Factors influencing breast feeding

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Sloper, K., McKean, L., and Baum, J. D. (1975). *Archives of Disease in Childhood*, 50, 165. Factors influencing breast feeding. A survey is reported of infant feeding practice at the time of discharge from a single maternity ward. It is shown that a change in the attitude of nursing staff increased the number of mothers breast feeding their infants and eliminated the practice of giving the infants formula feed complements. This change in attitude, however, did nothing to prevent the rapid decline in lactation after leaving hospital, such that 50% of mothers discharged breast feeding were no longer doing so by 2 months. The early introduction of solid feeds was common practice, 56% of mothers discharged breast feeding having introduced mixed feeds within 2 months. Successful lactation was found to be commoner in those mothers who had themselves been breast fed in infancy and in mothers from socioeconomic classes I and II. Successful lactation was not related to parity. The survey also shows the influential role of the health visitor, district nurse and midwife upon mothers’ decisions about infant feeding.

In our society it is established practice that newborn infants are fed largely on formulated milk. In an extensive survey of infant feeding practices in Scotland (Arneil, 1967) it was found that 30% of infants left hospital breast feeding and that half of these were on formula feeds by the age of one month. More recent surveys give similar figures: from the Mayo Clinic (Harris and Chan, 1969) 41% of the mothers left hospital breast feeding of whom over half were physicians’ wives; Prothero (1969), in a survey of 584 primipara in Hounslow, found that 41% started breast feeding and that 33% continued to breast feed beyond 4 weeks; while Black (1971), in a survey of 64 families in Newcastle, found that 39% started breast feeding and only 8% continued beyond 4 months.

Meanwhile there have been numerous reviews citing the considerable advantages to human infants of receiving human milk and of being breast fed (Gunther, 1963; Jelliffe, 1968; Mac Keith, 1969; Davies, 1969; Baum, 1971). While paediatric opinion has strengthened in favour of mothers breast feeding their babies, there are few recent facts to show if this is having any impact upon infant feeding patterns in our society.

We set out to determine what was the current infant feeding practice among patients discharged from one maternity ward at the John Radcliffe Hos-pital, Oxford. We also sought to determine what influence, if any, the opinion of the paediatric staff had on these patterns of infant feeding.

Method

The study consisted of a survey by questionnaire of patients discharged from a single maternity ward over a 20-week period in 1972/73. On discharge from the ward one of us (L.M.) recorded whether the infant was being fed by breast alone, breast plus bottle complements, or bottle alone. 5 weeks after the study started we held a seminar with the midwifery staff on the ward to discuss infant feeding. The results from the first 5 weeks of the study were discussed and the low rate of breast feeding noted. It was recommended that breast feeding be further encouraged and that the practice of offering complementary formula feeds to normal babies who were breast feeding be discontinued.

The questionnaires were sent out 3 months and 8½ months after the completion of the 20-week study period. The questionnaires were only sent to mothers recorded as breast feeding their infants on discharge from hospital, including those offering, in addition, a formula milk complement. The mothers were asked about the duration of breast feeding, when bottle feeds were first introduced, and when solids (described as cereals or strained foods) were first given. Each mother was also asked how she herself had been fed in infancy, what was her husband’s occupation (as an index of socioeconomic class), and who had exerted the major influence upon her choice of method of infant feeding.
Results

The data were considered for the two periods, before and after the ward seminar on infant feeding. These periods were 5 and 15 weeks, respectively, and the patients discharged during these periods were designated groups A and B. Over the total 20 weeks 435 patients were discharged from the ward. 165 were recorded as breast feeding their infants on discharge, while 270 were recorded as bottle feeding. Of the 165 recorded as breast feeding on discharge, 2 patients were not sent questionnaires since this was considered to be contraindicated on social grounds. This left 163 patients who were sent the first questionnaire, of whom 138 completed replies (85% response). 8 of these patients stated they had never breast fed their infants; this introduces an error of 6% in our recorded data on the method of feeding on discharge. These 8 patients were taken out of the breast feeding group.

The second circular, 8½ months after completion of the 20-week study period was sent to 130 mothers who had satisfactorily completed the first form, and to one mother who had partially completed it. 104 replies were received (80% response) of which a number were incomplete on one or more minor points. As a result, the number of patients providing data for some aspects of the survey analysis varies.

The majority of changes in infant feeding occurred in the early months after delivery. Much of the information on changes in infant feeding was obtained from the first questionnaire, thus minimizing the errors due to faulty memory of event.

Comparison between groups A and B for the proportion of patients breast feeding on discharge. The proportion of patients breast feeding on discharge was significantly greater in group B than group A (Table I). Also the percentage giving bottle complements declined from 13% to 3·3%. This pattern of change in infant feeding at the time of discharge from hospital during the 20-week period is shown diagrammatically in Fig. 1.

All patients discharged breast feeding with bottle complements continued to feed either by breast plus bottle or by breast alone during the period immediately after discharge. None of this group abandoned breast feeding entirely on arrival home.

