

# Original Articles

## Influence of cultural and environmental factors on breast-feeding

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**A study was undertaken at hôpital Sainte-Justine, Montreal, to determine the factors that influence the choice of feeding method for infants and the duration of breast-feeding. The factors that most clearly distinguished the mothers who breast-fed were lifestyle, education and conditioning to the parental role; those who nursed successfully for a long time were well motivated, well educated, supported by their family, especially the husband, and the La Leche League, and were of an economic status such that it was not necessary for them to return to work soon after delivery. Although the breast-fed babies were more fussy, they were healthier and received fewer drugs.**

**Une étude a été entreprise à l'hôpital Sainte-Justine de Montréal afin de déterminer les facteurs qui influent sur le choix de la méthode d'alimentation du nourrisson et la durée de l'allaitement. Les facteurs qui caractérisaient le plus clairement les mères qui allaitaient étaient le style de vie, l'éducation et le conditionnement au rôle de parent; celles qui ont allaité avec succès durant une longue période étaient fortement motivées, bien éduquées, et soutenues par leur famille, spécialement par leur conjoint, et la ligue La Lèche, et leur statut économique était tel qu'il ne leur était pas nécessaire de retourner au travail tôt après l'accouchement. Bien que les bébés allaités aient été plus capricieux, ils étaient en meilleure santé et recevaient moins de médicaments.**

It is generally accepted that the adage "breast is best"<sup>1</sup> aptly describes the accumulated evidence of medical and social research on infant feeding.<sup>2,4</sup> However, although breast-feeding is enjoying renewed popularity, many mothers switch to bottle-feeding within the first 6 months.<sup>5,8</sup> The reasons for this are only partly defined,

but numerous influencing factors have been suggested.<sup>9-11</sup>

In 1979 a prospective study was undertaken at the perinatology unit of hôpital Sainte-Justine, Montreal, to analyse the factors that influenced the choice of feeding method and the duration of breast-feeding. From the results, we hoped to obtain a better understanding of the natural history of breast-feeding and some guidelines for the design of a breast-feeding promotion program.

### Patients and methods

We randomly selected 187 mothers from the four maternity wards in the perinatology unit. A standardized questionnaire was completed by one of us during a 1-hour interview with each of the mothers within 48 hours after delivery. Of the 187 mothers 37 were excluded from the study because they had medical problems that precluded successful breast-feeding, because there was a language barrier or because they refused to take part in the study. Of the remaining 150, 89 (59%) had chosen to breast-feed and 61 (41%) to bottle-feed.

During the study period the unit's routine did not change and there were no structured promotional programs for breast-feeding.

A second interview with the mothers was conducted by telephone between 3 and 5 months after delivery. At this time three of the mothers, all of whom had chosen to bottle-feed, had to be excluded from the study: one mother's baby had died of sudden infant death syndrome and the other two mothers were lost to follow-up. Between 8½ and 9½ months after delivery 27 of the 29 mothers who had still been breast-feeding at 4 months were interviewed again by telephone.

The data from all three interviews were processed to define a typical profile of a successfully nursing mother.

Chi-square analysis (of categorical data) and the *t*-test (of interval data) were used for the statistical evaluation; the findings were considered statistically significant at  $P = 0.02$ . The number of tests and the correlations among the responses led, of course, to a different overall  $P$  value than the one chosen for each

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test: the overall probability of making at least one type I error was 0.07.

## Results

### Demographic and social characteristics (Table I)

Although the demographic data were similar for the mothers who breast-fed and those who bottle-fed, there were three distinct differences:

- Lifestyle. The mothers who breast-fed were more likely to be working outside the home and to be social drinkers and were less likely to smoke.
- Education. The parents of breast-fed babies were more likely to have had a university education.
- Conditioning. The parents of breast-fed babies were more motivated to assume the full responsibility of parenthood (Table II).

Only 25% to 30% of the mothers in each group recalled that their physicians had talked about breast-feeding during their prenatal visits. Surprisingly, the mean ages of the mothers who breast-fed and bottle-fed were almost identical (27.6 and 27.1 years respectively).

### Factors influencing the decision to breast-feed or bottle-feed

In 70% of the cases the decision to breast-feed was made before the woman became pregnant. Almost 75% of the nursing mothers thought that breast-feeding was "more natural" and that it was more beneficial for the baby. Others, especially those of Mediterranean origin, said that breast-feeding was a tradition in their family. Still others said that they were conforming to their husband's wishes or that they had had previous success with breast-feeding. Among the multiparas 81% of the nursing mothers, compared with only 19% of those who chose to bottle-feed, had previously breast-fed. It was surprising that both groups of mothers cited "more practical" as an important determinant of their choice of feeding method — the mothers who chose to bottle-feed meaning that it was more convenient for them and those who chose to breast-feed meaning that it

was more beneficial for the baby. When questioned further most of the mothers who were bottle-feeding admitted that they did not want to breast-feed because they thought that it would be difficult and therefore they feared failure and subsequent feelings of guilt. Psychosocial factors were perceived as the main deterrents to breast-feeding.<sup>12-14</sup>

The type of delivery, duration of labour, presence of the husband at the delivery and early contact with the baby did not influence the choice of feeding method.

