

Breast-feeding Patterns of Montserratian Women¹

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This article describes the breast-feeding patterns found on Montserrat by a survey that interviewed 69 mothers who delivered infants over a 13-month period, from March 1989 through March 1990. The results indicated that 94% of the women breast-fed these children for at least two weeks after delivery; that 70% were still breast-feeding at the time of the interview in March or April 1990; and that principal factors influencing early termination of breast-feeding were the age at which supplementary feeding was commenced and lack of maternal information about why babies appear to reject the breast.

Montserrat, one of the smaller Caribbean islands, is a British protectorate with approximately 12,000 inhabitants. Its economy is based on agriculture, light industry, and tourism; in 1985 the average per capita income was EC\$6,000.⁵

As this suggests, the population enjoys a moderately good standard of living. In addition, the leading health indicators point to a favorable health picture relative to that indicated by global morbidity and mortality patterns. Infant mortality is in the range of 12 to 26 deaths per thousand live births (1).

The Glendon Hospital in Plymouth, Montserrat's capital, is the only source of

secondary medical care on the island. Several government health clinics are in operation around the island, and several private practitioners have offices in Plymouth. All births take place at the hospital and are attended by midwives. A physician with advanced obstetric training (S.M.) is available if complications occur or are anticipated.

Breast-feeding is an important maternal and child health issue on Montserrat as elsewhere, because it plays an important role in the physical and emotional well-being of both mothers and their children. Among other things, breast-feeding protects against mild gastrointestinal illness, lowers the incidence of otitis media, and leads to decreased hospitalizations from all illnesses (2, 3).

In the early 1970s, international health experts became concerned about reports of declining breast-feeding in the developing world (4), and PAHO's Caribbean Food and Nutrition Institute (CFNI) produced guidelines in 1976 that made promotion of breast-feeding a cornerstone of its nutrition policy (5-7). However, recent data indicate that the problem is far from resolved. For example, breast-feeding rates in Puerto Rico were recently re-

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⁵Equivalent in 1985 to approximately US\$2,500, at which time 1 US dollar was equal to 2.4 Eastern Caribbean (EC) dollars.

ported at 38.3% (8). In Jamaica these rates were reported to be only somewhat higher—56% in urban locations and 76% in rural areas (5). In the Bahamas a nutrition survey found that full breast-feeding was practiced by very few mothers (9). Similarly, a survey in the Dominican Republic found that only about 25% of the infants under four months of age were being fed exclusively with breast milk (sometimes diluted with water), although 82% of the infants studied reportedly received some breast milk (10).

On Montserrat, breast-feeding is considered normal behavior in the postpartum period and is encouraged by the hospital's nursing staff. Breast-feeding is initiated within the first few hours of delivery, and rooming-in is practiced. Milk supplements are discouraged on the postpartum ward.

METHODS

The purpose of the study reported here was to examine breast-feeding patterns among Montserratian women and to determine reasons for early cessation. To that end, the names and addresses of all Montserratian women who gave birth in the Glendon Hospital from March 1989 through March 1990, inclusive, were obtained from the hospital's obstetric records. Stillbirths and fetal deaths were excluded from the study.

One of us (J.O.) sought to locate as many of these women as possible during the months of March and April 1990. This task was complicated by the destruction and relocation associated with Hurricane Hugo, a storm that devastated the island in September 1989, disrupting telephone service and causing widespread damage to buildings. Some women were contacted in person or by telephone (if they had an operating telephone) at their residences. Women with infants were sought out at grocery stores and markets, and

were interviewed there if their names appeared on the list of women who gave birth during the study period. In smaller villages, key informants, usually older women, were asked to identify the homes of mothers on the list. On some occasions a clothesline bearing infant clothing was used to locate the home of an eligible mother.

The purpose of the study was explained to each mother interviewed, and she was assured that her responses would be kept confidential. Each respondent consented verbally to answer questions about her most recent infant (i.e., the one delivered during the study period), and if applicable her preceding child and her first child. In each case, the woman was asked if she breast-fed the child and if so how often; her own age at delivery; the child's current age; and the child's age at weaning. Regarding the current delivery, the woman was asked about her use of breast-feeding supplements and her reasons for cessation of breast-feeding, if applicable.

The information obtained from each respondent was recorded on a separate form which was coded, entered into a database, and subsequently verified. Data analysis was conducted using SYSTAT (11). Questionnaire items were analyzed individually on a frequency basis, using descriptive statistics. Statistical methods including the Chi-square test, Fisher's exact test, Student's *t*-test, analysis of variance, and stepwise multiple regression analysis were used when these were appropriate. The level of significance chosen was 5%.

