

# Identifying which women will stop breast feeding before three months in primary care: a pragmatic study

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## SUMMARY

**Background.** In Britain only 42% of women who initiate breast feeding are still breast feeding at four months, despite well documented health benefits.

**Aim.** To explore whether sociodemographic and social support information collected routinely by health visitors at the new birth assessment can help predict which women will give up breast feeding before three months.

**Method.** A survey of 279 consecutive births in three general practices in an inner-London borough. Health visitors collected sociodemographic, infant feeding, and social support data at the new birth assessment 10 to 14 days after birth and at an immunisation visit at three to four months after birth. A data collection form was piloted and used by health visitors as part of their routine clinical care. Stepwise logistic regression was performed on 160 women who initiated breast feeding to identify predictors for those who would still be breast feeding at three months.

**Results.** Three variables were found to be significantly associated with breast feeding at three months. Younger women and women with moderate to poor emotional support as assessed by their health visitor were less likely to still be breast feeding at three months. White women who left full-time education at age 16 years or below are least likely to be breast feeding at three months but educational level is not a significant predictor for women from other ethnic backgrounds.

**Conclusion.** This pragmatic study illustrates how information collected during routine clinical care by health visitors can help predict which women will give up breast feeding before three months. This could be useful to identify women whose social support needs are not being met and who may benefit from local initiatives. Infant feeding researchers should consider the influence of ethnicity and levels of social support on breast feeding outcomes.

**Keywords:** maternity care; breast feeding; education.

## Introduction

BREAST feeding up to three to four months after birth reduces Respiratory and gastrointestinal illness in childhood.<sup>1-3</sup> In 1995, 66% of women in Great Britain initiated breast feeding but

20% gave up in the first two weeks.<sup>4</sup> Of those women who started breast feeding, only 65% were still breast feeding at six weeks and 42% when their baby was four months old. An important health promotion aim is to help women who commence breast feeding continue to four months to maximise health gain. Clinical audit at a local level to monitor trends and initiatives to promote breast feeding have been recommended.<sup>5</sup>

Predicting which women will give up breast feeding in the early weeks could help target interventions to improve breast feeding outcomes. The quinquennial National Infant Feeding Surveys (NIFS) show that mothers who previously breastfed a baby, who continue in full-time education (FTE) after 18 years, and who are in non-manual social class groups are the most likely women to initiate and continue breast feeding.<sup>4</sup> Babies given breast and formula feeds after birth are less likely to be breastfed at three months compared with exclusively breastfed babies. Women without a partner are particularly likely to stop breast feeding in the first few weeks after birth.

Increasingly, social support is recognised as important in determining outcomes of pregnancy and parenting.<sup>6-8</sup> Qualitative research suggests that social support and seeing other women breast feed may be important determinants of breast feeding behaviour.<sup>9-11</sup>

In developing countries breast feeding is a cultural norm and in Western societies women from ethnic minorities turn to their families for breast feeding support rather than health professionals.<sup>12,13</sup> Despite well documented ethnic differences in breast feeding behaviour,<sup>12</sup> NIFS does not record ethnicity, so the generalisability of the known sociodemographic predictors of breast feeding to multicultural populations is uncertain.

The aim of this study was to explore whether information about social support collected routinely by health visitors at the new birth assessment could help predict which women will give up breast feeding before three months. In particular, we were interested in contrasting women's own assessment of their social support with the health visitor's assessment. A pragmatic design in a multicultural general practice setting was chosen to look at the influence of ethnicity and to enable easy implementation of the findings within resource-stretched primary health care teams.

## Method

Three practices from different wards within an inner-London borough that were running child health surveillance clinics and had more than 80 births per year as well as practice-based, attached health visitors who were willing to participate were selected. Ethics committee approval was obtained.