### In-hospital experience of mothers who were breast-feeding

A large proportion of the nursing mothers (63%) breast-fed their babies in the delivery room. A factor that clearly differentiated the mothers who breast-fed from those who bottle-fed was the rate of "rooming-in" (37% and 20% respectively). Most of the infants who were rooming-in with their mothers were breast-fed on demand, but almost two thirds received supplements (e.g., glucose and water, plain water or infant formula).

Although the support given by the nurses to the mothers who breast-fed was perceived as good, the attending physicians did not really educate the mothers during early lactation; such assistance is crucial to successful breast-feeding, especially for mothers with no previous experience.<sup>15,16</sup> Several of the mothers mentioned having cracked and painful nipples, breast engorgement and depression during their stay in hospital, which usually averaged 3 to 4 days. However, these problems did not influence the outcome of attempts to breast-feed.

### Weaning

At the time of the second interview (about 4 months after delivery) only 29 of the initial 89 nursing mothers were still partially or completely breast-feeding, the proportion having dropped from the initial 59% to 36% at 1 month, 25% at 2 months and 19% at 4 months. Most of the decrease occurred during the first weeks after returning home (Fig. 1), an observation made by others.<sup>17,18</sup>

Of the 60 women who had weaned their babies within 4 months after delivery 25 (42%) had returned to work or school when the baby was about 3½ months old; however, there was no significant difference between the

Table I—Demographic and social characteristics of mothers who breast-fed and those who bottle-fed their infants

Variable	Mean % of mothers who		P value*
	Breast-fed (n = 89)	Bottle-fed (n = 61)	
Primiparity	55.1	41.0	NS
French Canadian			
Self	87.6	91.8	NS
Husband	80.7	84.7	NS
Total family income > \$20 000	26.7	24.9	NS
Lifestyle			
Worked outside the home	55.1	37.7	NS
Drank socially	74.2	49.2	0.002
Smoked	22.5	50.8	< 0.001
University education			
Self	29.2	11.5	0.003
Husband	47.7	18.6	0.001

\*Considered statistically significant at 0.02; NS = not significant.

Table II—Factors that may influence motivation during pregnancy to breast-feed or bottle-feed

Variable	Mean % of mothers who		P value
	Breast-fed (n = 89)	Bottle-fed (n = 61)	
Support from			
Husband	90.9	12.0	< 0.001
Mother	42.9	10.4	< 0.001
Siblings or inlaws	50.6	12.5	< 0.001
Friends	57.1	19.1	< 0.001
Prenatal courses			
Self	85.4	67.2	0.008
Husband	77.3	52.5	0.002
Knowledge			
Books	60.2	26.2	< 0.001
La Leche League	10.2	—	0.01

mothers who breast-fed and those who bottle-fed in this regard. Less than 20% of the mothers mentioned returning to work as their main reason for weaning their baby (Table III). Also, in most cases there was no good medical reason for the mothers to have stopped breast-feeding. Although the incidence of mastitis (12%) and cracked nipples (26%) was relatively high, these problems were rarely cited as reasons for weaning.

At the time of the third interview (about 9 months after delivery) only 6 of the 29 were still breast-feeding (Fig. 1). The factors that influenced the mother's decision to continue breast-feeding beyond 4 months are listed in Table IV. More male than female infants ( $P = 0.005$ ) were still being breast-fed after 4 months.

#### Effect of feeding method on babies

At 4 months of age there was no difference between the babies who were breast-fed and those who were bottle-fed in regard to the number of feedings per 24 hours and the age at which the babies started sleeping through the night. The percentages of 4-month-old infants who had been given solid foods by the time of the second interview were comparable,  $82.0 \pm 4.1$  for those who were breast-fed and  $91.8 \pm 3.5$  for those who

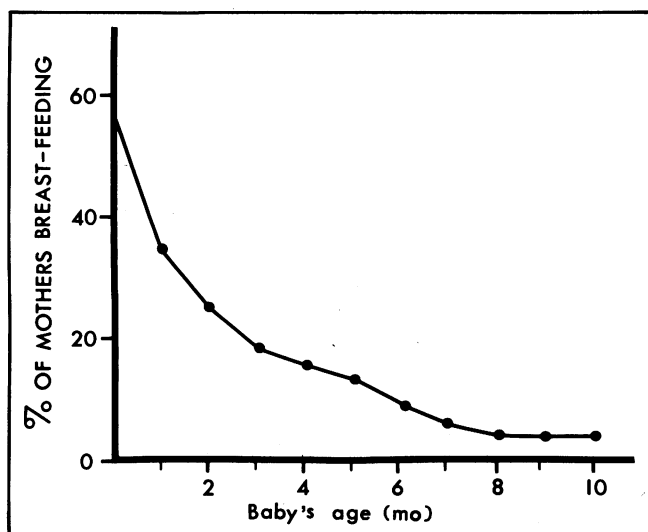


FIG. 1—Proportions of mothers breast-feeding, according to age of the infant.

