Effect of a lactation nurse on the success of breast-feeding: a randomised controlled trial

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SUMMARY An evaluation of a lactation nurse by means of a randomised controlled trial is described. The lactation nurse was employed to assist, support, and encourage mothers during the early weeks after parturition in hospital and at home. All mothers who breast-fed at least once were entered into the trial. Altogether 649 mothers were interviewed 12 months later to establish the duration of breast-feeding and to enquire after practices of and attitudes towards infant feeding. The lactation nurse significantly extended the duration of breast-feeding, particularly during the first four weeks and among women of lower social class. Although she did not reduce problems or change practices significantly, all the trends were consistently in the right direction. Mothers in the experimental group were more satisfied with the help they received than were mothers in the control group. It seems likely that the lactation nurse by consistent advice, assistance, support, and encouragement enabled mothers to cope more successfully with difficulties and that this led to significantly fewer ending breast-feeding prematurely.

There have been cyclical variations in the incidence of breast-feeding throughout history. In this country there was a marked decline in incidence and there was a marked decline in duration of those who started breast-feeding in the 40 or so years until the early 1970s. During this 20th century decline the consensus of medical opinion turned to very much favour breast-feeding. For many years now, doctors have considered breast milk to be the milk most suitable for the health and well-being of most babies.¹ In recent years a number of surveys of incidence and duration of breast-feeding have been undertaken. Concern over the unpopularity of breast-feeding and desire for higher rates of both incidence and duration culminated in the publication of *Present day practice in infant feeding* which recommended: "that all mothers be encouraged to breast-feed their babies for a minimum of two weeks and preferably for the first four to six months of life".² The report went on to recommend the improvement of advice and encouragement antenatally and postnatally to women who wanted to breast-feed.

Researchers, as well as members of the working party, have drawn attention to the paucity of advice and encouragement within and without hospital, and the lack of continuity and consistency of such advice.^{3–5} It has long been considered that such

inadequate assistance for breast-feeding mothers has led to the unacceptably high rate of premature cessation and consequently has led to disappointment of mothers. Grosvenor concluded her study with the recommendation that a midwife be specially trained and employed to assist with lactation management.³ Therefore it was desirable to undertake an evaluation of the employment of a specially trained midwife whose role was to assist and encourage mothers in the early days of breast-feeding both in hospital and, for continuity of care, in their own homes. A randomised controlled trial is the most rigorous method of evaluation.

Methods

Of 1545 mothers who delivered in the maternity department of a district general hospital over a period of 18 months, 1525 (98.7%) were interviewed as soon as possible after delivery. Mothers who attempted to breast-feed at least once were defined as breast-feeders. All breast-feeders (678) were entered into a randomised controlled trial to measure the effectiveness of a lactation nurse on the establishment and duration of breast-feeding. The most feasible method of randomisation was for the lactation nurse to work in the maternity wards in two week shifts followed by two week shifts visiting the same cases at home. In this way the mothers were not

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randomised individually but in terms of two week periods. The experimental group comprised those mothers who gave birth and left hospital during an "intervention period" when the lactation nurse was in hospital, and the control group comprised those who gave birth and left hospital during a "control period" when the lactation nurse was visiting homes. To avoid contamination between the experimental and control groups it was decided, prospectively, to exclude breast-feeders whose confinement overlapped both a control and an intervention period.

The role of the lactation nurse was to enable mothers to establish breast-feeding in hospital and to continue it successfully at home. This required demonstrating and assisting mothers to "fix" babies on the breast as soon as possible after delivery, attempting to prevent complications such as cracked and sore nipples and engorgement which often lead to the cessation of breast-feeding, and advising on the management of these complications should they occur. In addition to giving consistent advice and expertise, she was expected to provide general support and encouragement.

To measure outcome each breast-feeder was visited in her own home 12 months post partum by an independent interviewer. Using a semistructured questionnaire, each mother was asked the duration of breast-feeding, about the problems she encountered, and, more generally, about her attitudes to and practices of infant-feeding. Duration of breast-feeding and the incidence of problems were compared between experimental and control groups. Statistical comparisons were by χ^2 test.

