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ARTICLES

Does Prenatal Breastfeeding Skills Group Education Increase the Effectiveness of a Comprehensive Breastfeeding Promotion Program?

Edda Pugin, Registered Nurse-Midwife,[a] Verónica Valdés, MD,[b] Miriam H. Labbok, MD, MPH,[c] Alfredo Pérez, MD,[d] and Ricardo Aravena, MSc[e]

ABSTRACT - A control/intervention study carried out in Santiago, Chile assessed the impact of five interventions on breastfeeding patterns and duration, and demonstrated a significant increase in full breastfeeding at six months (32 percent to 67 percent). Fifty-nine of 422 post-intervention women were included in a sixth intervention: prenatal group educational sessions emphasizing the skills necessary to initiate and maintain breastfeeding past the neonatal period. A significantly higher percentage of this subset of women were fully breastfeeding at six months compared to those who received only the five basic interventions (80 percent and 65 percent, respectively). The effect was greater among primiparous women. We conclude that prenatal group education with hands-on skills reinforcement is a significant and additive component of breastfeeding support, especially among those who have no previous breastfeeding experience. *JHL* 12:15-19, 1996.

KEYWORDS: Breastfeeding duration, breastfeeding education, lactation, Lactational Amenorrhea Method, prenatal education

INTRODUCTION

A variety of breastfeeding promotion and support programs have been instituted in health centers worldwide with generally positive results.[1-5] Examples of promotion and support strategies that positively influence breastfeeding include:

- education of the clinical staff[6-8] and the mother[9,10] regarding breastfeeding;
- changing hospital routines, including early contact of the mother with her infant;[11,12]
- shortening the time between birth and first suckling;[13] and,
- permitting the mother and infant to stay together immediately postpartum and 24 hours a day throughout the hospital stay.[14]

Prenatal education is not often a major focus. It can present special issues and considerations. The providers of prenatal care frequently are not the same people who provide postpartum care. Training prenatal health care workers and providing time during prenatal visits for this additional education both carry additional costs. Furthermore, one study in the US showed that prenatal education contributed significantly to the patient population's knowledge base on breastfeeding but was not associated with any change in breastfeeding duration.[15] Therefore, the costs and

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[a] Edda Pugin is in the Department of Obstetrics and Gynecology, Pontificia Universidad Católica de Chile, Santiago.
[b] Verónica Valdés is in the Department of Pediatrics, School of Medicine, Pontificia Universidad Católica de Chile, Santiago.
[c] Miriam H. Labbok is in the Institute for Reproductive Health, Department of Obstetrics and Gynecology, Georgetown University Medical Center, Washington, DC USA.
[d] Alfredo Pérez is in the Department of Obstetrics and Gynecology, School of Medicine, Pontificia Universidad Católica de Chile, Santiago.
[e] Ricardo Aravena is in the Department of Statistics, Faculty of Mathematics, Pontificia Universidad Católica de Chile, Santiago.

Address correspondence to: MHL, Director, Breastfeeding and MCH Division, Institute for Reproductive Health, Department of Obstetrics and Gynecology, Georgetown University Medical Center, Georgetown Center, 6th floor, 2115 Wisconsin Avenue NW, Washington, DC 20007 USA.

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ultimate effectiveness of prenatal education programs have been questioned.

This issue was addressed as one aspect of a Breastfeeding and Lactational Amenorrhea Method (LAM) Promotion Program (BLPP), carried out in the hospital of the Catholic University of Chile, Santiago.[16,17] The programmatic objectives of the BLPP were to improve breastfeeding practices and to develop an intervention protocol that would be easy to replicate in other settings, while promoting breastfeeding for both its health and fertility effects. This program included the following five basic interventions:

1. training the health team in breastfeeding,
2. implementing activities at the prenatal clinic,
3. implementing activities at the hospital,
4. creating an outpatient lactation clinic, and
5. offering the Lactational Amenorrhea Method (LAM) as an initial form of family planning.[16,17]

During the intervention phase, a sixth intervention was added for a subset of the women in the intervention group:

6. prenatal breastfeeding skills group education (PBSGE).

The first hypothesis was that the BLPP would be associated with improved patterns of breastfeeding and longer durations. The second hypothesis was that the sixth intervention would improve establishment of breastfeeding leading to increases in breastfeeding duration. This analysis has two sections: 1) a comparison of the duration of full breastfeeding among the control and among the total interventions group, and 2) a comparison between the "five interventions" and the "six interventions" subgroups of the intervention cohort.

MATERIALS AND METHODS

Description of the Intervention. A study of quasi-experimental design with pre- and post-intervention groups was carried out at the Santiago Campus of the Catholic University of Chile. Three hundred thirty mother/infant pairs composed the control group and 422 mother/infant pairs composed the intervention group in this prospective pre-/post-intervention study, "Effect of a breastfeeding promotion program on the infertile postpartum period" (Subagreement with the Pontificia Universidad Católica de Chile, Santiago, Department of Obstetrics and Gynecology, Dr. Alfredo Pérez–S., Principal Investigator, under A.I.D. Cooperative Agreement with the Institute for Reproductive Health, Georgetown University). This overall study was developed to determine 1) if the duration of full lactation and lactational amenorrhea could be increased and 2) the efficacy of the Lactational Amenorrhea Method (LAM) among middle class urban mothers of Santiago, Chile. For the purposes of the study, full lactation is defined according to the definitional schema found in Labbok and Krasovec,[18] modified to allow only two supplemental feeds per week. The initial intervention was a hospital-based breastfeeding promotion program with clinical follow-up that included five intervention strategies. Institutional review for the protection of human subjects was carried out by the Catholic University of Chile, Santiago.

