

on a comparison group of adolescents who did not receive the EXCEL lessons but who received the usual care at WIC or with their physician. Assignment of participants to either the intervention or comparison group was not random, but an attempt was made to match the groups as similarly as possible. The intervention and comparison groups were well matched demographically, although there was some age discrepancy between the two groups (a mean age of 17.0 years for the intervention group, and a mean age of 17.8 for the comparison group). There was a total of 365 intervention participants, of whom 209 were women who were pregnant or less than 9 months postpartum. These women received no education from EXCEL staff and made up the nonrandomized comparison group for this study. A total of 574 adolescents who participated in this project represented approximately 23 percent of all adolescents on Guam who were pregnant during the 3-year term of this project.

Initiation of Breastfeeding

The breastfeeding rates of EXCEL intervention participants were consistently greater than that of the comparison group. Breastfeeding was initiated by 81 percent of EXCEL intervention participants who received breastfeeding education, while 65 percent of the comparison group initiated breastfeeding. Although significantly lower than that for the intervention participants, the incidence rate for the comparison group was surprising and unexplainable—a rate much higher than that estimated for WIC clients of all ages on Guam, which, as mentioned earlier, was estimated to be 12 percent.

Duration of Breastfeeding

Intervention participants who received breastfeeding education had a mean breastfeeding duration of 68.6 days compared with a mean of 39.33 days for the comparison group. Forty-two percent of these intervention clients still breastfed when their babies were 2 months old versus 32.2 percent for the comparison group (fig. 1). In addition, the 6-month duration rate (number breastfeeding at 6 months divided by number initiating) was 23 percent, one-third more than the 6-month duration rate for the comparison group, which was 17 percent. The higher initiation rate and 6-month duration rate of EXCEL mothers suggested to the project staff that additional breastfeeding education and support may overcome some of the barriers to longer breastfeeding duration, especially with the adolescent population.

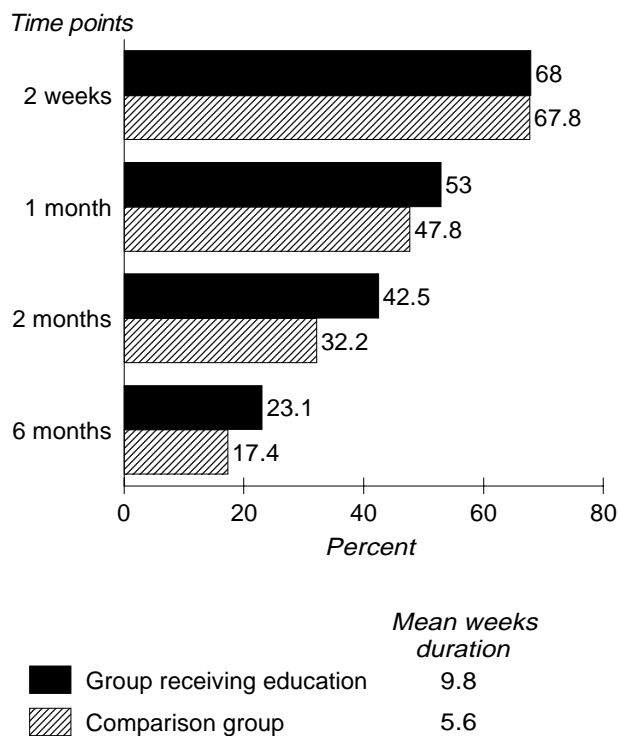
Reasons for Discontinuation of Breastfeeding

Returning to school was the most frequently identified reason for quitting breastfeeding given by adolescent mothers who received the EXCEL breastfeeding education (14 percent). Pain or physical discomfort was the next most frequently mentioned reason for ceasing to breastfeed (13 percent), followed by self-weaning of infant (11 percent). Reasons such as “too demanding” or “didn’t like it” were mentioned by less than 3 percent of the adolescent mothers receiving breastfeeding education.