Health visitors recorded sociodemographic, infant feeding, and social support information from a consecutive sample of 279 births between 1 August 1995 and 31 July 1996 at the new birth assessment, 10 to 14 days after birth. This usually took place at the mother's home. Infant feeding and social support information was also recorded at an immunisation appointment three to four months after birth in the surgery. Interpreters and health advocates were available. Standard feeding outcome definitions were used.<sup>4,14</sup> Breast feeding incidence is the proportion of babies put

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to the breast, even if only once. Breast feeding prevalence is the proportion of babies who at any given time are being partially or exclusively breastfed. Exclusive breast feeding refers to babies who are given only breast milk with no formula supplements, although water or other solids may be given. Feeding method at birth, one week, six weeks, and three months was collected and categorised into three groups: exclusive breast feeding, partial breast feeding, and exclusive formula feeding. National statistics<sup>4</sup> record breast feeding outcome at four months. We chose three months for pragmatic reasons based on general practice organisation and to maximise data recording. Sociodemographic information was recorded in the same format as NIFS. Ethnicity was recorded using 1991 Census definitions.<sup>15</sup>

Data collection forms were piloted and modified by the health visitors to enable information that is usually collected as part of normal clinical care to be systematically recorded. Specific social support tools designed for use in infant feeding have distinguished between emotional, practical, and informational support; however, they are lengthy for use in the normal clinical setting.<sup>16,17</sup> We used an adaptation of the Dartmouth Coop Function Chart tool<sup>18</sup> to assess practical and emotional support (Box 1). This tool has been developed for use in primary care. It is quick, easy to use, acceptable, and has been tested for reliability and validity but not specifically in relation to infant feeding. Both mothers and health visitors made an assessment of the mother's level of practical and emotional support on a five-point scale.

### Analysis

Data was entered onto SPSS. The variables considered were: maternal age, ethnic group, parity, previous breast feeding experience, age at leaving FTE, home ownership, the number of other adults and children in the household, maternal smoking, smoking in the household, receipt of milk tokens, the mother's main social support, whether she is living with her main social support, whether she is living with the father of the baby, employment status of the mother and her main social support, the level of emotional support, and the level of practical support assessed by the mother herself and by the health visitor. Chi-squared was used to identify the explanatory variables that were significantly associated ( $P < 0.05$ ) with breast feeding at three months. Maternal age was entered as a continuous variable and a *t*-test was used. A forward stepwise logistic regression analysis using the explanatory variables was then performed to identify independent predictors of breast feeding at three months.

### Results

There were 302 births in the three practices during the study period. Twenty-three mothers were excluded from the study by health visitors for the following reasons: moving out of the area, serious illness of mother or baby, and non-attendance at the clinic. The 279 mothers in the study included eight babies who were

admitted to special care after birth, four babies who were born before 36 weeks gestation, and one set of twins. No women refused to enter the study. Breast feeding was initiated by 185 women and 128 (69%) of these women were still breast feeding, on at least some occasions, at three months (Table 1). The sociodemographic characteristics of the study population are summarised in Table 2. There was ethnic diversity within the sample, with 196 women classifying themselves as white, 36 as Bengali, 13 as Black African, and nine as Black Caribbean.

Chi-squared analysis for the subgroup of 185 women who initiated breast feeding identified eleven explanatory variables significantly associated ( $P < 0.05$ ) with breast feeding at three months:

1. Maternal age.
2. Entitlement to free milk tokens.
3. Home ownership.
4. Maternal employment.
5. Maternal smoking.
6. Presence of a smoker in the household.
7. Main social support provided by the father of the baby.
8. Health visitor's assessment of emotional support at 10 days.
9. Previous experience of breast feeding.
10. Ethnic group.
11. Age at leaving FTE.

Some subgroups of the variables were small, so the following combined categories were used in analysis:

- Health visitor's assessment of social support: Level 1: very good; Level 2: good; and Levels 3, 4, and 5 combined: moderate to poor support.
- Previous experience of breast feeding: first child (index), multiparous with no experience of breast feeding, multiparous with previous experience of breast feeding.
- Ethnic group: white and other ethnic groups.
- Age at leaving FTE: 16 years or below and 17 years or above.

There was an interaction between ethnic group and age at leaving FTE, so white mothers leaving FTE at age 16 years or below were given a code of 1 and all others a code of zero.

