Effectiveness of Breastfeeding Peer Counseling in a Low-Income, Predominantly Latina Population

A Randomized Controlled Trial

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**Background:** Breastfeeding peer counseling has improved breastfeeding rates in developing countries; however, its impact in this country has not been adequately evaluated.

**Objective:** To evaluate the effectiveness of an existing, breastfeeding peer counseling program within the United States.

**Design:** Randomized, prospective, controlled trial in which participants were recruited prenatally and randomly assigned to receive either routine breastfeeding education or routine breastfeeding education plus peer counseling.

**Setting:** An urban hospital serving a large population of low-income Latinas.

**Participants:** Pregnant women (≥26 weeks’ gestation) were recruited from the hospital’s prenatal clinic. Inclusion criteria specified that participants be low-income, be considering breastfeeding, have delivered a healthy, full-term singleton, and have access to a telephone.

**Intervention:** Breastfeeding peer counseling services included 1 prenatal home visit, daily perinatal visits, 3 postpartum home visits, and telephone contact as needed.

**Main Outcome Measures:** Breastfeeding rates at birth and 1, 3, and 6 months postpartum.

**Results:** The proportion not initiating breastfeeding was significantly lower in the intervention group than among controls (8/90 [9%] vs 17/75 [23%]; relative risk, 0.39; 95% confidence interval, 0.18-0.86). The probability of stopping breastfeeding also tended to be lower in the intervention group at both 1 month (36% vs 49%; relative risk, 0.72; 95% confidence interval, 0.50-1.05) and 3 months (56% vs 71%; relative risk, 0.78; 95% confidence interval, 0.61-1.00).

**Conclusion:** These findings demonstrate that, in the United States, peer counselors can significantly improve breastfeeding initiation rates and have an impact on breastfeeding rates at 1 and 3 months post partum.


Breastfeeding rates among low-income women are much lower than those in the general population. While the benefits of breastfeeding are well known, we do not know the most effective means to promote breastfeeding among low-income, inner-city women. In an ideal setting, every pregnant woman’s health care plan might include access to an international board-certified lactation consultant (IBCLC) who speaks her language, understands her culture, and provides the necessary support to ensure successful breastfeeding. Given rising health care costs and the limited number of IBCLCs, delineating the IBCLC as the sole source of breastfeeding support may not be feasible or cost-effective. Thus, other options should be considered.

The use of breastfeeding peer counselors, under the supervision of an IBCLC, has been previously described and may represent a unique and cost-effective way to promote and support breastfeeding, regardless of a woman’s socioeconomic status. Peer support has been defined as “the giving of assistance and encouragement by an individual considered equal.” Herein, we use the term breastfeeding peer counselor to describe local community women who have experienced breastfeeding success, have been trained in breastfeeding management, and work with women of similar cultural, demographic, and socioeconomic characteristics to promote positive breastfeeding outcomes. Because of their similarities to the clientele they serve and their success with breastfeeding, peer counselors may be ideal breastfeeding role models.
models. In other countries, randomized trials have demonstrated that peer counseling had positive effects on breastfeeding initiation, exclusivity, and duration. The HHS Blueprint for Action on Breastfeeding recommends peer counseling as a means to improve breastfeeding outcomes in this country. To date, one randomized trial has been published evaluating breastfeeding peer counseling in this country, to our knowledge. That study demonstrated a trend toward longer breastfeeding duration among subjects receiving peer counseling. Observational studies from the United States, some of which were conducted within the Special Supplemental Food Program for Women, Infants, and Children (WIC), suggest that breastfeeding peer counselors positively impact breastfeeding outcomes.

The most effective means to promote breastfeeding among inner-city, low-income Latinas in the United States is not known. The objective of this study is to assess the effectiveness of an existing breastfeeding peer counseling program serving a low-income, predominantly Latina population in Hartford, Conn, by evaluating the program's impact on breastfeeding rates at birth and in the postpartum period.

