Feeding practices in the Netherlands during the first four months of life. A study of the motives for discontinuing breastfeeding and for the subsequent feeding method selected
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Summary and final discussion
Since 1973 in The Netherlands there has been an increase in the number of mothers who start to breastfeed their infants at birth. However, most mothers breastfeed for only a short time. This gives rise to a series of questions. Why do mothers abandon breastfeeding prematurely according to the WHO recommendation? Is breastfeeding stopped more often for ‘infant-related’ reasons or for ‘mother-related’ reasons and is this decision affected by differences in the mothers’ ethnic origin, age, parity and education? What formula do mothers choose when they stop breastfeeding and how often do they change the type/brand of formula feeding?

These questions can best be studied in well-baby clinics because 98% of infants are brought to well-baby clinics. A study was designed for the purpose of finding answers to the above questions. The study called: ‘the national study of changes in infant feeding (0-4 months)’ started on April 1, 1998. In The Netherlands it is known as the LOVZ study.

The aim of the study was to find answers to the following questions:

- How many infants in The Netherlands start with breast milk on the day they are born?
- What are the reasons for discontinuing breastfeeding and at what moment does breastfeeding stop?
- Are the differences in the start with and the duration of breastfeeding related to rural or urban living, or to the ethnic background (measured by the native language of the mother), age, lifestyle and economic level of the mother?
- What reasons -infant-related, mother-related or other reasons- are responsible in the first four months for the change in the feeding method chosen at birth?
- Are there differences between the feeding methods chosen by mothers of Dutch descent and mothers of different ethnic origin?
- Is there a relation between the feeding method chosen and the weight gain attained at the age of four months?

The study consisted of a survey with follow-up and focused on infants not older than 4 months of age who were brought for the first time to a well-baby clinic doctor between April 1 and July 1 1998. The study involved 115 doctors and 4438 infants. There were no selection criteria for infants, but infants were excluded if their parents refused to participate in the study.

Demographic data of mother and child and the feeding practices during the first 4 months were gathered during the study. A record was kept of the reasons why the feeding method was changed and the age of the infant at the time of the change and the results of the change on the infant’s behaviour were also noted.
First of all univariate analyses were performed and afterwards models were constructed for multivariate logistic regression analyses.

Chapter 1 is an introductory chapter and gives an outline of the study.

Chapter 2 describes shortly the superiority of human milk to formula and the different types of formulae, available in the Netherlands in 1998.

Chapter 3 answers the question about the start and duration of exclusive breastfeeding (EBF) and about the duration of breastfeeding (BF) which is a combination of exclusive breastfeeding and breastfeeding in combination with formula. Only 71% of the mothers started EBF on the day of birth and only 21% continued for 4 months. Reasons for stopping EBF were more often infant-related than mother-related (63% versus 46%). Often there was more than one reason for changing the feeding method. The reason mentioned most often was the mother's feeling that her child was hungry. In the majority of cases the perception that the infant was hungry was not related to inadequate weight gain. The 'mother-related' reason that was most mentioned was return to work; next in importance were physical problems and the feeling of being socially restricted by breastfeeding. 71% of the mothers decided to stop EBF on their own initiative.

Chapter 3, section A 'Reluctance to continue breastfeeding in The Netherlands'. In this section attention is given to the motives for discontinuing EBF or the combination of breast milk and formula (CBF). Starting with breastfeeding at birth (BF = EBF + CBF) was found to be related in the first place to a high educational level of the mother. The continuation of breastfeeding was in the first place related to high parity. There were no differences in the percentages for boys and girls. The native language of the mother was not a factor that influenced EBF.

Chapter 3, section B 'Breastfeeding and bottle feeding during the first four months'. In this section the demographic and personal factors, that influence the stopping of breastfeeding are described. Within The Netherlands there are geographical differences in breastfeeding practices: fewer infants start breastfeeding at birth and the duration of breastfeeding is shorter in the Southern provinces than in other parts of the country. 'Infant-related' reasons for stopping breastfeeding were in descending order of frequency: the mother's perception that her baby was hungry, crying, colic and constipation. Mothers with a high educational level, with Dutch as native language or with a high parity changed the feeding method least. Changing the feeding method on one's own initiative was highest in mothers who had a high educational level, lived in urban areas or had a non-Dutch native language.
Advice is given about how breastfeeding can be promoted and encouraged.

Chapter 4 ‘Substantial ‘over-diagnosis’ of constipation in infants aged 0-4 months’. It appears that constipation is an important infant-related reason for a change in feeding practice. The term constipation used here was not evaluated as a ‘medical’ diagnosis, but was used as reported by the parents. In one out of 10 infants the feeding method was changed because of ‘constipation’, whereas in the literature constipation is reported in only 3% of infants and toddlers. The decision to stop breastfeeding because of constipation was taken by the mothers on their own initiative or on the advice of well-baby clinic workers. The improvement following a change, which was often reported, is probably not directly due to the change in feeding method but is due to the natural changes in bowel movements in relation to age.

Chapter 5 ‘Weight and weight gain at four months (The Netherlands)’. This chapter reports on the influence of the feeding method on the weight attained at four months. Of 3256 infants both the weight at birth and the weight between days 118-147 were known. An analysis showed that weight gain at four months is influenced by gender, parity and the native language of the mother. Weight at four months was influenced less by the feeding method than by these demographic data. Surprisingly, the mean weight at four months was found to be highest in breastfed (EBF) infants, although mean weight gain was lowest in these infants. An analysis of the data, however, showed that this was the result of the higher mean birth weight of infants to be breastfed. A comparison between the weights at day 133 with data from earlier Dutch growth studies (1965, 1980 and 1997) showed that in this study the weight of girls and boys is higher than in the earlier growth studies, if corrections are made for the exclusion criteria.