A forward stepwise logistic regression analysis using the 11 explanatory variables was performed on 86% ( $n = 160$ ) of the sample as the rest ( $n = 25$ ) had missing data for one or more of the 11 explanatory variables. Three variables were found to be independent predictors of breast feeding at three months for women who initiated breast feeding at birth (Table 3). Younger maternal age mothers having moderate to bad emotional support as assessed by the health visitor and white mothers leaving FTE at 16 years or below are all less likely to continue breast feeding to three months. Comparing a mother aged 20 years with a mother aged 40 years the odds ratio would be 4.68 (95% CI = 1.14 to 19.21). The influence of age at leaving FTE differs by broad ethnic grouping. White mothers who left school at 16 years or less are the least likely to be breast feeding their children at three months. Age at leaving FTE was not a significant predictor of breast feeding at three months for women from other ethnic backgrounds.

Interestingly, a mother's own assessment of her emotional and practical support was not associated with breast feeding prevalence at three months, neither was the health visitor's assessment of practical support. There was agreement between the health visitor's and the mother's assessment of emotional support for 191 (72%) of the 266 women with complete data. For 64 (24%) women, the health visitor assessed the emotional support level to be lower than the woman's own assessment. For 11 (4%)

Practical support is someone to help you with the chores, e.g. cooking, cleaning, shopping or, if you became sick and had to stay in bed, someone who could look after the baby.  
Emotional support is someone to turn to if you need someone to talk to or feel lonely or low, someone to confide in.  
Scale for assessing support:  
Level 1: Very good, someone almost always available.  
Level 2: Good, usually someone available.  
Level 3: Moderate, sometimes someone available but unreliable.  
Level 4: Poor, rarely anyone available.  
Level 5: Very poor, no-one to turn to.

Box 1. Definitions of social support used in the study.

**Table 1.** Breast feeding outcomes for the 279 women in the study.

	Number of women with feeding data recorded	Exclusive breast feeding (%)	Breast feeding prevalence (%)
At birth	279	158 (56.6)	185 (66.3)
At one week	277	120 (43.3)	165 (59.6)
At six weeks	275	99 (36)	146 (53.1)
At three months	277	76 (27.4)	128 (46.2)

**Table 2.** Breast feeding incidence and prevalence at three months for sociodemographic variables of the study population (n = 279).

Variable	Number of mothers in variable group	Breast feeding incidence at birth for each variable group (%)	Breast feeding prevalence at three months for each variable group (%)
Mother aged 16 years or under at finishing FTE	163	87 (53.4)	51 (31.3)
Ethnic group: white	196	113 (57.7)	75 (38.3)
Other ethnic groups	83	72 (86.7)	53 (63.9)
Mother not employed	164	96 (58.5)	60 (36.6)
Eligible for milk tokens	109	58 (53.2)	37 (33.9)
Smoked during pregnancy	66	23 (34.8)	13 (19.7)
Primigravida	118	88 (74.6)	57 (48.3)
Previously breastfed a baby	102	86 (84.3)	65 (63.7)
Home ownership	78	65 (83.3)	54 (69.2)
Main social support is the father of baby	212	150 (70.8)	106 (50.0)
Main social support is the maternal mother	39	17 (43.6)	7 (17.9)
Main social support is another relative or friend	21	14 (66.7)	11 (52.4)
Living with main social support	231	158 (68.4)	113 (48.9)
Very good emotional support (health visitor assessment)	115	81 (70.4)	59 (51.3)
Good emotional support (health visitor assessment)	97	63 (64.9)	49 (50.5)
Moderate to poor emotional support (health visitor assessment)	56	35 (62.5)	14 (25.0)

**Table 3.** Variables found to be independent predictors of breast feeding at three months for women who initiated breast feeding. Results of logistic regression analysis.

Variable	Odds ratio	95% CI	P-value
Maternal age <sup>a</sup>	1.08	(1.01–1.16)	0.03
Emotional support assessed by health visitor	0.11	(0.04–0.30)	<0.01
Ethnic group by age at leaving FTE <sup>b</sup>	0.17	(0.07–0.42)	<0.01

<sup>a</sup>Maternal age as a continuous variable. Odds ratio quoted is for a one-year increase in age. <sup>b</sup>Ethnic group by leaving FTE' is an interaction term with 'white' and 'less than 16 years' coded as 1 against all others.

women, the health visitor assessed the emotional support level to be higher than the woman's own assessment. There were no significant differences in the level of practical and emotional support (self- or health visitor-assessed) between women breast feeding or formula feeding at the new birth assessment. The number of women where the level of emotional or practical support changed between the new birth and three month assessment was too small to be meaningfully analysed in relation to duration of breast feeding. Six women in the sample said that they had no one providing them with social support. Whether the father of the baby was the main social support or whether the woman was living with her main social support did not significantly influence breast feeding duration.