METHODS

SETTING

Hartford Hospital is an urban hospital that draws its clientele from the inner city and the surrounding suburbs. It was certified as a World Health Organization–UNICEF Baby-Friendly Hospital in December 2000. The hospital's prenatal clinic serves a low-income, predominantly Latina population, mostly of Puerto Rican origin. Unlike women from other Latin cultures, many Puerto Rican women in Hartford are socially uncomfortable with breastfeeding. Clinic patients who plan to breastfeed are served by the Breastfeeding: Heritage and Pride (BHP) peer counseling program. This unique peer counseling model offers both home- and hospital-based services, targets a primarily Latina population, and offers more “hands-on” breastfeeding assistance than other models typically provide. This program has evolved during the past 10 years and represents a collaborative effort between Hartford Hospital, the Hispanic Health Council, and the University of Connecticut Family Nutrition Program. Funding for the program is provided, on a year-to-year basis, by the University of Connecticut Family Nutrition Program, through a grant from the US Department of Agriculture Food Stamp Program and by Hartford Hospital.

Staffing for the program includes 2 codirectors, the program coordinator (1.0 full-time equivalent), and 3 staff peer counselors (2.3 full-time equivalents). Both Hartford Hospital and the Hispanic Health Council have designated 1 management-level employee as BHP codirector. Each codirector spends approximately 15% of her time overseeing the program. One codirector (S.Y.) serves as a clinical resource to the peer counselors for complicated lactation management problems. The program coordinator is a bilingual IBCLC who manages the program's daily operation, splitting her time evenly between supervisory activities and client care. Having the expertise of IBCLCs may be crucial to the program's success, as peer counseling programs with an IBCLC have been shown to promote longer breastfeeding duration.

PEER COUNSELOR QUALIFICATIONS

Peer counselors in this program are community women who have (1) completed high school, (2) breastfed a child for a minimum of 6 months, and (3) been trained in breastfeeding management. They are recruited through job postings at both Hartford Hospital and the Hispanic Health Council, through contact with clients who have successfully breastfed, and by word of mouth. Preference is given to candidates who are bilingual, are enthusiastic about breastfeeding, are flexible regarding scheduling, and have a mature, positive demeanor. The program routinely employs at least 1 bilingual, Puerto Rican peer counselor.

Peer counselors receive 30 hours of classroom training from the program coordinator, using the combined curricula of the La Leche League International Peer Counseling Program and the Hispanic Health Council's BHP program. Topics covered include breast anatomy and physiology, management of breastfeeding, counseling techniques, and related cultural and social factors. After this training, peer counselors must score at least 85% on a written examination. They then spend 3 to 6 months working with experienced peer counselors, gradually progressing from observation to directly managing clients under supervision. Once competence is demonstrated, peer counselors work independently with clients. Close contact with the program coordinator is maintained through biweekly case review meetings. Each month the staff members receive 1 hour of continuing education. Entry-level peer counselors are paid $12 per hour and receive health care benefits if working at least 20 hours per week.

STUDY DESIGN

Participants were recruited prenataly at Hartford Hospital between July 27, 2000, and August 8, 2002. Recruitment was conducted 3 days per week by a bilingual, bicultural research assistant who was not a peer counselor. This study was approved by the institutional review boards at the University of Connecticut and Hartford Hospital.

Inclusion criteria specified that women must be (1) at least 18 years old, (2) considering breastfeeding their infant, (3) residents of the greater Hartford area, (4) available for telephone follow-up, (5) low income (ie, WIC participant, food stamp recipient, or household income <180% of federal poverty level), (6) at no more than 26 weeks' gestation, and (7) not yet enrolled in the peer counseling program. Signed informed consent was obtained. Demographic data and breastfeeding history were obtained.

Participants were randomized to either the control group or the intervention group by means of a computer software program (SPSS, version 10; SPSS Inc, Chicago, Ill). Cases were entered into a data file weekly, and SPSS randomly selected approximately 50%. The selected cases were assigned to the intervention group, and the others were controls (Figure 1).