RESULTS

During the 13-month study period a total of 170 births were recorded in Montserrat. Subsequently, 69 (41%) of the mothers were contacted, all of whom participated in the study. Nineteen of

Table 1. Demographic and breast-feeding information about the most recent children of the mothers interviewed.

	Parity 1 (n = 19)	Parity 2 (n = 21)	Parity 3/+ (n = 29)	Total (n = 69)
Mother's age at last delivery, in years; mean (± 1 s.d.) ^a	18.8 (± 3.6)	26.9 (± 5.5)	29.6 (± 6.9)	25.8 (± 7.2)
Last child's age at time of interview, in months; mean (± 1 s.d.)	6.0 (± 4.2)	4.8 (± 3.4)	5.2 (± 3.5)	5.3 (± 3.6)
% mothers delivering last child vaginally	68.4	85.7	86.2	81.2
% of latest children breast-fed two weeks	94.7	90.5	96.6	94.2
% of latest children still being breast-fed at time of interview	63.2	66.7	75.9	69.6
Breast-feeding frequency (no. of times per day); mean (± 1 s.d.)	11.0 (± 5.4)	11.1 (± 5.4)	9.0 (± 5.2)	10.0 (± 5.0)
% of latest children receiving supplementary feeding at less than 3 months of age	46.7 (n=15)	20.0 (n=20)	21.7 (n=23)	27.6 (n=58)
Age when last child was weaned, in months; mean (± 1 s.d.)	4.3 (± 1.8) (n=6)	31.4 (± 1.7) (n=6)	3.0 (± 2.1) (n=5)	3.6 (± 1.8) (n=17)

^as.d. = standard deviation.

these 69 women (27.5%) were parity 1 mothers, 21 (30.4%) were parity 2, and 29 (42.0%) had given birth to three or more children. Approximately 20% of the infants delivered during the study period to the women interviewed were delivered by cesarean section. More primiparous women than other women⁶ in the study group received cesarean sections, but this trend was not statistically significant ($p = .10$).

Table 1 presents demographic and breast-feeding information relating to the most recent delivery. The average maternal age at the time of delivery was 25.8 years, the age range of the mothers extending from 12 to 42 years. The average age of the women delivering three or more children was significantly greater ($p = .001$) than that of the other women. The average age of each mother's most recent child at the time of the interview was 5.3 months (the age range being 1 week–13 months); this average age was not significantly affected by maternal parity.

Sixty-five (94%) of the women inter-

viewed had breast-fed their most recent child for at least two weeks, and most (69.6%) were breast-feeding at the time of interview. Breast-feeding was more common among women with three or more deliveries, but this difference was not statistically significant.

On the average, breast-feeding occurred about once every two hours (see Table 1), the reported breast-feeding frequency ranging from 2 to 24 times a day. This average frequency was not influenced significantly by parity.

Supplementary feeding of breast-fed babies under three months of age was quite common, and was reportedly provided to 27.6% of the babies who had reached that age. Almost half of the primiparous mothers supplemented their breast milk ($p = .06$, primiparous versus other mothers).

Mothers who had breast-fed their infants were asked if they had encountered any breast-feeding problems. Forty-eight percent denied any problems, while an additional 21% did not volunteer a response to the question. The remaining women reported breast-feeding problems; specifically, 18% of the breast-feeding mothers complained of soreness, 5%

⁶Women delivering two or more children.

complained of fullness, 3% said they had problems initially, and 5% were concerned about such things as not having enough milk or the baby's biting. In terms of parity, 35.7%, 50%, and 34.7% of the respective parity 1, parity 2, and parity 3+ mothers who breast-fed reported breast-feeding problems.

The 17 interview subjects who had weaned their most recent children reported doing so when their infants were three weeks to seven months old, the average age at weaning being 3.6 months. Using a stepwise multiple regression model, applied to these women and their most recent delivery, it was found that lower parity and older child age at the time of the interview best predicted older age at weaning. Mothers stated that they had stopped breast-feeding for the following reasons: the baby rejected it (41%); there was not enough milk (23%); the mother had to return to work (18%); the baby was sick or had died (12%); the baby was biting the breast (6%). For mothers of one or two children, the most frequently cited reason for termination of breast-feeding was that the child had rejected the breast; for mothers of three or more children, it was because the mother didn't have enough milk. No woman said that her partner suggested she wean the child.

