling patterns, (4) determining adequate intake, and (5) maternal nutrition. If later contacts were made, they tended to focus on expressing and storing milk, fatigue, nursing in public, returning to school or work, and supplementing. The LCs helped mothers garner support from their families, schools, workplaces and health care providers.

The study utilized two Lactation Consultants (LCs). One LC was IBCLC certified, and another was a La Leche leader preparing for her IBCLC examination. Study LCs attempted meetings with all Intervention group women twice in the prenatal period, in the hospital and home visits after the birth, and was available for telephone consultation. Table 1 provides data on the proportion of women randomized into the Specialist group for the RCT who had prenatal contact with a study LC (59%), post-natal contact (58%), either pre- or post-natal contact (74%), or both pre- and post-natal contact (43%). Women were sometimes discharged from the hospital before our LC could meet with them; routine post-partum hospital stays in the USA are 48 h for a vaginal birth and

Table 1. Intervention group 'dose' of intervention received

	<i>n</i> (%) receiving any (<i>n</i> = 175)*
Prenatal	
Any prenatal contact	104 (59.4%)
2 prenatal contacts	84 (48.0%)
Post-natal	
Any post-natal contact	102 (58.3%)
Hospital visits	39 (22.3%)
Home visits	83 (47.4%)
Phone calls	83 (47.4%)
Pre- and post-natal	
Any contact*	130 (74.3%)
Both pre- and post-natal contact	76 (43.4%)
Neither pre nor post-natal contact	45 (25.7%)

*These 175 women include those who were randomized into the Intervention group and not otherwise excluded.

4 days for a Cesarean. Thus home visits by the LC (47%) were more common than hospital visits (22%).

Control group women received the standard care provided by the health centre. This included routine prenatal visits with an obstetrician/gynecologist or family physician, who provide the majority of prenatal care in the USA. While it is standard practice to inquire about intended feeding method, any specific education or counselling about infant feeding is at the discretion of the providers. Control group women had no contact with the study LCs and had no in-person contact with the interview staff beyond the recruitment/enrolment meeting. All Intervention and Control group women completed the post-natal 'check-in' interviews by telephone.

Data for the qualitative study presented here were gathered from an exit interview conducted immediately following the 12-month 'check-in' call for data collection for the RCT. Data presented here are for exit interviews conducted with 21 of the 382 women enrolled in The MILK Study. Interviews were conducted with these 11 Intervention and 10 Control Group women, who completed a 12 month interview and agreed to complete the exit interview. As this component of the study was not planned *a priori*, these 21 women represent a convenience sample of women exiting the MILK Study during the data collection period for this study. Data were not collected

on women who declined to complete this exit interview. Thus, women who completed the interview may have felt more engaged with the research assistant conducting the interview or been more verbal, which would bias the sample towards women who felt more positive about the study and/or intervention. No attempt was made to exclude women or comments that reflected negatively on either.

Procedures and measures

After the interviewer completed the 12-month 'check-in' data collection with a woman, she was asked if she would be willing to answer a few more questions for the exit interview. The exit interview lasted between 10 and 30 min. Interviewers noted responses on the interview guide at the time of the interview. The notes were later typed into a text document.

The Interview Guide (see Appendix 1), included questions about general perceptions and experiences as a MILK Study participant. Intervention group women were asked about their experience meeting or talking with the study Mother–Baby Specialist and whether they would seek the services of such an individual for future children or recommend one for other moms. Control group women were also asked if they would seek or recommend the services of a Mother–Baby Specialist, though they did not meet with The MILK Study LCs as a Control Group participant. Prior to asking this question, Control group women were told that a Mother–Baby Specialist: 'provides guidance and counselling about infant feeding before and after you have the baby, and; is specifically trained to help women who choose to breast-feed. She could visit you in the hospital after you have the baby or at home to help with breast-feeding.' [Note: Study staff used the term 'Mother–Baby Specialist' rather than Lactation Consultants with all study participants. This term was specifically coined for this study.]