Historical and prospective data were gathered on the control group, which was composed of 313 mother/infant pairs, generally of the middle to upper middle classes,[16] who delivered at the University Hospital prior to the intervention. Women were recruited if they intended to breastfeed and they then received the usual breastfeeding support available at the hospital. The intervention package, referred to as the Breastfeeding and LAM Promotion Program (BLPP), was then instituted, and similar data were collected on 422 subjects of similar characteristics. A complete presentation of data-gathering techniques and a descriptive analysis of the study population has been previously published.[16] All mothers who deliver in the University Hospital also receive their prenatal care at this same institution.

A subset of the 59 intervention subjects, drawn from among the last 123 mother/child pairs recruited, participated in a sixth intervention strategy: prenatal breastfeeding skills group education (PBSGE). This additional study assessed the impact of this sixth intervention in the context of five standard breastfeeding interventions. The six-intervention subset included only those who attended the morning clinics. The subsets of women were compared by age ($p=0.160$) and by parity ($p=0.615$), revealing no significant difference. There was no loss to follow-up among the 59 women in this subset.

Prenatal Breastfeeding Skills Group Education. The prenatal breastfeeding skills group education sessions were attended during the third trimester of pregnancy. The sessions were conducted by a trained nurse-midwife at the outpatient prenatal clinic. Groups of five or six women, primiparas and multiparas together, were invited to participate while waiting for their last three to five prenatal check-ups. Each session lasted about 20 minutes. The pregnant women were able to discuss various aspects of breastfeeding and to share their own personal experiences.

The principal topics covered in each session included breast care, breastfeeding advantages for the infant

Table 1. Number and percent of control and total intervention group women fully breastfeeding at six months by parity

	Group						
	Control			Intervention			
Parity	N	n	(%)	N	n	(%)	p<
1	144	39	(27)	142	87	(61)	0.0001
2	109	41	(38)	161	113	(70)	0.0001
3 or more	60	19	(32)	119	82	(69)	0.0001
Total	313	99	(32)	422	282	(67)	0.0001

N = number in group
n = number in group fully breastfeeding at six months

and for the mother, breastfeeding technique, anatomy and physiology of the mammary gland, prevention of breastfeeding problems, rooming-in, and immediate contact. Mothers were encouraged to actively participate in the discussion and to express their doubts and concerns. Educational materials included a flip chart, a breast model, and a baby sized doll which was used to develop the skill of breastfeeding positioning. The pregnant women practiced the breastfeeding positions that would favor correct latch-on and they shared past experiences.

Data Analysis. The statistical analyses were carried out using the Statistical Analysis Software (SAS-version 6.04). Data were obtained on breastfeeding status at six months among the different groups (control vs. intervention; and 5 vs. 6 interventions subsets of the intervention group). The statistical comparison among the different groups were carried out using the chi-square test for homogeneity, and by the Fisher's Exact test for 2x2 tables.

RESULTS

Table 1 and Figure 1 show the percent still fully breastfeeding at six months postpartum. In the control group (no interventions), 32 percent were still fully breastfeeding at six months compared to 67 percent of the intervention group (5 intervention and 6 intervention subsets combined). This difference is highly statistically significant (p<0.0001). When analyzed by parity (1, 2, and 3+) the difference between control and intervention group persists. Among primiparas, 27 percent of the control group vs 61 percent of the intervention group were still fully breastfeeding at six months (p<0.0001). Equally significant were differences seen between control and intervention groups among the para-2 women (38 percent vs. 70 percent, p<0.0001) and para-3+ women (32 percent vs. 69 percent, p<0.0001). In general, the intervention package was associated with an approximate doubling of the percent fully breastfeeding at six months in each parity group.

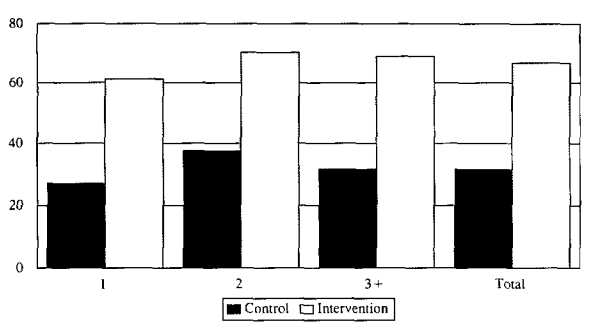

Figure 1. Percent of control and intervention group women fully breastfeeding at six months by parity

Table 2. Number and percent of intervention group women breastfeeding at six months, with and without PBSGE, by parity