Chapter 6 ‘The influence of ethnic origin on the method of feeding infants (0-6 months) in The Netherlands’. Ethnic origin was analyzed by native language of the mother. It appears that mothers, including mothers from Surinam and the Dutch Antilles with Dutch as native language, breastfeed their babies the least. Mothers with a European native language other than Dutch breastfeed their babies the most. There are differences between mothers of Turkish and Moroccan descent living in The Netherlands: the decline in the percentage of mothers breastfeeding during the first four months was highest amongst mothers of Moroccan descent. The use of a combination of breast milk and formula was highest amongst Turkish mothers. This frequent use of a combination of breast milk and formula is probably the reason why the weight at four months was highest in infants of Turkish descent.
Chapter 7 'Changes in formula feeding during the first 4 months' In this chapter additional data of the study are given. Particularly we report on aspects of the use of formula feed. 23% of mothers did not breastfeed. Nearly all these mothers started giving their infants a regular formula on the day they were born. At 4 months 20% of the infants were given a formula with a special adaptation and 3% of the infants were given a hypoallergenic formula. Of all infants 70% had their feeding method changed. In total 5687 changes took place. Many infants had more than one change of feeding method, on average 1.8 times, the maximum number of changes being 8. Crying was the reason for most changes.

In the majority of cases the change had a good effect on the existing problem, although it can be argued that many of the beneficial effects must have been largely psychological.

**Discussion**

The motivation for the study was the desire to obtain insight into breastfeeding practices in The Netherlands. This insight is needed so that doctors and nurses working in well-baby clinics can give mothers good advice on infant feeding.

The observed 'mother-related' reasons for stopping breastfeeding can be influenced by giving mothers more knowledge about maternity and lactation leave and by re-assuring them in advance about the temporary nature of many of the physical problems. The study shows that mothers mentioned many 'infant-related' reasons for stopping breastfeeding, more than 'mother-related' reasons. It is remarkable that the stopping of breastfeeding for 'infant-related' reasons occurs not only on the initiative of the mother but also on the advice of the well-baby clinic worker. This shows that the health-care professionals also require more knowledge about the natural course and origin of the reported infant-related problems. For example, it is evident that some of the professionals do not have adequate up-to-date information about problems such as constipation and vomiting in infants aged 0-4 months.

It is also important to find out whether changes in feeding practice are harmful. Early abandonment of breastfeeding is certainly not beneficial for the infants (chapter 2), but changing the brand of a regular formula used is unlikely to be very harmful. The Dutch regulatory system permits only minor differences in the composition of infant formulae and the various manufactures are eager to follow their competitors when renewing a formula. Therefore switches between brands could have only in the last case temporarily a beneficial effect.

Special formulae such as the hypoallergenic ones are often used without adequate indication. The diagnostic steps required to verify cow's milk allergy have not been taken in more than 80% of the cases. It is therefore questionable whether
these formulae should be freely available.

It can not be proved from this study that infants really benefit from formulae that claim to reduce crying or to be more satisfying than a regular formula or human milk. The topic needs further investigation. Many of the 'infant-related' problems that arise in the first few months of life are of limited duration and have a self-limiting character. Therefore doctors and nurses working in well-baby clinics should perhaps exercise more restraint when recommending changes in feeding practices.

If mothers do not wish to breastfeed their babies or simply dislike the idea of breastfeeding, then formula feeding is a second best alternative. Putting pressure on mothers to breastfeed if they do not want to breastfeed serves no purpose and is unlikely to give mothers a closer relationship with their children later in life, which some studies claim to be one of the benefits of breastfeeding.

Breastfeeding can best be promoted during pregnancy or even earlier. If women are given enough time to prepare themselves they will enjoy breastfeeding their infants more. The results of this study show that in promoting breastfeeding health-care professionals should give special attention to the mother’s educational level, parity and native language. They also need to be more aware of the problem of overfeeding in infants who are being breastfed and are also receiving formula.

**Recommendations**

It would be extremely useful if a new study could be set up in about a couple of years in order to find out whether the efforts of well-baby clinics to promote breastfeeding have been successful and whether the recommendations put forward in this study persuade more mothers to breastfeed their babies from birth an for a longer time than hitherto.

In analysing the data it appeared that a number of basal data are unknown, such as:

- How is the pattern of defaecation of infants aged 0-4 months and what means constipation in infants aged 0-4 months?
- How many infants aged 0-4 months vomit?
- How many mothers of different ethnic origin return to their jobs after delivery of their child and which difficulties do they have in breast feeding?
- How many mothers breastfeed and use an oral contraceptive? Does this influence the behaviour of the infants?

Further studies are needed.

This study was designed entirely by well-baby clinic doctors; those doctors were also responsible for collecting the data, followed by analysis and doing the scientific reporting. Well-baby clinic doctors represent a relatively new medical
discipline. In the last few years they have set up a number of educational projects adapted to the needs for good professional and evidence based care and so they have raised their professional status. More scientific studies are needed as well as to identify the discipline and to underline the beauty of the profession.