After delivery, medical records were reviewed to ensure that the following postpartum inclusion criteria were met: (1) healthy, full-term, singleton, (2) absence of congenital anomalies, and (3) no maternal history of human immunodeficiency virus. Infants admitted to the neonatal intensive care unit were dropped from the study.

CONTROL PROCEDURES

Those in the control group received the routine breastfeeding education offered by Hartford Hospital. Prenatal education consisted of individualized breastfeeding information offered in response to the subject's questions and written breastfeeding materials from the prenatal clinic. Routine perinatal breastfeeding
education included hands-on assistance and education from the maternity ward nurses, written breastfeeding educational materials, and access to an IBCLC for serious breastfeeding problems. Postpartum support included access to the “warm line,” where patients calling the hospital spoke with a registered nurse who answered their breastfeeding questions. Control subjects received the same breastfeeding services as all privately paying patients.

INTERVENTION PROCEDURES

Those in the intervention group received all of the services of the control group, plus prenatal, perinatal, and postnatal peer counselor services. The program requires at least 1 prenatal home visit, in which the peer counselor reviews the benefits of breastfeeding, screens for inverted nipples, provides written materials, discusses common breastfeeding myths, reviews positioning, and provides anticipatory guidance. A breastfeeding video is viewed, if possible (“Breastfeeding Your Baby: A Mother’s Guide;” Medela Inc, McHenry, Ill; 1987). Additional prenatal visits are provided if further support is deemed necessary.

During their postpartum hospitalization, participants receive at least daily visits from a peer counselor. Hands-on assistance is provided to demonstrate correct breastfeeding technique (eg, positioning, latch-on). Participants are educated on infant cues, expected breastfeeding frequency, signs of adequate breastfeeding, and management of breastfeeding problems.

Program protocols specify that participants receive at least 3 postpartum home visits, with the first visit occurring within 24 hours of discharge. These visits typically include assistance with positioning and latch-on, verbal support, and encouragement. Free mini-electric breast pumps are provided to participants who need them. Participants are able to reach a peer counselor by pager. The specified frequency of peer counselor visits represents a minimum level; participants requesting more frequent contact receive it.

DATA COLLECTION

Participants were interviewed in the language of their choice (English or Spanish) by the field coordinator or a bilingual research assistant who was not a peer counselor. At recruitment, demographic and infant feeding data were collected. During their hospitalization, participants were interviewed regarding infant feeding methods, demographics, and sources of prenatal and perinatal breastfeeding education. In addition, medical records were reviewed. Participants were interviewed monthly via telephone at least until they stopped breastfeeding and for a maximum of 6 months postpartum to obtain data on infant feeding practices, sources of breastfeeding support, and demographics. To minimize the potential for bias, data related to peer counselor contact were collected at the end of each interview.

STATISTICAL ANALYSES

SPSS version 10 was used for all statistical analyses. The main dependent variables were breastfeeding status at birth and breastfeeding rates at 1, 3, and 6 months postpartum. Between-group baseline characteristics were compared by means of t test (unpaired, 2-tailed) and χ² analyses. The χ² analyses were used to evaluate breastfeeding initiation rate and breastfeeding rates by group at 1, 3, and 6 months postpartum. All analyses were completed on an intention-to-treat basis. Results were expressed as the relative risk (RR) of not breastfeeding among those in the intervention group in relationship to controls. Relative risks were considered statistically significant if the 95% confidence interval (CI) did not include unity.

Figure 1. Participant flow. BF indicates breastfeeding; HIV, human immunodeficiency virus; NICU, neonatal intensive care unit; and PP, post partum.