	Group						
	Without PBSGE			With PBSGE			
Parity	N	n	(%)	N	n	(%)	p<
1	126	72	(57)	16	15	(94)	0.005
2	140	97	(69)	21	16	(76)	ns
3 or more	97	66	(68)	22	16	(73)	ns
Total	363	235	(65)	59	47	(80)	0.0026

PBSGE = Prenatal breastfeeding skills group education
N = number in group
n = number in group fully breastfeeding at six months

Table 2 and Figure 2 illustrate the additive impact of the sixth intervention, PBSGE, as compared to those who received only the first five intervention strategies. The subset of women who received this sixth intervention demonstrated a significantly higher percentage still fully breastfeeding at six months, compared to those who did not receive this additional intervention (80 percent and 65 percent, respectively, p=0.0026).

The analysis of the impact of the sixth intervention, PBSGE, was also carried out for each parity level.

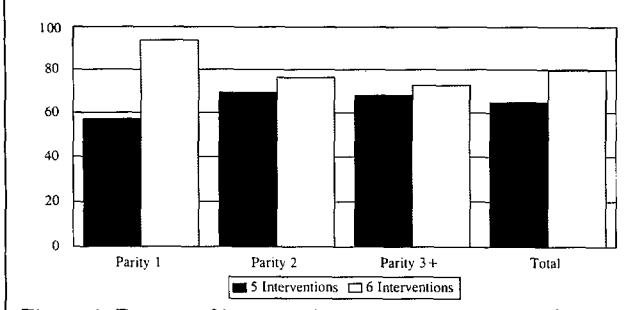

Figure 2. Percent of intervention group women breastfeeding at six months, five interventions vs. six interventions, by parity

Among primiparas not receiving PBSGE, 67 percent were still breastfeeding at six months, while 94 percent of the primiparas who received PBSGE were fully breastfeeding at six months ($p<0.005$). Similar differences were seen between groups at the higher parity levels, but these differences did not achieve statistical significance, ($p<0.56$, combined).

Because the sixth intervention was put into effect during the last period of recruitment, it was important to assess whether the improvements seen in this subset were due to the intervention itself or to improvement in the professional management of lactation over the time of the study. Therefore, the total intervention group of the BLPP was studied for the possibility of time trend by dividing it into two time cohorts of 211 subjects each, by the date of recruitment. The percent still fully breastfeeding at six months was calculated for each of the two cohorts separately. This analysis showed no change over time during the study. In fact, 68 percent of the earlier cohort of the intervention group were fully breastfeeding at six months while only 66 percent of the later cohort of the intervention group achieved six months of full breastfeeding (p - NS). This would seem to confirm the conclusion that the results are due to the PBSGE rather than any improvement over time in lactation management support in general.

DISCUSSION AND CONCLUSIONS

Prenatal Breastfeeding Skills Group Education is apparently effective in promoting longer durations of breastfeeding, producing an additive effect when implemented with a successful package of interventions already in place. This analysis demonstrates that a personalized, educational group participation program in the prenatal period, including interactive sharing of mothers' experiences and emphasizing breastfeeding skills, provides a useful and effective approach, especially among primiparas. The advantages of conducted group sessions include the following: the opportunity for pregnant women to share their experiences, the creation of savings in both cost and time for the health personnel, and time savings for the pregnant women, since the PBSGE is carried out during waiting-room time.

Since the completion of this project, two studies have been published which address the importance of prenatal education. In one study, prenatal group education was compared to prenatal individual counseling, and to a control group.[19] The group education, which can be done in a more cost effective manner, yielded results similar to individual counseling. Another publication, a major analytical overview of infant feeding policies in maternity wards,[20] presents strong evidence of the impact of these policies but concludes that little is known of the potentially positive synergistic effect that these policies might have if combined with other prenatal and postnatal interventions.

This study included parity as a variable. Efficacy of PBSGE was greatest among primiparas. This may be due, in part, to the fact that they are less influenced by past experiences. A successful first experience with breastfeeding for a primipara creates a greater likelihood that she will choose to breastfeed any future children.

We saw increased breastfeeding among the multiparas in the PBSGE as well. Multiparas with satisfactory breastfeeding experiences shared this with the rest of the group, while those with negative experiences were able to explore possible reasons for their setbacks, gaining the necessary skills to prevent future problems. The lack of statistical significance among multiparas may be due to the reduced sample size; nonetheless, as a group, the impact remains clinically and statistically significant for all participants as a group.

Other health education programs for pregnant women have been shown to create significant behavioral change with program and policy implications. A recent study of prenatal smoking cessation education, for example, showed high quit rates, and at low cost.[21] Breastfeeding support through the use of PBSGE, such that primiparas can achieve durations of breastfeeding similar to multiparas, also has important programmatic and policy implications.

We conclude that 1) breastfeeding support, including health team training, prenatal promotion, maternity changes, lactation clinic, and LAM, significantly improve breastfeeding patterns; 2) prenatal breastfeeding skills group education is an additive, significant, and important component of breastfeeding support, especially among women who have no previous breastfeeding experience; and, 3) measurable change is achievable with this relatively inexpensive approach.

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