Results

Of all those initially interviewed, 678 (42%) mothers were classified as breast-feeders and 649 (96%) of these were interviewed again 12 months post partum; 19 of the 29 who could not be contacted and re-interviewed had left the area. More than half (55%) of breast-feeders were mothers of first births, a third (33%) had one previous child, and only 3% had three or more previous children. Of those mothers who had previous children, 61% had breast-fed one or more of them. Over three quarters of breast-feeders were in their twenties; 5% were aged under 20 and 16% were aged 30 or over. The majority of mothers were in social class III; I 6%, II 20%, III_{nm} 15%, III_m 38%, IV 11%, V 4%, and unclassified 6%.

There were 228 in the experimental group, mothers who were attended by the lactation nurse, and 355 in the control group, mothers who gave birth during a period when the nurse was visiting the

experimental group at home: the confinements of the remaining 66 mothers overlapped both intervention and control periods. The personal characteristics (age, birth order, and previous breast-feeding) of the experimental and control groups were similar, confirming that randomisation was successful, that the groups were comparable, and that they were not biased in any important respect before intervention. Birth order is given in table 1. The small difference between the experimental and control groups with respect to social class was not significant (table 2).

The durations of breast-feeding are compared in figure 1. There were consistent differences between the experimental and control groups in the proportion breast-feeding at each point in time up to six months. Of the experimental group 84% and of the control group 72% were breast-feeding at four weeks ($p < 0.005$). Only 15% of breast-feeders continued past nine months and 6% past 12 months. Duration of breast-feeding for experimental and control mothers is shown for three major social class groupings in figs 2, 3, and 4: at four weeks the most striking difference in proportion of mothers still breast-feeding was in the lower social classes (IV and V). Further analysis showed a difference in duration between experimental and control groups for women described as "previously failed breast-feeders".

Table 1 *Birth order of breast-feeding mothers by trial group*

Birth order	Experimental group		Control group	
	No.	%	No.	%
1st	121	53	201	57
2nd	78	34	111	31
3rd	24	11	29	8
4th+	5	2	14	4
Totals	228	100	355	100

Table 2 *Social class of breast-feeding mothers by trial group*

Social class	Experimental group		Control group	
	No.	%	No.	%
I	17	7	20	6
II	51	22	63	18
III _{nm}	43	19	47	13
III _m	77	34	146	41
IV	23	10	41	12
V	6	3	16	5
Unclassified	11	5	22	6
Totals	228	100	355	101

Fig 1 Duration of breast-feeding by trial group: percentage still feeding at each point in time

Fig 3 Duration of breast-feeding by trial group in social class III

Fig 2 Duration of breast-feeding by trial group in social classes I and II

Fig 4 Duration of breast-feeding by trial group in social classes IV and V

The proportions of mothers who fed "on demand" were similar (79% among the experimental group and 73% among the control group), although the lactation nurse encouraged feeding "on demand". Those mothers in the experimental group did not appear to start breast-feeding earlier than did those in the control group, although the lactation nurse encouraged early initiation. There were no differences between the two groups in the length of intervals between feeds, either in hospital or at home.

There were no significant differences in frequency of bottle-feeds either at night or during the day while they were in hospital (48% of the experimental group and 44% of the control group reported giving no bottle-feeds). At home there was a bigger difference (84% and 72% respectively) but this difference did not reach significance.

The frequency and nature of problems experienced by breast-feeding mothers are given in table 3. More mothers in the experimental group

Table 3 Problems encountered with breast-feeding: by trial group

Problems	Experimental group (n=228)		Control group (n=355)	
	No.	%	No.	%
None	122	54	166	47
Cracked nipples	43	19	58	16
Sore breasts	35	15	70	20
Engorgement	21	9	38	11
Leaking	28	12	32	9
Baby not sucking	11	5	28	8
Others	35	15	71	20

Percentages do not total 100 as some mothers had more than one problem.