Both groups were also asked about whether being in the study influenced how they fed their baby, and to describe how it did. Women in the Intervention group were asked if they got to meet with the Mother–Baby Specialist before and/or after the

baby's birth. As shown in Table 1, not all women in the Intervention group had contact with the study LC. In contrast, all of the Intervention group women interviewed for this study had met with the Mother–Baby Specialist, and reported doing so during the course of their interviews. Specialist group women were asked to describe the meetings, and anything they remembered about them. To elicit the women's understanding of the study, we asked, 'How would you describe the point of the study to a friend?' and 'You are in the (Regular Care or Specialist) Group. What does that mean to you?'

Analysis

Notes and transcripts from the interviews were entered into N6 (N6, Qualitative Data Software, QSR International: Melbourne, Australia), a qualitative data management and analysis program. Themes were derived from the question guide (see Appendix 1) and a coding scheme was written. Interview text was coded by the researcher. Additional

themes were developed based on a first coding and a second round of coding was conducted. These themes were then grouped in major themes, which included those reported on: (1) impact of the study on feeding practices; (2) the decision to breastfeed; (3) learning how to breastfeed; (4) continuing to breastfeed, and future use of a Mother–Baby Specialist. Reports were then generated by Specialist/Regular Care Groups and by each major theme. Findings for the Specialist Group are presented thematically. Most themes were not applicable to and thus not present in the Regular Care interviews. Therefore, findings from the Regular Care interviews are more briefly summarized.

Results

Demographics of exit interview sample

We compared the demographics of the women completing the exit interview, with the entire sample. Results are shown in Table 2. The women in our exit interview sample were broadly representative of the

Table 2. Comparison of total and exit interview samples

Background characteristics	Total sample (<i>n</i> = 382)*	Exit interview women (<i>n</i> = 21)
Has children	225 (59%)	13 (62%)
Prenatal feeding intent		
Formula only	36 (9%)	1 (5%)
Mixed formula/breastmilk	181 (47%)	6 (29%)
Breastmilk only	118 (31%)	10 (48%)
NA	47 (12%)	4 (19%)
Race/ethnicity		
Black	142 (37%)	11 (52%)
Hispanic	210 (55%)	8 (38%)
Other	30 (8%)	2 (10%)
US-born	232 (61%)	11 (52%)
Mean age (±SD)	25.3 ± 6.13	25.6 ± 6.01
Post-natal feeding at 2 months [†]		
Formula only	118/290 (41%)	7/21 (33%)
Mixed formula/breastmilk	128/290 (44%)	10/21 (48%)
Breastmilk only	44/290 (15%)	3/21 (14%)
Post-natal feeding at 3 months [‡]		
Formula only	130/273 (48%)	8/21 (38%)
Mixed formula/breastmilk	116/273 (42%)	10/21 (48%)
Breastmilk only	27/273 (10%)	2/21 (10%)

*Of the 382 women enrolled in the study, 3 were pregnant with twins. These 3 women (i.e. 6 infant outcomes) were subsequently excluded from the study; [†]Post-natal feeding rates at 2 months are based upon the women (*n* = 290) for whom feeding data were collected at 2 months;

[‡]Post-natal feeding rates at 3 months are based upon the women (*n* = 273) for whom feeding data were collected at 3 months.

entire study sample in terms of age, parity, and US birth. Less similarity was found with regard to Race/Ethnicity, and prenatal feeding intentions. Post-natal feeding patterns were roughly similar. By 3 months, the exit interview sample was slightly less likely to feed only formula (40% vs. 48% for entire sample), and slightly more likely to combine formula and breastmilk (50% vs. 42% for entire sample). Just 10% of both the exit interview and entire samples reported exclusive breastfeeding at 3 months. Given that the 21 women represents just 7% of women who provided infant feeding data (21/304), any comparisons between the exit interview and entire samples must be made with caution.

Specialist group (intervention group)

General feedback on mother–baby specialist contacts

Feedback from women who were in the Specialist Group was overwhelmingly positive. All but one woman in the Specialist Group commented specifically about the positive influence or support for breastfeeding the Mother–Baby Specialist gave to them over the course of their pregnancy and baby's first year of life. Women's comments in this area indicate that the Mother–Baby Specialists had a strong influence on women in their decision to breastfeed, development of their breast-feeding skills and willingness and ability to continue breastfeeding. Additionally, the Mother–Baby Specialists were seen as a source of support and confidence for them as mothers. The Mother–Baby Specialists were credited with helping in ways unrelated to breastfeeding such as how to make a bottle of formula, listening to women's problems and concerns and offering general encouragement and support.