## Discussion

This study provides new information on how social support and ethnicity influence breast feeding duration. The findings confirm the known sociodemographic associations (maternal age, maternal employment status, age at leaving FTE, and previous experience of breast feeding) with breast feeding duration documented by NIFS.<sup>4</sup> In addition, an assessment of women's emotional sup-

port by health visitors at the new birth visit may help to predict which women are likely to give up breast feeding within three months. As 20% of women who initiate breast feeding have given up by two weeks<sup>4</sup> and health visitors often do not meet mothers until the tenth postnatal day, it may be more appropriate to assess women's emotional support at birth. The adaptation of the Dartmouth Coop tool to assess emotional support was user friendly and can be used easily within clinical practice. Women with low levels of emotional support who might benefit from local initiatives aiming to meet their support needs could be identified.

An important new finding is that the influence of age at leaving FTE on breast feeding at three months differs by broad ethnic grouping. White mothers who left school at 16 years are the least likely to still be breast feeding at three months, whereas age at leaving FTE was not a significant predictor of breast feeding at three months for women from other ethnic backgrounds. Some women were second or third generation immigrants, whereas others were recent refugees. Our numbers in different ethnic groups were small and arranging diverse groups of women together for statistical purposes is not ideal. However, a recommendation arising from this study would be for national breast

feeding statistics and future breast feeding research to consider the influence of ethnicity.

The percentage of women in this study initiating breast feeding was 66%, which is similar to the 1995 average for England and Wales of 68%.<sup>4</sup> However, the percentage of these women still breast feeding at six weeks in this study was 78%, which is higher than the 1995 average England and Wales figure of 65%.<sup>4</sup> This could affect the generalisability of this study to areas where there is a high cessation rate of breast feeding.

The finding that emotional support may influence breast feeding outcomes has important implications for breast feeding promotion. The discrepancy between the woman's own assessment of her social support and the health visitor's assessment warrants further exploration. Health visitors have vast experience of and insight into the support that mothers receive compared with the relatively limited experience of many mothers. The implications of this study for the role of health visitors are important given the current climate where their future funding is uncertain.<sup>19</sup> We do not know whether women who are still breast feeding at three months are more motivated to seek the emotional support they require or whether interventions offering emotional support would result in more women breast feeding for longer. We do not know how typical the emotional support levels of our study population are as we are not aware of any other published data using the Dartmouth Coop tool postnatally. Neither are we aware of any other studies extracting components of this tool for use in clinical practice. The data were collected by seven health visitors and a study involving a larger number of health visitors in different settings is warranted to test generalisability, particularly as some of the subgroups in the analysis were small.

An advantage of the pragmatic design of this study is that the context of normal clinical practice in primary care is preserved, which enables research findings to be more easily incorporated into clinical practice. A danger with prediction tools developed in a research environment is that they never quite bridge the gap into clinical practice. An antenatal breast feeding prediction tool developed in Newcastle with the aim of identifying a group of women who would benefit from increased support<sup>20</sup> has never been tested in a clinical setting (personal communication, S Bond, 2000). The simple tool for assessing the level of social support described in this study is easy to use in clinical practice.

Improving breast feeding duration in Britain is an important area of health promotion. We urgently need to understand why breast feeding rates in Britain have remained more or less unchanged since 1980. The focus in the past has been on professional support and education. In future, the focus may need to shift towards understanding how women's social support networks and, in particular, women's emotional support needs determine breast feeding behaviour.

#### Keypoints

- National statistics show that only 80% of British women who initiate breast feeding are still breast feeding at two weeks, 65% at six weeks, and 42% at four months.
- Younger mothers, those with poor emotional support, and white women who leave full-time education at 16 years or below are the least likely to continue breast feeding until three months.
- Health visitors can quickly and easily assess the level of emotional support at the new birth visit. Women with low levels of emotional support may benefit from local initiatives aiming to meet their support needs.
- There is a strong association between low age at leaving full-time education and formula milk feeding for white women but not for women from other ethnic backgrounds.

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