Iowa

The rate of increase in child poverty in rural Iowa (21.7 percent) in the past decade has been almost twice that of the entire United States (11.9 percent). In addition, the poverty rate for young children in Iowa (ages 0-4) has been over one-third higher than for children

Figure 1
Guam: Share of initiators still breastfeeding at various time points



Source: Compiled by Economic Research Service, USDA, from R. Pobocik, 1996, "Early Experiences and Counseling for Effective Lactation (EXCEL)," unpublished Final Report for ESWIC Nutrition Education Initiative, University of Guam.

ages 5-17 (17.5 percent versus 12.6 percent). From the perspective of the project leaders in Iowa, the conditions of poverty provided an incentive to increase breastfeeding initiation rates or, in the instances where breastfeeding had been initiated, to increase breastfeeding duration rates. As stated in the introduction of this report, for newborn infants, human milk provides an optimal nutritional start. The clientele of this project were WIC-eligible smalltown and rural mothers in two communities chosen because of a high need for intervention and services—communities that appeared to lack both adequate access to information and support for lactating mothers. Iowa’s breastfeeding objectives were to increase the initiation and duration of breastfeeding in these two communities.

Design Overview

The educational intervention design was one-on-one support from peer volunteers for WIC-eligible clients who were either pregnant or postpartum and breastfeeding. Volunteers from the community were trained to be peer counselors. One of the criteria to serve as a peer counselor included successful breastfeeding. Peer support for breastfeeding mothers was envisioned as being particularly effective in communities where role-models for breastfeeding behaviors, knowledgeable health care providers, or cultural practices that included breastfeeding as a norm were scarce. Using referrals from WIC, project members talked with pregnant WIC-eligible women about their plans to feed their babies. Breastfeeding was encouraged as a choice. Clients who were interested in participating completed entry information. A client was then matched with a volunteer peer counselor who worked with the mother in person before and after delivery. The peer presented short lessons on nutrition and breastfeeding, provided support and information on nutrition and breastfeeding, answered breastfeeding questions, and made referrals for nonroutine assistance. On average, peers met with mothers 4 times, ranging from 1 to 16 contacts, with each session 1 to 1½ hours long.

Material Use and Development

The Iowa project developed the following educational materials: “Consider Breastfeeding” (a flip chart of the common concerns and advantages of breastfeeding); and *Breastfeeding Basics* (a series of five brochures encouraging a mother to consider breastfeeding and providing information on starting and continuing breastfeeding. These brochures were *Thinking About*

Breastfeeding, Getting Started, The Early Weeks, Common Concerns, and Returning to Work or School. The project also developed a poster entitled *Breastfed Babies Benefit the World.*

Evaluation Design and Project Results

The control group consisted of women and their infants enrolled in WIC in six Iowa counties. To be selected for the control group, a county could not have had significant breastfeeding promotion activity in the 3 years before the study. Two demographic variables were available for direct comparison—age and household size. There were no statistically significant differences between control and treatment groups on these two variables. The project had 143 WIC-eligible women enrolled in the treatment group, 72 for whom there was completed data. The control group consisted of 64 WIC participants.

Initiation of Breastfeeding

Only 31 percent of the control group initiated breastfeeding compared with 82 percent of the treatment group. This striking difference may not be an entirely fair comparison because the treatment group was not a total WIC population as was the control group. Women self-selected participation in the project, so they already possessed a willingness to consider the breastfeeding option.

Duration of Breastfeeding

The mean duration of breastfeeding for the control group was 2.5 weeks compared with 5.7 weeks for the treatment group. Note, however, that records on duration for the Iowa project were kept until only 12 weeks after the infant’s birth. If records had been kept longer, as they were in the three other State projects, it’s reasonable to believe that the mean duration figures would have been higher. Forty-eight percent of the treatment group still breastfed at 2 months versus 10 percent for the control group. Breastfeeding rates declined progressively in the weeks after the baby’s birth and at approximately the same rate for both control and treatment groups. Breastfeeding appears to have fallen off the most during the first month of the infant’s life. If women were able to persist to at least 4 weeks, the rate of breastfeeding remained fairly constant. At all time points, the percentage of women in the treatment group who were breastfeeding their infants was much higher than in the control group. At

12 weeks, for example, 3 percent of control group participants were breastfeeding compared with 43 percent of treatment participants (fig. 2).