The decision to breastfeed

At first it was like I was against breastfeeding. I thought 'who would want to do that', but then (the Specialist), she had all the facts. She told me that when you breastfeed your baby will be healthier ... and learn easier.

(18 years old African-American woman, breastfed 2 months)

Even more than a year post-partum, women recalled their first meeting with the Mother–Baby Specialist positively and specifically. One woman commented how the Specialist helped her to 'prepare for what to expect' about breastfeeding. Another commented that she had not considered breastfeeding before her first meeting with her Mother–Baby Specialist but after she 'knew that she definitely wanted to do it.' Some women also commented that their prenatal meeting with the Mother–Baby Specialist was some of the only specific information they recalled receiving about breastfeeding during their pregnancies, even from their physicians. They recalled that not only did the Mother–Baby Specialists talk about the benefits of breastfeeding prenatally, they began to teach basic skills during this phase. Women reported learning skills during their pregnancy such as how to hold or prop the baby in the proper position, how to alternate breasts, look for a proper latch and how and when to use a breast pump.

Learning how to breastfeed

I was happy and surprised. She helped me feel more confident when she helped me feed the baby ... I felt closer to the baby.

(18 years old African-American woman, breastfed 2 months)

It was 'not a nuisance at all!'

(30 years old African-American woman, breastfed 12 months)

Equally important were the direct skills and in-person assistance the Mother–Baby Specialist provided to breast-feeding mothers. The provision of actual 'hands on' assistance, although not directly assessed, may have been provided as well. Many women found the Mother–Baby Specialist's effort and commitment to observe the full duration of a feeding very helpful. Women spoke specifically of learning to recognize when the baby is correctly latched onto the breast. They also spoke of the reassurance, encouragement and praise the Mother–Baby Specialist provided while observing a feeding. The women trusted the feedback from the Mother–Baby Specialist based on observing a feeding that they were 'feeding well', and felt more confident as a result. This confidence and

pride was evidenced not only in their words, but tone of voice and actions as they met and overcame challenges associated with continuing to breastfeed.

Continuing to breastfeed and future use of a mother–baby specialist

I wouldn't have continued (breastfeeding) if it wasn't for the MILK Study.

(26 years old Dominican woman, breastfed 6 months)

The LCs were available for telephone consultation for the baby's first year of life, and sometimes 'ran into' the mothers at the clinic (see next comment). As each woman was assigned to one of the two LCs, the LC provided a continuum of care to the mothers assigned to her. Comments from Specialist group women suggest that the LCs sustained care and availability helped some women to continue to breastfeed longer than they might have otherwise. In the baby's first few months of life, the LCs helped mothers overcome soreness or engorgement and taught them how to breastfeed discretely or to look for a private place to breastfeed. Though the clinics were not perceived to be breastfeeding-friendly places, mothers reported that the LCs helped them to overcome this obstacle at subsequent clinic visits. These clinics are busy, institutionalized inner-city health care centres, not solely dedicated to women's health. Breastfeeding is not the norm in this community, and is rarely seen in public places, such as these clinics.

One mother stated she felt 'ashamed because there were a lot of people around' at the clinic, but the Mother–Baby Specialist encouraged her to ask for private space so that a visit to the clinic would not be a barrier to continuation of breastfeeding. Many Specialist Group women also reported that the instruction they received about using a breast pump helped them breastfeed upon return to work or school. Some women returned to work or school as soon as 8 weeks post-partum. Women credited the Mother–Baby Specialists with helping them through these challenges and preventing them from 'giving up' breastfeeding.

Every mother interviewed in the Specialist group stated she would use such an individual in the future,

and all but one would be willing to pay a small fee for the service. Women recommended the service especially for 'young' or 'teenage mothers', and 'Latinas and people in low income areas'. Only one woman stated that her Mother–Baby Specialist had not been an influence in how she fed her baby. However, all her other comments about the study, interaction with her Mother–Baby Specialist and the interviewer were positive. She found the meetings informative, would recommend the services of a Mother–Baby Specialist to young, new moms and would pay a fee to see an LC in the future.