Comparison between groups A and B for the time of introduction of bottle feeding. Of those discharged feeding by breast alone, patients from group A began bottle feeding consistently later than group B over the first 4 months; this difference ranged from 2 to 4 weeks. The percentage who had introduced bottle feeds was shown to be significantly lower in group A at 3 months after delivery (Fig. 2). When patients giving their babies bottle feeds as well as breast feeds were included, the pattern was somewhat different with no significant difference in the time of introduction (or reintroduction) of bottle feeds (Fig. 3).

Comparison between groups A and B for the time of stopping breast feeding. The results were similar to those for the introduction of bottle
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Among the patients solely breast feeding at the time of discharge, those in group A tended to stop breast feeding 3.5 weeks later than those in group B in the first postnatal 3 months. This difference was not significant, however. When patients giving their babies bottle feeds as well as breast feeds were included no difference was shown in the duration of breast feeding (Fig. 4).

Length of stay before discharge. Patients were divided into those discharged before or on the baby's fourth day of life, 'early discharge', and those discharged on or after the fifth day, 'late discharge'. For this part of the analysis only group B were considered since this contained fewer patients discharged feeding by breast and bottle complements and constituted the larger group who had experienced a consistent ward attitude towards breast feeding. All patients discharged in group B were included. The length of time for which breast feeding was continued for the two groups, early and late discharge, is shown in Fig. 5. There is no significant difference between the early and late discharges for the proportion abandoning breast feeding at any given time.

Time of introduction of mixed feeding. Since the subject of mixed feeding was not mention-
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Fig. 5.—Decline in breast feeding over the post-partum months in mothers discharged early or late from the ward. Mean length of stay for those discharged early was 3.2 days (range 2-4 days) and for those discharged late 7-9 days (range 5-12 days).

Early discharge: 100% Early discharge. Late discharge: 100%

Consideration of factors in maternal background affecting lactation. For the purposes of this part of the analysis, 'successful lactation' has been defined as continuing breast feed (plus or minus bottle complements and mixed feeds) beyond one month after delivery. Since questionnaires were sent only to mothers who left hospital lactating, we do not have comparable information for those mothers who bottle fed from the start.

How mother herself was fed as an infant. Of 100 mothers replying to this question, 72 were successful with lactation and 28 failed. When these results are considered against the mother's own infant feeding history (Table II), significantly more successful lactators were themselves breast fed, or believed they were breast fed, in infancy than patients whose lactation had failed.

Maternal parity. Successful lactation was looked at in terms of mother's parity. There was no evidence that parity as such influenced the mother's success with lactation.

Socioeconomic class of mothers. Among the mothers who left hospital breast feeding, the distribution between successful and unsuccessful lactation is shown in Table III and is significantly influenced by social class in favour of success in

TABLE II
Success with lactation according to how the mother was herself fed in infancy

<table>
<thead>
<tr>
<th></th>
<th>Successful lactation</th>
<th>Unsuccessful lactation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast fed</td>
<td>46</td>
<td>14</td>
</tr>
<tr>
<td>Bottle fed</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>28</td>
</tr>
</tbody>
</table>
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TABLE III
Success with lactation by socioeconomic class

<table>
<thead>
<tr>
<th>Socioeconomic class (by husband’s occupation)</th>
<th>Successful lactation</th>
<th>Unsuccessful lactation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I + II</td>
<td>51</td>
<td>12</td>
<td>63</td>
</tr>
<tr>
<td>III</td>
<td>15</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>IV + V</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

This distribution is significantly influenced by social class in favour of success in social classes I and II (P < 0.002). Social classes I and II are also over-represented in the total starting to breast feed in comparison with the distribution by socioeconomic class of the total Oxford hospital deliveries in 1970, when classes I and III represented 25%, class III 42%, and classes IV and V 20%, with 13% of deliveries unclassified.

Social classes I and II. Moreover, considering the total 99 replies from these mothers who set out to breast feed, social classes I and II are clearly over-represented, comprising 63% of the group compared with 25% of all mothers discharged from the United Oxford Hospitals in 1970 according to the Oxford Record Linkage (J. Fedrick, personal communication, 1974).

Main influence on how mother fed her baby. The number of mothers who replied to this question was 95. Many mothers stated that more than one person had been influential on their decisions concerning infant feeding, and this is reflected in Table IV where more than 95 replies are scored.

