

## A B S T R A C T

**Objective:** To determine the duration of breastfeeding in the Sudbury Region and to identify the reasons why mothers wean before the Canadian Paediatric Society's recommended six month period.

**Methods:** Questionnaires addressing factors that influence the duration of breastfeeding were mailed to 350 breastfeeding mothers at one/two weeks, three months and six months after their postpartum discharge from hospital.

**Results:** Forty percent of mothers breastfed for the recommended six month period. Reported factors positively influencing longer durations of breastfeeding were higher education, higher family income, parity, previous breastfeeding experience, decision to breastfeed before the child was born and late introduction to solids. Reasons for weaning included perceived insufficient milk supply, fatigue, breast problems and return to work. Mothers' top three choices of services were home visits, telephone hot line and television programs.

**Conclusions:** The duration of breastfeeding in the Sudbury Region is lower than the provincial average. Several modifiable factors associated with duration of breastfeeding were identified.

## A B R É G É

**Objectif :** Déterminer la durée de l'allaitement au sein dans la région de Sudbury et cerner les raisons pour lesquelles les mères sèvrèrent leurs enfants avant la fin de la période de six mois recommandée par la Société canadienne de pédiatrie.

**Méthodologie :** Des questionnaires portant sur les facteurs qui influencent la durée de l'allaitement au sein ont été envoyés à 350 mères allaitant, une ou deux semaines après leur sortie de l'hôpital, puis trois mois et six mois plus tard.

**Résultats :** Quarante pour cent des mères ont allaité pendant la période recommandée de six mois. Les facteurs qui sont apparus comme ayant une influence positive sur la plus grande durée d'allaitement ont été les suivants : un plus haut niveau d'études, un revenu familial plus élevé, la parité, les antécédents d'allaitement, la décision d'allaiter avant la naissance de l'enfant et l'introduction plus tardive des aliments solides. Les raisons données pour justifier le sevrage ont été entre autres le sentiment d'une insuffisance de lait, la fatigue, des problèmes aux seins et le retour au travail. Les trois premiers services mentionnés par les mères aux trois différentes périodes ont été des visites à domicile, une ligne d'assistance téléphonique et des émissions télévisées.

**Conclusions :** La durée de l'allaitement dans la région de Sudbury est inférieure à la moyenne provinciale. Plusieurs facteurs modifiables associés à la durée de l'allaitement ont été identifiés.

# Factors Influencing the Duration of Breastfeeding in the Sudbury Region

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Breastfeeding remains uncontested as the best food source for infants. The Canadian Paediatric Society recommends breastfeeding for the first six months of life.<sup>1</sup> Furthermore, the Ontario Public Health Association states that "breastmilk is the ideal exclusive food source for infants during the first six months of life when not medically contraindicated . . . [and] that breastfeeding should be promoted, supported and protected."<sup>2</sup> However, Ontario Health Survey data suggest that mothers are discontinuing breastfeeding before six months.<sup>3</sup> In reviewing recent studies by Health Canada, Valaitis and Shea reported that close to 80% of Canadian women initiate breastfeeding but that "fewer than 30% of infants are receiving any of their mother's milk by three months of age."<sup>4</sup> In Ontario, McKilligan reported that 80% of mothers were initiating breastfeeding, but less than 50% of these women were still breastfeeding at six months.<sup>5</sup>

Several factors have been identified as possibly influencing the duration of breastfeeding. Lynch et al found a significant relationship between knowledge and duration of breastfeeding.<sup>6</sup> Maclean identified factors such as support systems, attitudes, values and character traits.<sup>7</sup> The timing of the decision to breastfeed was also identified as influencing the duration of breastfeeding.<sup>8,9</sup>

In Sudbury, 1992-93 statistics, provided by the only obstetrical unit in the region, suggest that 65% of mothers initiated

breastfeeding while in hospital (Sudbury General Hospital, unpublished data). This rate is considerably lower than the 80% provincial and national rates mentioned earlier.