RESULTS

Of the 219 participants recruited prenatally, 165 were eligible at delivery and included in the analytical sample (intervention group, 90; control, 75; Figure 1). There were no significant socioeconomic or demographic differences between the original and analytical samples. Participants were primarily single Puerto Ricans, approximately 25 years old, with 11.5 years of education (Table). There were no baseline differences between participants in the control vs intervention groups. Forty-five eligible women declined to participate at recruitment. Participants had baseline characteristics similar to those of women who declined (data not shown). The only significant difference was that nonparticipants were more likely to be white (vs Latina).
Participant Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (N = 165)</th>
<th>Intervention Group (n = 90)</th>
<th>Control Group (n = 75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>24.8 ± 5.8</td>
<td>25.0 ± 5.6</td>
<td>24.6 ± 6.2</td>
</tr>
<tr>
<td>Education, y</td>
<td>11.6 ± 2.7</td>
<td>11.4 ± 2.9</td>
<td>11.8 ± 2.3</td>
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<tr>
<td>US residence, y</td>
<td>12.8 ± 9.7</td>
<td>12.3 ± 10.2</td>
<td>13.3 ± 9.0</td>
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<tr>
<td>Purity, No.</td>
<td>2.0 ± 1.2</td>
<td>2.0 ± 1.2</td>
<td>1.9 ± 1.1</td>
</tr>
<tr>
<td>Infant birth weight, kg</td>
<td>3.4 ± 0.4</td>
<td>3.4 ± 0.4</td>
<td>3.4 ± 0.4</td>
</tr>
<tr>
<td>Intended BF duration, mo</td>
<td>6.6 ± 4.3</td>
<td>6.3 ± 3.6</td>
<td>7.0 ± 4.8</td>
</tr>
<tr>
<td>Routine prenatal BF education in clinic, min (median)</td>
<td>10.0</td>
<td>7.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Married, %†</td>
<td>23.2</td>
<td>18.0</td>
<td>29.3</td>
</tr>
<tr>
<td>WIC participation, %</td>
<td>72.1</td>
<td>70.0</td>
<td>74.7</td>
</tr>
<tr>
<td>Employment status, %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>15.9</td>
<td>15.7</td>
<td>14.7</td>
</tr>
<tr>
<td>Part-time</td>
<td>22.0</td>
<td>21.3</td>
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</tr>
<tr>
<td>Unemployed</td>
<td>62.2</td>
<td>62.9</td>
<td>62.7</td>
</tr>
<tr>
<td>Ethnicity, %</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>80.0</td>
<td>80.0</td>
<td>80.0</td>
</tr>
<tr>
<td>African American</td>
<td>8.5</td>
<td>8.9</td>
<td>8.0</td>
</tr>
<tr>
<td>White</td>
<td>3.6</td>
<td>3.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Other</td>
<td>7.9</td>
<td>7.8</td>
<td>8.0</td>
</tr>
<tr>
<td>Hispanic origin, %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>61.1</td>
<td>61.1</td>
<td>61.0</td>
</tr>
<tr>
<td>Mexico</td>
<td>9.9</td>
<td>9.7</td>
<td>10.2</td>
</tr>
<tr>
<td>Peru</td>
<td>8.4</td>
<td>8.3</td>
<td>8.5</td>
</tr>
<tr>
<td>Columbia</td>
<td>8.4</td>
<td>8.3</td>
<td>8.5</td>
</tr>
<tr>
<td>Other</td>
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<td>12.5</td>
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<tr>
<td>Language spoken at home, %</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>English</td>
<td>26.5</td>
<td>24.4</td>
<td>29.7</td>
</tr>
<tr>
<td>Spanish</td>
<td>45.1</td>
<td>47.7</td>
<td>41.9</td>
</tr>
<tr>
<td>English and Spanish</td>
<td>24.7</td>
<td>23.3</td>
<td>25.7</td>
</tr>
<tr>
<td>Other</td>
<td>3.8</td>
<td>4.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Primiparous, %</td>
<td>41.8</td>
<td>42.2</td>
<td>42.7</td>
</tr>
<tr>
<td>Previous BF experience, %</td>
<td>44.8</td>
<td>44.9</td>
<td>43.2</td>
</tr>
<tr>
<td>Vaginal delivery, %</td>
<td>75.6</td>
<td>73.9</td>
<td>77.0</td>
</tr>
<tr>
<td>Epidural analgesia, %</td>
<td>70.0</td>
<td>72.9</td>
<td>67.1</td>
</tr>
<tr>
<td>Planned pregnancy, %</td>
<td>27.0</td>
<td>22.7</td>
<td>32.9</td>
</tr>
<tr>
<td>Subject breastfed as an infant, % yes</td>
<td>49.3</td>
<td>51.2</td>
<td>48.5</td>
</tr>
</tbody>
</table>