TABLE IV
How mothers rated the sources of advice on infant feeding

<table>
<thead>
<tr>
<th>Main influences</th>
<th>No. of replies as % of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health visitor, district nurse,</td>
<td>24</td>
</tr>
<tr>
<td>or midwife</td>
<td></td>
</tr>
<tr>
<td>Patient herself</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>18</td>
</tr>
<tr>
<td>Relative</td>
<td>12</td>
</tr>
<tr>
<td>General practitioner</td>
<td>8</td>
</tr>
<tr>
<td>Welfare clinic</td>
<td>7</td>
</tr>
<tr>
<td>Husband</td>
<td>4</td>
</tr>
<tr>
<td>Hospital doctor</td>
<td>3</td>
</tr>
<tr>
<td>Hospital nurse</td>
<td>2</td>
</tr>
</tbody>
</table>

100% (no. = 145)

(145 total replies). These results illustrate the important role of the health visitor, district nurse, or midwife. In addition, many mothers acted on their own convictions. The results further illustrate that the mothers believe that the general practitioner, hospital doctor, and hospital nurse all have little influence on how they feed their baby.

Discussion

There is overall agreement among paediatricians and nutritionists that human milk alone is the preferable food for most human infants in the first month after birth. Our survey was designed to look at infant feeding patterns in our own maternity hospital and to consider how far the current practice diverges from our recommendations.

In the first 5 weeks of our survey (period A) we were dismayed to find that of 129 infants discharged from the ward only 18 (14%) were entirely breast fed. 17 (13%) were fed on breast and bottle complements. This seemed to be the direct result of the ward routine of giving each mother a bottle together with her baby at feed time, and of giving bottle feeds to breast fed babies in the night. We held a seminar with the ward staff at the end of this 5-week period, and emphasized the several advantages for the baby of human milk and the superfluous nature of regular bottle complements. Over the next 15 weeks (period B), the incidence of breast feeding rose from 27% to 37%, while complementary feeds virtually disappeared (Table I and Fig. 1). Moreover, this new pattern of feeding persisted on the ward, since more than a year later (March 1974) of 62 consecutive patients discharged from the ward 42% were breast feeding alone and none were giving bottle complements.

The information on feeding patterns after discharge was obtained mainly from the first questionnaire, which was sent out 3 months after the completion of the study period. The results showed that patients discharged feeding by breast alone from group A introduced bottle feeds later and continued lactation for longer than Group B. We interpret this to mean that those mothers who breast fed their babies without complementary bottle feeds in period A represented a minority of mothers determined to breast feed their infants in spite of the attitude prevalent on the ward. Considering all mothers breast feeding on discharge, with or without complementary bottle feeds, there was no difference in the duration of lactation between the pre- and post-seminar groups A and B. It should be noted (Fig. 3), that 50% of all mothers leaving hospital breast feeding had stopped lactating within 2 months.

We wondered whether the length of stay in hospital might influence the duration of lactation. A short stay in hospital would allow mothers to establish their own domestic routine sooner and might be expected to enhance successful lactation. A longer stay in hospital might allow the mother with her first baby to gain confidence in her ability
to breast feed. However, the longer stay group would clearly include those mothers who had instrumental deliveries and caesarean sections and who might be expected to have experienced more difficulty with lactation. Fig. 5 illustrates that there was no difference in the duration of lactation between those discharged on or before the fourth day and those discharged on or after the fifth day. The questionnaire also asked for information on the introduction of mixed feeds, including cereals and strained foods. Combining results from groups A and B, 15% of those discharged breast feeding had given their babies mixed feeds by 1 month and 57% by 2 months after birth. These figures compare with the pooled results from Arneil’s Scottish study in which 14% had introduced cereals by 1 month and 39% within 2 months; although in his Aberdeen group Arneil found that 45% had started cereals within the first 4 weeks after birth.

The results of the second questionnaire confirmed two commonly held opinions on factors that influence the success of lactation. Thus, there was a greater chance (P < 0.05, Table II) of successful lactation if the mother was, or believed she was, herself breast fed as an infant. Also higher socioeconomic class appeared to influence positively the initial decision to breast feed and also increased the likelihood of prolonged lactation (Table III). In the second questionnaire the mothers also gave information on who had most influenced her method of feeding her infants. The health visitor, district nurse, and midwife were considered the most influential (24%). Second only to this group was the mothers’ statement that they had acted on their own convictions concerning how the baby should be fed (23%). It is salutary to note that the hospital doctor and hospital nurse came bottom of the list.

Conclusions

We draw three main conclusions from our study on infant feeding practice in Oxford. First, there is a striking contrast between the ideal of the majority of mothers breast feeding their babies for several months after birth, and the actuality of only 27% of mothers leaving hospital breast feeding before the ward seminar (group A). Half of these mothers had stopped breast feeding within 2 months; and half (not necessarily exactly the same mothers) had introduced mixed feeds within 2 months.

Secondly, a single seminar on the ward with the nursing and midwifery staff significantly increased the incidence of breast feeding and eliminated the routine practice of complementary bottle feeds being given to breast fed babies. These changes were still evident on the ward a year after the seminar. We take this striking change in feeding patterns in hospital to indicate that the system is at present labile and readily responsive to active paediatric influence.

Finally, the mothers look to the health visitor and district nurse or midwife for their advice on infant feeding once they are home from hospital. In addition, mothers act largely upon their own convictions in these matters. Clearly the origins of those convictions are complex and potentially open to modifications.

REFERENCES


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