Regular care group (control group)

The Regular Care group was also asked about the impact the study might have had on their feeding practices. The study protocol dictated that the Regular Care women not have any direct contact with the study Mother–Baby Specialists, and that the interviewers not give any information or advice to either group. However, as the study got underway we began to suspect that the focused questions on infant feeding, both breastfeeding and formula feeding, in the context of high measured knowledge in both groups that breastfeeding is best for babies, might have influenced feeding practices even in the Regular Care group.

I thought that I would be judged by the answers that I gave you, so I kept going with the breastfeeding, even though [baby's name] didn't want it anymore. I kept feeding her for three or four months, as long as I could, because I know that you'd be calling every month.

(29-year-old Hispanic woman, breastfed 4 months)

Some mothers made neutral comments about the follow-up interview calls, describing them as 'not time-consuming', or 'not too nosey' or not 'minding any of the questions'. Others flatly stated that the study had no influence on their decision on how to feed their baby – 'I just gave him whatever I can, what's in my house'. However, several made comments indicating that the calls themselves were a source of support. One mother 'looked forward' to the calls because she was able to 'talk freely' and 'not

be judged', while others described the calls as 'helpful' or 'positive'.

Four of the 10 Control Group mothers reported that the calls themselves influenced how they fed their baby. One mother said they 'made her think more about what she and her family feed him'. Another said, 'I know you're going to call and find out what I've been giving him'. Another said, 'it made me think about how I was feeding her. Like after we'd talk I'd think about all the different things I feed her, and how much she was getting, and sometimes I didn't even realize things until I was talking to you'.

When asked if they would have liked to meet with a Mother–Baby Specialist, many Control group women were interested in having that option. Women expressed interest in learning more about infant care in general and breastfeeding specifically. One woman stated the only benefit she knew to breastfeeding was that if the WIC supply of formula ran out, 'the extra milk is free'. Another stated that though she herself breastfed, she felt other mothers would benefit from more education and support, and that part of the problem is that 'they don't see it (women breastfeeding)'.

Discussion

Qualitative exit interviews with participants in a randomized controlled trial of a breast-feeding promotion intervention elicited feedback on the study's impact upon feeding practices, and participants' study experience. Intervention Group women credit the LCs with helping them to initiate and continue breastfeeding by providing encouragement, boosting their confidence and spending the time to teach breast-feeding skills, even while pregnant. The LCs were also effective by observing entire breast-feeding sessions and offering positive reinforcement and/or modifications as needed. We estimate the cost of providing this intervention at approximately \$265(US)/woman, with each Intervention Group woman receiving an average of 198 min of direct LC time (Bonuck, 2004).

In separate discussions, the study LCs reported that women didn't perceive their healthcare professionals as being able to provide sustained encouragement or hands-on support. While healthcare

providers enquired about the women's feeding intentions, they often did not actively encourage breast-feeding. Several participants stated that their only source of specific information about breastfeeding was from their LC. The LCs observed that the maternity floor nurses were too busy to observe a full feeding; most left the room after the baby latched on. Particularly for women who were ambivalent about breastfeeding, the ensuing frustration and perceived lack of support could be a deterrent to continued or exclusive breastfeeding.

Compared with the Intervention group, Control group women were generally less aware that they were participants in a research study – despite having signed and received a copy of a written informed consent. This phenomenon has several implications for our research. If subjects are unaware that they are in a research study, this mitigates some concern about the reactive effect of testing. Such women are more likely to act without whatever unintended influence participation in a research study may have. The converse may also be true. That is, some women stated that just knowing someone will call and ask about infant feeding practices positively influenced how they fed their baby, in this case, breastfed longer than they might have.

Based upon the above, it is plausible that a simple phone call can have a powerful positive influence on women's breast-feeding practice, or may be a valuable complement to this model of breast-feeding promotion. A Canadian study found that women who received a routine home visit by a public health nurse were not more likely to be breastfeeding at 6 months, compared with women who received a screening phone call to identify mothers who need further intervention (Steel *et al.*, 2003). However, breast-feeding outcomes prior to 6 months were not assessed, nor was intensity of breastfeeding. Future research is indicated to determine and predict prenatally or at delivery, which women may be influenced, and to what extent, by a series of simple follow-up phone calls by either by a trained LC or other clinic staff, to increase breast-feeding duration or exclusivity.