Since there were no regional data on breastfeeding duration rates, a study was conducted to obtain baseline data with respect to regional breastfeeding duration rates and the factors that influence the duration of breastfeeding. The study was undertaken to provide data for the planning and development of services aimed at promoting, protecting and supporting breastfeeding for the recommended six month period.

## METHODS

### Sample

The sample consisted of 350 new mothers who were recruited on the only perinatal unit in the region. An additional 50 subjects were recruited in an attempt to identify any possible instrument effect on breastfeeding duration.

Mothers were considered eligible if they were between the ages of 15 and 45, lived in the Sudbury Region, were breastfeeding before hospital discharge and had given birth to only one infant who weighed at least 2500 grams and who was free of congenital anomalies that could affect breastfeeding. Eligible mothers were contacted, in hospital, by nurse researchers and asked to participate in the study.

### Data collection

On the basis of variables identified through a review of the literature, data collection tools were developed in English and French and pretested with five participants. Questionnaires, consisting of both

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open and closed questions, addressed demographic characteristics, breastfeeding intentions and practices, presence and utilization of support and resources, problems with breastfeeding, and perceived needs with respect to breastfeeding.

Questionnaires were mailed to participants during the first month after their postpartum discharge from the hospital, at three months and again at six months. The second and third questionnaires were mailed only to mothers who continued to breastfeed. A questionnaire was mailed to the additional control group of 50 mothers at six months. A reminder letter was mailed to mothers who had not returned their questionnaire within three weeks of the original mailing.

The data were analyzed using Epi-Info Version 6 (Stone Mountain, GA: USD Inc, 1994).

**RESULTS**

During the recruitment period, 91% of the women who were recruited agreed to participate in the study. Return rates for the three questionnaires ranged from 79% to 87% (Table I).

**Demographic characteristics**

The majority of mothers (84%) were between the ages of 20 and 34. Forty-four percent were English-Canadian, and 30% identified themselves as French-Canadian. Almost half of the mothers lived in the city. The majority of participants had a gross family income that ranged from \$20,000 to \$59,999. Over 60% of mothers had a postsecondary education. Most mothers (92%) were married or living in common law. Over half of the mothers (54%) were primiparous. The majority of mothers (66%) worked outside the home before the baby's birth.

**Duration of breastfeeding and related factors**

Nonrespondents were taken into account in the calculation of duration of breastfeeding. It was assumed that the proportion of mothers who discontinued breastfeeding among the nonrespondents was equal to that among the respondents. Using this assumption, 40% of mothers breastfed for the recommended period of six months or more (Table II). In the additional group of 50 mothers, 38% breastfed for six months or more. We can therefore conclude that there was little, if any, instrument effect.

The duration of breastfeeding was associated with several sociodemographic factors. Anglophone mothers tended to breastfeed longer than francophone mothers (p=0.01). Participants with a post-secondary education tended to breastfeed longer than those without (p=0.01). Mothers with a high family income (family income was based on Census Canada definitions) tended to breastfeed longer than mothers with a low family income (p=0.02). Having more than one child was also associated with a longer duration of breastfeeding (p=0.0002).

Almost 70% of mothers had decided to breastfeed before pregnancy. Mothers who made the decision before becoming pregnant, or early in their pregnancy, tended to breastfeed for longer than mothers who made their decisions later (p=0.0001).

Of those mothers who had other children, 84% had breastfed another child. Those with breastfeeding experience tend-

ed to breastfeed longer than mothers without breastfeeding experience (p=0.002). Mothers who were breastfed themselves were more likely than those who were not to still be breastfeeding at six months (p=0.01).

Very few mothers (1%) were feeding solid foods to their infant at one month, as compared with 32% at three months and 93% at six months. Our findings revealed that mothers who were feeding their infants solids at three months were less likely than those who were not to be still breastfeeding at three months (p=0.0001).