(54%) than in the control group (47%) reported having no problems, but the difference was not statistically significant. However, a significantly higher proportion of mothers in the experimental group reported that they received enough help with their breast-feeding problems both in hospital (75% in the experimental group and 57% in the control group, $p<0.0005$) and later at home (80% in the experimental group and 68% in the control group, $p<0.0005$). Fewer mothers in the experimental group (11%) than in the control group (16%) reported that they found breast-feeding "not enjoyable" on a four point scale of enjoyment (ns, $p<0.3$). Similarly, fewer of those in the experimental (11%) than in the control (17%) group found breast-feeding "not satisfying" on a four point scale of satisfaction: overall the experimental group mothers found breast-feeding more satisfying than did mothers in the control group ($p<0.05$). The numbers of mothers who said that they would breast-feed another child should they have one in the future were similar (82% of experimental group and 78% of control group) and the numbers of mothers who said that they would encourage their friends to breast-feed were similar.

Discussion and conclusion

This study describes the initiation of a service provided both within a hospital and outside hospital in the community and the evaluation of that service by a randomised controlled trial. The chosen method of randomisation was successful as evidenced by the similarity in the trial groups in respect of age, social class, birth order, and other personal characteristics. The imbalance of numbers occurred because of exclusion of 66 women due to their hospital stay overlapping both control and intervention periods and also because of holidays and unavoidable sickness absence of the lactation nurse.

A "Hawthorne effect" was observed: other members of the midwifery staff in hospital noticeably increased their interest in breast-feeding mothers and in their problems. In order to assess the magnitude of this "beneficial" effect, the duration of breast-feeding mothers in this study may be compared with the duration reported in another study, which was undertaken at a similar time.⁶ Our definitions of breast-feeding were the same: 51% of Martin's (total) sample started to breast-feed and, of those who started, 70% were feeding at two weeks, 54% at four weeks, and 30% at three months. Her proportions were considerably lower than the proportions for controls in this study. It therefore seems reasonable to conclude that the employment of a lactation nurse had a marked effect also on controls.

The duration of breast-feeding among mothers in the experimental group was significantly extended by the lactation nurse, that is, she enabled a higher proportion of mothers to establish successfully and furthermore to continue for as long as they thought necessary or desirable. This latter conjecture is supported by the finding that more mothers in the experimental group than in the control group gave as their reason for ceasing that they had breast-fed for "long enough". The benefit appeared to be greatest among social classes IV and V and perhaps also among those who had not breast-fed successfully before. The support, assistance, and encouragement of the lactation nurse was greatly appreciated by mothers in the experimental group, significantly more of whom reported at interview that they had enough help both in hospital and at home than did mothers in the control group. Furthermore, their appreciation was indicated by their many positive spontaneous comments.

It was not expected that the lactation nurse would influence the time at which mothers first put the baby to the breast as she did not ever work in the delivery area. However, it was expected that she would increase the frequency of feeds, encourage mothers to demand feed, and discourage supplementary bottle-feeds. There was a consistent trend in the right direction with all these practices, but the differences between the experimental and control groups were not significant. Comparison again with Martin's observational study shows that a much higher proportion of mothers in the control group (73%) were feeding on demand than in her study (26%) and that fewer mothers in both groups gave bottle-feeds than in her study, providing possible further evidence of the "Hawthorne effect". Problems with breast-feeding were reported rather less often by mothers in the experimental group than by mothers in the control group but significantly fewer women in

both groups of this trial reported problems than did women in Martin's study, in which only 10% reported no problems and 46% reported sore breasts.

The objectives of the lactation nurse were to help mothers with problems, to improve the overall experience of breast-feeding, to improve mothers' attitudes to breast-feeding, and to extend the duration of breast-feeding. Although she did not greatly reduce the numbers of mothers experiencing problems, she increased the numbers who found breast-feeding enjoyable and satisfying. Consequently, through encouragement and support, she reduced the proportion of mothers who ended breast-feeding prematurely.

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