While Control group women had no contact with the study LCs, we described the services this individual would provide, and sought to gauge interest in

such services – even if they had to pay US\$5.00. We described a Mother–Baby Specialist as someone who provides education and counselling about infant feeding, and help with breastfeeding after the birth of the baby. While Control group women did not offer specific responses as to who would benefit from these services, they were interested in more education and support with regards to breastfeeding.

In the USA, neither public nor private health insurance generally offers coverage for lactation services. Routine post-partum home nursing visits are not standard practice either. While breast-feeding coordinators are available to low-income women as part of the federally supported Women, Infants, and Children's Supplemental Feeding Program, these encounters take place at busy, institutional clinics, much like the health centres where women received prenatal care. These breast-feeding coordinators do not have the capacity to make hospital or home visits. Our interviews with Control group women suggest that even if a small co-payment were required, women would engage the services of a LC.

The findings of this qualitative evaluation of MILK Study exit interviews may have several limitations. While we had nearly equal participation in the exit interview by both Intervention ($n = 11$) and Control ($n = 10$) group women, there is a bias towards women in both groups who we were able to contact at 12 months post-partum. Of the 364 women eligible for post-natal interview ($n = 21$ maternal/infant dyads were excluded after randomization owing to active withdrawal from the study, miscarriage or pregnancy termination, or a twin pregnancy), just 50% ($n = 181$) completed a 12 month follow-up. This low retention rate is attributable to frequent moves and phone disconnections in this socio-economically disadvantaged sample.

This qualitative study is based on a small convenience sample, and thus may not be representative of the RCT participants or patients at the Bronx health care clinics. In addition, when Intervention group respondents were asked about aspects of the intervention that were unhelpful or disliked, there were no criticisms. Thus, participants may have censored any negative reactions with an interviewer associated with the study.

While the literature is replete with breast-feeding promotion intervention studies, few are good quality, randomized controlled trials of best practices. A US Preventive Services Task Force systematic review of physician, nurse, lactation consultant, or peer counsellor interventions occurring in either the clinic, hospital, home, or elsewhere yielded just 22 randomized controlled trials published from 1996 to 2001. Only 1 of these trials was judged to be of good quality. Of these 22 studies, just 7 included follow-up for 4 months or more; only 8 included both educational and supportive elements, and; just 2 provided both pre- and post-partum intervention (Guise *et al.*, 2003). Compared with these, the intervention in our RCT offered pre- and post-natal education and support, with LC assistance up to 12 months post-partum.

More recently published randomized trials have found mixed results. Women who were breastfeeding at hospital discharge who were invited to an early post-partum visit in France were more likely to breastfeed exclusively at 4 weeks, and breastfed longer than Controls (Labarere *et al.*, 2003). In contrast, neither a one session midwife home visit study in Italy (Di Napoli *et al.*, 2004) nor trained volunteer support given upon request to mothers considering breastfeeding in England (Graffy *et al.*, 2004) significantly affected breast-feeding duration. Antenatal provider counselling, combined with (primarily) phone availability of an LC antepartum had no effect on any breastfeeding, or exclusive breastfeeding in an RCT in the Netherlands. (Kools *et al.*, 2005). Among low-income Hispanic women, prenatal, hospital, and post-partum home visits by a breast-feeding peer counsellor increased rates of initiating breastfeeding, but did not affect duration in an RCT in the USA (Chapman *et al.*, 2004).