Abbreviations: BF, breastfeeding; WIC, Special Supplemental Food Program for Women, Infants, and Children.

*Data are presented as mean ± SD unless otherwise indicated.
†Intervention vs control, P = .09.
‡Intervention vs control, P = .14.

PEER COUNSELOR COVERAGE

Because of staff turnover, the program was understaffed for nearly half of the study period. As a result, many clients received less than the specified number of visits. All participants in the intervention group had at least 1 peer counselor contact. In the intervention group, 53% (47/89) reported a prenatal visit, with the mean visit lasting 69.0 ± 57.6 minutes. Participants’ recall of the prenatal visit was as follows: written brochures provided, 90% (38/42); breastfeeding positions reviewed, 88% (37/42); breastfeeding video viewed, 45% (19/42); and breastfeeding myths reviewed, 90% (38/42).

Because of the low level of self-reported prenatal contact, BHP program files were reviewed. Half of the participants who reported no prenatal visit had received an introductory telephone call from a peer counselor. Documentation regarding the lack of a prenatal visit included the following: appointment made, but no further documentation, 31% (10/32); telephone not in service, 25% (8/32); no documented attempt by peer counselor, 16% (5/32); appointment rescheduled but not documented, 13% (4/32); participant never returned calls, 9% (3/32); and participant refused visit, 6% (2/32).

Perinatal peer counselor contact was reported by 94% (67/71) of the intervention group participants who were asked to confirm perinatal contact. On average, participants reporting perinatal contact received 2.7 ± 3.7 visits, totaling 63.8 ± 123.0 minutes. Among the 76 participants asked to confirm postpartum contact, home visits and telephone calls were reported by 50% (38/76) and 53% (40/75), respectively. The mean numbers of self-reported peer counselor home visits and telephone calls in the first month postpartum were 1.2 ± 1.6 and 1.8 ± 3.1, respectively. Postpartum contact primarily occurred during the first month. After 1 month post partum, less than 10% (7/82) of participants reported receiving peer counselor contact. Losses to follow-up during the monthly interviews ranged from 4% (7/165) at 1 month to 12% (20/165) at 6 months post partum.

Each month, participants were asked if they discussed the study with other new mothers. Two instances of contact between intervention group participants were reported. Thus, there appeared to be no contamination between study groups.

There was some limited, inadvertent exposure to peer counselors among controls. Peer counselors routinely see all clinic patients on the maternity ward, and they accidentally visited control participants before they were identified as such by research staff. Once this error was caught, no further peer counselor contact was made with those participants. The self-reported levels of peer counselor contact by controls were 7% (5/75) prenatally, 12% (9/75) perinatally, and 3% (2/75) in the postpartum period.

BREASTFEEDING OUTCOMES

We observed a significant association between peer counseling and breastfeeding initiation. The incidence of not breastfeeding by study group is shown in Figure 2. Par-
participants in the intervention group had a 61% lower relative risk of not initiating breastfeeding (8.9% [8/00] vs 22.7% [17/75]; RR, 0.39; 95% CI, 0.18-0.86) than controls. The relationship between peer counseling and breastfeeding rates at 1 and 3 months post partum was marginally significant. Compared with controls, the intervention group had 28% and 22% lower relative risks for not breastfeeding at 1 and 3 months, respectively (1 month, 35.7% [30/84] vs 49.3% [36/73]; RR, 0.72; 95% CI, 0.50-1.05; 3 months, 55.6% [45/81] vs 70.8% [51/72]; RR, 0.78; 95% CI, 0.61-1.00). At 6 months post partum, the impact of peer counseling on the incidence of any breastfeeding was not apparent (RR, 0.94; 95% CI, 0.79-1.11). The prevalence of exclusive breastfeeding at 1 month post partum was exceedingly low and not impacted by study group (RR, 1.07; 95% CI, 0.90-1.27).