Approximately 26% of mothers reported using breastfeeding aids or devices. Of these mothers, 38% (34 mothers) used nipple shields. In this study, a negative association of marginal significance was found between the use of nipple shields and the duration of breastfeeding in the first month (p=0.06). Further research is suggested in this area.

Only 25% of respondents stated that they had attended a prenatal breastfeeding class. During this class, mothers reported receiving information on the benefits of breastfeeding, positions, problems and solutions, checking for flat or inverted nipples and where to get help. There was some suggestion of a positive relationship between attendance at a breastfeeding prenatal session by primiparous women and the duration of breastfeeding. Although this relationship is not significant at the 0.05 level, it is at the 0.10 level.

Only 40% of mothers breastfed their infant within the first hour after birth. No

	Questionnaire #1 n = 350	Questionnaire #2 n = 239	Questionnaire #3 n = 154	Mini Sample n = 50
Number of respondents	284	208	123	41
Percentage	81	87	80	82

	Before one month		From 1-2 months		From 2-3 months		From 3-4 months		From 4-5 months		From 5-6 months	
	N	%	N	%	N	%	N	%	N	%	N	%
Mothers who discontinued breastfeeding	55	16	18	5	45	13	13	4	39	11	37	11
Cumulative %	16		21		34		38		49		60	

relationship was found between the duration of breastfeeding and the early initiation of breastfeeding (within the first hour after birth). Thirteen percent of infants remained in hospital after the mother's discharge. Breastfeeding duration did not seem to be affected by the fact that some infants remained in hospital. The majority of infants (85%) who remained in hospital continued to receive breastmilk.

**Breastfeeding difficulties and reasons for weaning**

At one month, the main difficulty reported by mothers was breast problems. At three months, the major concern was insufficient milk, and at six months concerns centred on problems with the baby (fussy, sick baby, etc.). As identified throughout the three questionnaires, the majority of the breastfeeding problems began in the first three weeks.

The principal reason for weaning before or at one month was fatigue. At three months, the main reason was insufficient milk production. The main reason for weaning at six months was return to work. Additional reasons included maternal or infant health problems, family commitments, feelings of being tied down, infant self-weaned or preferred the bottle, teething, and introduction of solids.

**Support and resources**

Participants reported that hospital nurses helped most often by providing written breastfeeding information and helping to position the infant on the breast. Mothers also indicated that they would benefit from more assistance with breastfeeding and more support of breastfeeding while in hospital.

Mothers reported that public health nurses helped mostly by answering their

questions about breastfeeding and offering emotional support. However, only 14% of mothers who were experiencing difficulties had contact with a public health nurse.

The type of support most often offered by physicians consisted of explaining or stressing the benefits of breastfeeding and offering positive comments about the baby's growth.

Over 95% of mothers with partners reported that their partner supported them in breastfeeding; almost 75% of mothers reported that their families were supportive of breastfeeding; and over 77% of mothers reported receiving support from friends. Support included doing housework, giving emotional support, taking care of the infant and older children.

Respondents were asked if they could name places where they could obtain assistance with breastfeeding. At one month, 29% of mothers could not name one place where they could get help with breastfeeding; the remainder could name at least one place.

Participants and their partners reported using the following resources, in order of preference: books, magazines and newspapers, videos, and television programs. When asked to rate the usefulness of breastfeeding services that could be offered by the Public Health Unit, mothers chose home visits, a telephone hot line and television programs as top three choices (Table III).

In descending order of importance, mothers identified shopping malls, restaurants, workplaces and schools as places where designated breastfeeding areas were needed.

**DISCUSSION**

The Sudbury Region breastfeeding initiation rate is less than the provincial rate.

This study confirms that for those who do breastfeed, the duration is also less than the Ontario rate.

Results indicate an association between the duration of breastfeeding and culture as well as family income. Similarly, Beaudry and Aucoin-Larade found that English speaking mothers and mothers of higher socioeconomic status breastfed longer than French speaking mothers and mothers of lower socioeconomic status.<sup>8</sup> Thus, some breastfeeding promotional strategies should be developed to specifically target francophones and mothers with a low family income.