Breast-feeding outcome data for the RCT of which this study was a part show significant increases in breast-feeding duration and intensity. The Intervention group achieved the US Healthy People 2000 goal of 50% breastfeeding until 5 or 6 months. The Intervention group had greater continued breastfeeding through Week 20 (53.0% vs. 39.3% for Controls, $P < 0.028$), and feeding of $\geq 50\%$ breastmilk through Week 9 (45.8% vs. 33.1% for Controls, $P < 0.030$). In

multivariate analyses, Controls were more likely to have low breastfeeding levels at 13 weeks (OR = 1.90, 95% CI = 1.13–3.20) and 52 weeks (OR = 2.50, 95% CI = 1.48–4.21). However, there were no significant differences in exclusive breastfeeding at any time. (Bonuck *et al.*, in press) Thus, one-on-one LC support, spanning the pre- and post-natal periods is significantly associated with increased duration and intensity of breastfeeding. Interview data presented here attributes the success of the model, to hands-on skills taught by a trained lactation consultant within the context of a relationship built on encouragement, guidance and support.

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References

- American Academy of Pediatrics. Section on Breastfeeding (2005) Breastfeeding and the use of human milk. *Pediatrics*, **115**, 496–506.
- Bonuck K. (2004) *Economic Impact of a Breast-Feeding Promotion Intervention: a Controlled Clinical Trial. Final Report to the United States Department of Agriculture: Food and Nutrition Research Program*. Project #: 43-3AEM-9-80102. November 2004.
- Bonuck K., Trombley M., Freeman K. & McKee D. (in press) Randomized controlled trial of a pre- and post-natal lactation consultant intervention upon duration and intensity of breastfeeding up to 12 months. *Pediatrics*.
- Chapman D.J., Damio G., Young S. & Perez-Escamilla R. (2004) Effectiveness of breastfeeding peer counseling in a low-income, predominantly Latina population: a randomized controlled trial. *Archives of Pediatrics and Adolescent Medicine*, **158**, 897–902.
- Dennis C.L. (2002) Breastfeeding peer support: maternal and volunteer perceptions from a randomized controlled trial. *Birth*, **29**, 169–176.
- Di Napoli A., Di Lallo D., Fortes C., Franceschelli C., Armeni E. & Guastichhi G. (2004) Home breastfeeding support by health professionals: findings of a randomized controlled trial in a population of Italian women. *Acta Paediatrica*, **93**, 1108–1114.
- Freed G.L., Clark S.J., Sorenson J., Lohr J.A., Cefalo R. & Curtis P. (1995) National assessment of physicians' breastfeeding knowledge, attitudes, training, and experience'. *Journal of the American Medical Association*, **273**, 472–476.
- Graffy J., Taylor J., Williams A. & Eldridge S. (2004) Randomised controlled trial of support from volunteer counselors for mothers considering breastfeeding. *British Medical Journal*, **328**, 1–6.
- Guise J.M., Palda V., Westhoff C., Chan B.K., Helfand M., Lieu T.A., *et al.* (2003) The effectiveness of primary-care based interventions to promote breastfeeding: systematic evidence review and meta-analysis for the US Preventive Services Task Force. *Annals of Family Medicine*, **1**, 70–80.
- Hoddinott P. & Pill R. (2000) A qualitative study of women's views about how health professionals communicate about infant feeding. *Health Expectations*, **3**, 224–233.
- Ingram J., Johnson D. & Greenwood R. (2002) Breastfeeding in Bristol: teaching good positioning, and support from fathers and families. *Midwifery*, **18**, 87–101.
- Kools E.J., Thijis C., Kester A., van den Brandt P.A. & de Vries H. (2005) A breast-feeding promotion and support program a randomized trial in the Netherlands. *Preventive Medicine*, **40**, 60–70.
- Labarere J., Bellin V., Fourny M., Gagnaire J.C., Francois P. & Pons J.C. (2003) Assessment of a structured in-hospital education intervention addressing breastfeeding: a prospective randomized open trial. *BJOG*, **110**, 847–852.
- Locklin M.P. (1995) Telling the world: Low income women and their breastfeeding experiences. *Journal of Human Lactation*, **11**, 285–291.
- de Oliveria M.I.C., Camacho L.A.B. & Tedstone A.E. (2001) Extending breastfeeding duration through primary care: A systematic review of pre-natal and post-natal interventions. *Journal of Human Lactation*, **17**, 326–343.
- Renfrew M.J. & Lang S. (2000a) *Feeding Schedules in Hospitals for Newborn Infants, No. 4, 2000*. Available from: Cochrane Review on CD-ROM. Oxford, England: Cochrane Library, Update Software, no. 4.
- Renfrew M.J. & Lang S. (2000b) *Early Versus Delayed Initiation of Breastfeeding, No. 4, 2000*. Available from: Cochrane Review on CD-ROM. Oxford, England: Cochrane Library, Update Software, no. 4.
- Renfrew M.J. & Lang S. (2000c) *Interventions for Improving Breastfeeding Technique, No. 4, 2000*. Available from: Cochrane Review on CD-ROM. Oxford, England: Cochrane Library, Update Software, no. 4.
- Sikorski J. & Renfrew M.J. (2000b) *Support for Breastfeeding Mothers*. Available from: Cochrane Review on CD-ROM. Oxford, England: Cochrane Library, Update Software, no. 4.
- Steel O'Connor K.O., Mowat D.L., Scott H.M., Carr P.A., Dorland J.L. & Young Tai K.F. (2003) A randomized trial of two public health nurse follow-up programs after early