**COMMENT**

This prospective, randomized, controlled trial demonstrates that culturally competent peer counselors can significantly improve breastfeeding initiation rates and positively impact postpartum breastfeeding rates in a low-income, predominantly Latina population in the United States. Our findings coincide with the results of previous peer counseling studies conducted in both developed and developing countries. As in previous studies, this intervention was fairly labor intensive. We are unlikely to replicate the impressive effects of Dennis and coworkers’ telephone-based support model, given the lower socioeconomic status and education level of our population. Women in our study may be more transient and less likely to maintain telephone service than those studied by Dennis et al.

Our findings are in contrast to the Cochrane review, which concluded that lay support significantly improved the duration of exclusive breastfeeding, but not that of any breastfeeding. This is not surprising, because this program supported any breastfeeding, rather than focusing on exclusive breastfeeding. Many Puerto Rican women in Hartford do not see breastfeeding as a social norm. Like their community members, participants typically introduced formula within the first week post partum. Therefore, peer counselors worked to support any breastfeeding without alienating those already introducing formula.

The high rate of breastfeeding initiation observed in our control group reflects the initiation rate among low-income women who expressed a prenatal interest in breastfeeding. It is possible that because of Hartford Hospital’s “Baby-Friendly” designation, the rate of breastfeeding initiation among controls may be higher than in other populations. However, it is more likely that this happened because the study included only women considering breastfeeding.

Our findings may be a conservative reflection of the impact of breastfeeding peer counseling. First, given that most participants received or were eligible to receive free formula from the WIC program, our results are encouraging. In a population that is not entitled to receive free formula, peer counseling may have a more positive impact. Second, the program was understaffed for part of the study period. Had the program been fully staffed, one might have expected even larger improvements in breastfeeding rates. Additionally, inadvertent contact between peer counselors and controls may have minimized the impact of the intervention, as all analyses were completed on an intention-to-treat basis. Finally, this study was conducted in a Baby-Friendly Hospital environment. Larger differences may be observed in a setting that is less supportive of breastfeeding.

Limitations of this research include that the study was not double blind; however, several efforts were made to minimize bias. Interviewers were unaware of group assignment at the beginning of each interview, and all questions pertaining to peer counselor contact were asked at the end of the interview. Monthly follow-up was conducted to minimize recall bias, which, if present, would be expected to affect both groups equally. We cannot rule out the Hawthorne effect; however, this seems unlikely as a much more intensive social support intervention, not focused on breastfeeding, had no impact on breastfeeding rates.

In conclusion, we have demonstrated that in the United States, breastfeeding peer counseling positively impacts breastfeeding outcomes in a low-income, predominantly Latina population. Given our findings that well-trained peer counselors, working under the supervision of an IBCLC, can make a difference in breastfeeding practices, we recommend consideration of a standardized process of peer counselor certification within this country. At Hartford Hospital, breastfeeding peer counselors have become a valued part of the medical team. They understand the socioeconomic and cultural barriers to breastfeeding and empower women to overcome them. Staff nurses readily request their services, while medical students and pediatric residents benefit from rounding with both IBCLCs and peer counselors.

Given the documented effectiveness of this program, other institutions should consider developing breastfeeding peer counseling programs to improve breastfeeding outcomes, particularly among low-income Latinos. Further research is needed to document the cost-effectiveness of breastfeeding peer counseling. In addition, future studies are essential to determine the optimal tim-
ing and intensity of peer counseling services, and to assess specific combinations of prenatal, perinatal, and postnatal peer counseling on breastfeeding success.

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