Table 2 presents information similar to

that shown in Table 1, but for the mother's first rather than her last child. There appears to have been little change in maternal age at first birth. Women with three or more children were significantly less likely ($p = .02$) to deliver by cesarean section at the time of their first birth than were other women. The initiation (and probably the persistence) of breast-feeding appears to be more common now than in the past, but the differences found in the percentages of parity 1, parity 2, and parity 3+ mothers breast-feeding their first-born infants for two weeks were not statistically significant.

Table 3 examines maternal and child factors for the 29 interview subjects with three or more children. For these women, subsequent births seemed to bring higher rates and longer-lasting breast-feeding. Birth spacing in Montserratian women appears to be about 5.5 years. The average birth interval between the current and last preceding child was 5.8 (s.d. 5.1) years for parity 2 mothers and 4.7 (s.d. 4.9) years for those who were parity 3 or more.

DISCUSSION

Comparing current with past breast-feeding practices, we find a secular trend toward more breast-feeding in primiparous women now than in the past,

Table 2. Demographic and breast-feeding information about the first children of the mothers interviewed.

	Parity 1 (n = 19)	Parity 2 (n = 21)	Parity 3/+ (n = 29)
Mother's age at first delivery, in years; mean (± 1 s.d.) ^a	18.8 (± 3.6)	20.6 (± 4.3)	17.4 (± 2.9)
First child's age at time of interview, in years; mean (± 1 s.d.)	0.5 (± 0.4)	6.4 (± 5.1)	12.3 (± 6.3)
% mothers delivering first child vaginally	68.4	85.7	96.6
% of first children breast-fed two weeks	94.7	90.5	82.8
Age at which first child was weaned, in months; mean (± 1 s.d.)	4.3 (± 1.8) (n = 6)	9.3 (± 7.0) (n = 21)	5.5 (± 3.7) (n = 29)

^as.d. = standard deviation.

Table 3. Demographic and breast-feeding information about children of the multiparous mothers interviewed.

	Last child	Prior child	First child
Mother's age at delivery, in years; mean (± 1 s.d.) ^a	29.6 (± 6.9)	24.8 (± 5.9)	17.4 (± 2.9)
Child's age at time of interview, in years; mean (± 1 s.d.) ^a	0.4 (± 0.3)	5.3 (± 4.7)	12.3 (± 6.3)
% of children delivered vaginally	86.2	96.6	96.6
% of children breast-fed two weeks	96.6	96.6	82.8
Age at which children were weaned, in months; mean (± 1 s.d.)	3.0 (± 2.1) (n = 5)	6.8 (± 6.0) (n = 29)	5.5 (± 3.7) (n = 29)

^as.d. = standard deviation.

as well as a cohort effect indicating higher breast-feeding rates among women who have had previous births.

Overall, breast-feeding rates among Montserratian women compare favorably with those found among women elsewhere in Latin America and the Caribbean (5, 8-10). However, the benefits of this breast-feeding may be undermined by the relatively high proportion of women (especially first-time mothers) who begin breast milk supplementation before their infants are three months old. (Exclusive feeding with breast milk is recommended for the first four to six months of life—2, 3.)

Hawkins and colleagues found that termination of breast-feeding was most frequently attributed to "inadequate" milk supply or poor infant weight gain, especially among those breast-feeding their babies less than 24 weeks (12). The main reason Montserratian mothers gave for termination of breast-feeding was that the baby "rejected" the breast. This finding has not been specifically reported elsewhere but may be associated with a belief by the mothers that their babies were ready to wean. (Reports obtained from Indonesian women also indicate that self-weaning is a primary determinant of breast-feeding's duration—13.)

It has been found that Puerto Rican mothers who had not previously breast-

fed an infant would rarely breast-feed a subsequent child (8). We have found, however, that Montserratian women delivering more than one child are often willing to initiate breast-feeding for their later-born children, even when they did not breast-feed a first child. This may be related to maturation, maternal experience, or secular changes that promote breast-feeding more now than in the past.

The birth interval in Montserrat is relatively long. It is therefore difficult to extrapolate past increases in the average duration of breast-feeding (from 5.5 months for the first-borns of mothers with three or more children to 9.3 months for the first-borns of mothers with two children) in a manner that can effectively predict current trends. Nevertheless, it does appear that Montserratian women giving birth today are more likely to initiate and sustain breast-feeding, regardless of maternal age and parity, than they did previously.

Given the high rates of current breast-feeding among Montserratian women, there appears little reason to doubt that government and hospital policies do in fact favor the breast over the bottle. The community also seems supportive of breast-feeding. Within this context, it appears likely that the problem of early termination is related to the age at which

supplementation is provided and to maternal lack of information about why babies may appear to reject the breast.

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