obstetrical discharge: an examination of breastfeeding rates, maternal confidence and utilization and costs of health services. *Canadian Journal of Public Health*, **94**, 98–103.

The National Breastfeeding Awareness Campaign (2005) [Online]. Available from: URL <http://www.4woman.gov> (Accessed 21 May 21, 2005).

US Department of Health and Human Services (2000a) *Healthy People 2010, 2000*. Vols I and II. US Department of Health and Human Services, Public Health Service. Office of the Assistant Secretary for Health: Washington, DC.

US Department of Health and Human Services (2000b) *HHS Blueprint for Action on Breastfeeding, 2000*. US Department of Health and Human Services, Office on Women's Health: Washington, DC.

US Preventive Services Task Force (2003) *Behavioral Intentions to Promote Breastfeeding: Recommendations and Rationale*. July 2003. Agency for Healthcare Research and Quality, Rockville, MD. [Online]. Available from: URL <http://www.ahrq.gov/clinic/3rduspstf/brstfeed/brfeedrr.htm> [Accessed 15 February 2004].

Appendix I

12 month Qualitative Interview Guide

(1) To start off, do you have any general comments or thoughts you would like to share?

(2) What parts of the MILK Study did you like/not like?

- (probe: time, phone calls, questions asked, interesting, incentives)
- suggestions to the researchers

(3) Did you feel you had a good understanding of what the MILK Study was about?

- [If participant does not offer her understanding (past Yes/No) ask: 'How would you describe the point of the study to a friend?' Don't judge or correct, unless asked.]
- Also, you are in the XXX group. What does that mean to you? How do you think you got in that group?

(4) Do you think that being in the MILK Study influenced how you fed your baby? How so? Breastmilk versus formula? Use of pump? Introduction of solids/ other liquids?

[If in the Intervention ask #5 through #13. If in Control, Skip to #9]

(5) Did you get to see the Study's Mother/Baby Specialist before the baby was born?

- What did you think of the/those meeting(s)? Scheduling? Content? Supportive?

(6) Did you see or speak with her after the baby was born? How did you get in touch with her? Could you tell me a bit about what you remember about those meetings or discussions after your baby was born? [probe for site]

(7) Was there anything about meeting with the specialist that you did not like?

(8) Were there any parts of meeting with the specialist that you would like to have had more of?

- Were there any services or types of support that the specialist did not offer you that you wish she had?

(9) Would you recommend the services of a Mother–Baby Specialist to other moms?

- Who do you think would benefit most from these kinds of services? Ethnic/cultural groups? Age groups? Number of children? New moms? Etc.
- Are there any special services that certain types of women might benefit from? [Both groups]

(10) Would you see a Mother–Baby Specialist for breast-feeding education and support if it were free?

- a. Yes b. No c. Maybe d. DK/NR

(11) Would you see a Mother–Baby Specialist for breast-feeding education and support if you had to pay a small fee, \$5.00 for example?

- a. Yes b. No c. Maybe d. DK/NR

(12) In addition to the services of a Mother–Baby Specialist, what other services or changes at Montefiore do you think would make it easier for more women to breastfeed their children?

(13) Would it be all right to call you in the future to ask some additional questions, or perhaps take part in a discussion group?

- a. Yes- obtain updated contact info b. No c. DK/NR