Table III—Factors influencing decision to wean infant within 4 months and between 4 and 9 months after delivery\*

Variable	% of mothers who weaned infant	
	Within 4 mo (n = 60)	Between 4 and 9 mo (n = 23)
Wanted to wean and made decision herself	43	38
Tiredness	37	24
Insufficient milk	30	38
Baby unsatisfied	20	33
Returning to work	18	19
Baby being difficult	15	10
Mastitis	12	0
Disease	5	0
Cracked nipples	3	0

\*The mothers often gave more than one reason.

were bottle-fed. The mothers who were breast-feeding reported more episodes of fussiness (42% v. 22%) but a lower incidence of upper respiratory tract infections. However, the mothers who breast-fed were less likely than those who bottle-fed ( $P = 0.0063$ ) to give their babies sedatives and antispasmodic agents when they were fussy.

#### Conclusions

In summary, women who choose to breast-feed usually have a higher socioeconomic status and are usually well educated, well informed and supported by their family, especially their husband, and friends.

Although we cannot alter the educational and socioeconomic status of child-bearing women, much can be done to promote breast-feeding as a form of nourishment. For instance, more information on breast-feeding should be made available, especially to adolescents, since most women (70% in our series) choose the method of infant feeding long before they become pregnant. Such education could be reinforced at prenatal classes and could include information on breast-feeding techniques (e.g., unrestricted breast-feeding v. token breast-feeding),<sup>19</sup> the psychologic demands of pregnancy<sup>20</sup> and the requirements and needs of newborn babies.<sup>21</sup> This type of program may result in an increase in the proportion of mothers who choose to breast-feed as well as a decrease in the incidence of psychologic trauma and problems associated with newborn care.

In our study only 30% of the physicians had helped to educate the mothers with regard to breast-feeding. Since attending physicians have a dominant role<sup>22,23</sup> greater involvement by them is mandatory if a breast-feeding promotion program is to be successful.

Although many mothers may choose to breast-feed, not all of them succeed. As in other studies,<sup>5,6,9,16</sup> many of the mothers in our series had stopped breast-feeding within the first month. However, in most instances the mothers gave an arbitrary reason for discontinuing breast-feeding, which demonstrates their lack of motivation. The mothers who nursed successfully for longer than 4 months were highly motivated, were supported by their husband, immediate family and organizations, such as the La Leche League, and had an economic status such that it was not necessary for them to return to work soon after delivery.<sup>24</sup>

Successful breast-feeding depends not only on educa-

Table IV—Factors influencing duration of breast-feeding

Variable	Mean % of mothers who weaned infant		P value
	Within 4 mo (n = 60)	After 4 mo (n = 29)	
Support from Husband	70.2	96.6	0.004
Others	40.0	77.8	0.002
College or university education	41.6	68.9	0.014
Contact with La Leche League			
During pregnancy	5.0	21.4	0.018
After delivery	5.3	28.0	0.004

tion and motivation of the mother but also on the support from her family and health care professionals.<sup>25</sup> In addition, in the critical period immediately after delivery some hospital practices must be modified to minimize the predictable causes of failure — fixed feeding schedules,<sup>26</sup> early supplementation with bottles<sup>27</sup> and excessive use of medications such as sedatives by the mother.<sup>28,29</sup> In contrast to the many previous reports that emphasized the influence of early mother–infant contact on successful breast-feeding,<sup>15,27</sup> our study demonstrated no such influence on the final outcome. Even the high rate of cesarean section in our series — about 20%, the maternity unit at hôpital Sainte-Justine being a provincial centre for high-risk pregnancies — did not influence the rate of breast-feeding, which further supports our theory that a highly motivated mother can breast-feed successfully even after a difficult delivery.

Although breast-fed babies are known to be more “fussy”, they are healthier<sup>30,31</sup> and receive fewer drugs than bottle-fed babies.

In our series 83% of the mothers and 80% of the fathers judged the breast-feeding experience as good. Therefore, their next child will likely be breast-fed and perhaps for longer. The husband has a major role in the decision to breast-feed and the duration of nursing;<sup>32</sup> if he does not agree with breast-feeding his attitude will automatically lead to failure.

The promotion of breast-feeding requires that all health professionals<sup>33,34</sup> provide education and practical information to the expectant couple<sup>35</sup> and optimal physical and emotional support to the mother after delivery.

Suzanne Fontaine was the recipient of a grant from the Medical Research Council of Canada.

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## La Leche League

*La Leche League was founded in 1956 for the “purpose of giving help and encouragement, primarily through personal instruction, to those mothers who want to nurse their babies”. The league believes that breast-feeding is “the ideal way to initiate good mother-child relationships and strengthen family ties”. In Canada there are over 300 La Leche League groups in which certified leaders meet with women who want to know about “the womanly art of breastfeeding”. The leaders are experienced nursing mothers who are familiar with the research and information on breast-feeding and who share the league's philosophy of mothering.*

—La Leche League publ no 3C, January 1979