Reasons for Discontinuation of Breastfeeding

The most common reason for discontinuing breastfeeding was “inadequate milk” (22 percent of the mothers who initiated breastfeeding), closely followed by “too demanding” (19 percent) and by “physical discomfort” and “return to work or school” (both 16 percent). The Iowa project researchers felt that these most frequently cited reasons for discontinuing could be easily overcome with adequate information and support, and that these reasons were often the result of misinformation.

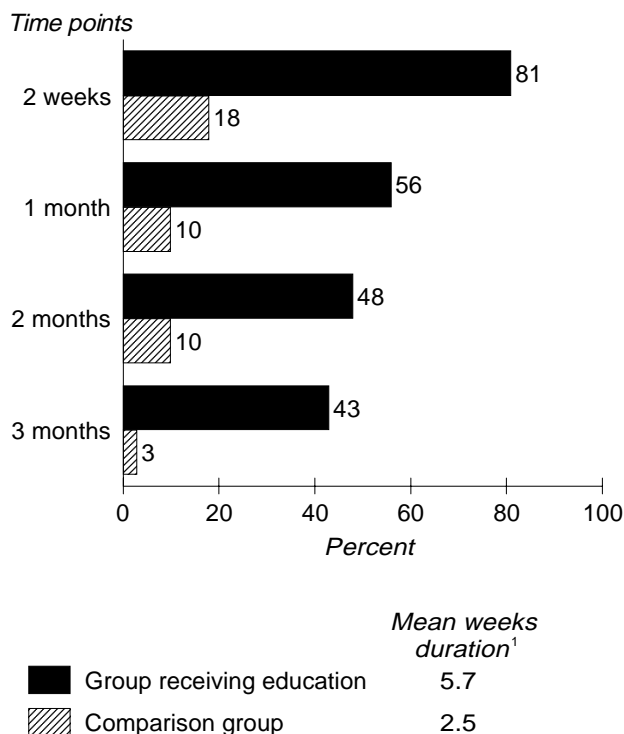
Michigan

Given that, on a national level, lower socioeconomic groups have lower rates of breastfeeding initiation and duration than higher socioeconomic groups, Michigan project directors felt that geographic, economic, and racial/ethnic groups in the State would benefit from breastfeeding support programs. Six counties in the State with breastfeeding rates below the State average were selected. These counties were in the top quartile in number of families at or below the U.S. poverty level but had a high level of local commitment to the effort. The objective of the study was to develop a program that provided breastfeeding education and support to pregnant, Medicaid-eligible participants in the WIC program to increase the number of mothers who initiate breastfeeding and to increase the duration of breastfeeding.

Design Overview

Women with personal breastfeeding experience who were representative of the local WIC population were hired and trained as breastfeeding peer counselors to encourage and support WIC clients interested in breastfeeding their infants. WIC staff identified women who were considering breastfeeding based on their interest in breastfeeding information. Postpartum women entered the program at various stages of breastfeeding, usually because they were dealing with a problem related to breastfeeding. The average number of contacts made with women enrolled in the program was 6.3, with 3.5 being by phone and 3.1 in the mother’s home. Many breastfeeding peer counselors visited mothers in the hospital before discharge, if invited to do so by the mother. Some contact was also

Figure 2
Iowa: Share of initiators still breastfeeding at various time points



¹Records on duration kept until only 12 weeks after infant’s birth. Source: Compiled by Economic Research Service, USDA, from E. Schafer, 1996, “Building a Peer Network of Nutrition and Breastfeeding Support for Rural Iowans,” unpublished Final Report for ESWIC Nutrition Education Initiative, Iowa State University Extension.

made in the WIC clinic through nutrition education classes or support groups. Frequent contacts were made during the first 2 weeks postpartum, when many breastfeeding problems arise. Peer counselors attempted to make a home visit and observe breastfeeding within 48 hours of hospital discharge. Peer counselors referred problems beyond their expertise to lactation consultants or other skilled health care providers. Peer counselors wore pagers in order to increase their ability to respond quickly to mothers’ questions and/or problems. The primary types of breastfeeding support offered were how to breastfeed (technique), preventing or solving breastfeeding problems, nutrition recommendations for the breastfeeding mother, and adding supplemental feedings and weaning.

Material Use and Development

All breastfeeding clients were introduced to material from a lesson developed jointly by the State WIC Lactation Consultant and Breastfeeding Counselor