Several authors have found that women often decide on their infant's feeding method early in the pregnancy or before pregnancy.<sup>8,9</sup> This study tells us that mothers who made the decision to breastfeed during the preconceptional period or early in their pregnancy tended to breastfeed longer than mothers who made their decision later. An explanation for this finding may be that early deciders have more time to reflect upon and seek information related to breastfeeding. This may lead them to be better prepared for and possibly more committed to breastfeeding. Rogers et al suggested that a critical time to promote breastfeeding is when the mother is making the decision to breastfeed.<sup>10</sup> Therefore the preconceptional and early prenatal periods seem to be important times to target women in order to promote the benefits of breastfeeding and thus breastfeeding initiation.

Many of the difficulties and reasons for weaning reported by mothers may well be related to a lack of information or support. Since the majority of the difficulties began in hospital or during the first few weeks at home, providing information to new mothers at this critical time may pre-

**TABLE III**  
**Rating\* of Services That Could be Offered by the Health Unit to Support Breastfeeding Mothers**

Choice	1 Month		3 Months		6 Months	
	Service	Mean	Service	Mean	Service	Mean
First	Home visits	2.34	Telephone hot line	2.61	Telephone hot line	2.48
Second	Telephone hot line	2.89	Home visits	2.70	Television programs	2.98
Third	Television programs	3.03	Television programs	2.77	Home visits	3.01
Fourth	Groups for breastfeeding mothers	3.53	Walk-in breastfeeding clinic	3.42	Walk-in breastfeeding clinic	3.54
Fifth	Walk-in breastfeeding clinic	3.57	Groups for breastfeeding mothers	3.65	Groups for breastfeeding mothers	3.54
Sixth	Other	5.37	Other	5.67	Other	5.36

\* Rating scale from 1 to 6 with 1 as first choice and 6 as last choice.

vent some of the difficulties encountered. Agencies and groups involved with breastfeeding need to develop intervention strategies that address the identified difficulties and reasons for weaning. The WHO/UNICEF statement on protecting, promoting and supporting breastfeeding also recommends key practices for health facilities for overall promotion of breastfeeding, such as the establishment of support groups, breastfeeding on demand, better information for women on the benefits and management of breastfeeding, and establishment of breastfeeding policies.<sup>11</sup>

Public health units should consider promoting and enhancing the breastfeeding services that mothers rated as being the most helpful. At one month, home visits were preferred by mothers. During the initial postpartum period, going out of the home to obtain services may be difficult for many new mothers. Breastfeeding difficulties, such as problems with latch, often require physical assistance to correct. At three months and six months, the telephone hot line became the first choice. At this time, the assistance required can be easily accessed by telephone.

Although breastfeeding in public can be discreetly accomplished, many women do not feel comfortable doing so. An increased level of social acceptance is necessary in order to increase women's confidence for breastfeeding in public. Mothers also identified a need for the development of private designated areas in community locations, where they would be comfortable breastfeeding. Agencies and groups involved with breastfeeding need to advocate breastfeeding-friendly environments and encourage the development of designated breastfeeding areas in malls, restaurants, workplaces, schools, and other community sites. There is also a need to increase promotional strategies targeting the community at large in order to foster community awareness and support for breastfeeding.

Areas of further research include factors affecting breastfeeding initiation rates, the relationship between the duration of breastfeeding and the degree of support, the use of services and material resources,

and the impact of early discharge on breastfeeding duration. "The onset of lactation (i.e., an increase in maternal milk supply) usually takes 2-3 days with effective breastfeeding. . . . Consistent, appropriate professional support during this crucial early period can make a difference in long-term breastfeeding success."<sup>12</sup>

The findings of this study suggest that there is an important role for public health units together with hospitals and community groups to promote the initiation of breastfeeding and to ensure that mothers receive the support they need to continue to breastfeed.


We dedicate this paper to the memory of our friend and colleague Betty A. Rheume, Reg N.

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