

# Prevalence of Exclusive and Extended Breastfeeding Among Rural Korean Women

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This paper uses the survey findings of rural Korean women from 7 non-representative areas from May 1981 through August 1981 to know the prevalence of exclusive and extended breastfeeding, the frequency of breastfeeding and the pattern of artificial or supplementary feeding. All mothers started out breastfeeding, but many were immediately supplementing from the first month. Thirty percent of mothers who delivered in clinics started to supplement from the time of birth. Exclusive breastfeeding rates fall steeply with age, while general extended breastfeeding rates fall slowly. Feeding rate on demand was 25.5% and more frequent among women with no past experience of breastfeeding and 74.5% of feeding was done on schedule.

The most common reason given for not breastfeeding was "lack of or insufficient milk." About 10 percent of mothers were advised to give cow's milk supplements by health personnel. Monthly supplementary feeding rates were gradually increased until the 12th month, with steep curves from the second through the 7th months. Cumulative frequency of infants having commercial weaning food reaches 20% at ninth months.

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**Key Words:** Breastfeeding prevalence

The young infant cannot survive without adequate and appropriate nutrition, protection against infection, and affective stimulation. No period in life is more critical or susceptible to trauma and disruption than are the first months when, coming from a uterine environment of almost total protection and stability, the infant is required to adapt rapidly to a world of new physical and psycho-social dimensions and pressures (Carbollo M. 1979). Lactation, and feeding on the mother's milk, are part of the reproductive process in all mammals and are designed to make this transition by the off-

spring to extrauterine life safe. In many ways, breastfeeding provides the natural bridge between intrauterine life and life in the external world. How long breastfeeding continues and the amount of time and care the mother can devote to the infant are also important. The decline of breastfeeding has contributed to an increased incidence of infection and diarrhea. It has been shown that bottle-fed infants are much more prone to gastrointestinal infections than are breast-fed ones.

Some results from study of the individual researchers indicates that complete reliance on breast-feeding is confined to the first few weeks of life, because the breast-feeding is soon supple-

mented with artificial feeding of products based on breast milk substitutes. The frequency and duration of breastfeeding has declined gradually in most parts of Korea in the last decade.

There is probably a critical period in which ideal bonding takes place in the human, and the WHO/UNICEF meeting on infant and young child feeding, Geneva, 1979 declared that breastfeeding is an integral part of the reproductive process, the natural and ideal way of feeding the infant and a unique biological and emotional basis for child development. Kennell described this critical period as within the first 12 hours after birth for the human. Mothers of full-term infants who were allowed contact in the first 2 hours and extra time subsequently behaved differently at 1 month and 1 year with their babies, compared with controls.

The decline of mortality from infectious diseases was due to increased resistance to infection from improved nutritional status (McKeown 1979). Howarth (1905) reported that infant mortality rate was much higher from gastroenteritis in the artificially fed infants. He insisted that the use of sweetened condensed milk (whole or skimmed) should be invariable discouraged and whole unsweetened condensed milk should only be permitted when one is satisfied that the milk is being used with the proper degree of dilution and with the necessary addition as in the case of modified cow's milk. The addition of patent foods to the diet of very young infants is unnecessary, sometimes dangerous, and always expensive.

The overall death rates of artificially fed infants were 5-10 times higher and the greatest difference was reported among the infants dying of gastroenteritis (Davis, 1913).

The bottle fed infant was at substantially greater risk than the breast-fed baby, but the difference between the exclusively breast-fed

baby and the baby receiving mixed feeding was minimal. The mortality rate of infants was substantially higher among bottle-fed than breast-fed babies regardless of parental income class (Mannheimer 1955).

The mothers with early contact were observed to nurse 50% longer than the controls. The early-contact infants were heavier and had fewer infections (Sosa R, 1976).

Maternal personality is more important to the development of the infants personality, than either breast or bottle-feeding per se. The breast-feeding mothers were less defensive about their method of feeding, and were more oriented toward home life. The bottle-feeding mothers confirmed that they had problems in trying to breast-feed their first child due to inadequate lactation, possibly a psychosomatic reaction (Chamberlain RE, 1976).

Early assessment of newborns in the first or second week of life shows more body activity with breast-fed than bottle-fed infants. They are more alert and have stronger arousal reaction. The prolonged breast-feeding does not impede development, as has been implied by advocates of early weaning. The children who were exclusively breast-fed 4 and 9 months scored significantly higher on achievement test, but the difference was reversed beyond a year. Exclusively breast-feeding beyond a year increased morbidity as well, so that solids should be added in the second half of the first year (Hoffer C, Hardy MC, 1929).

The key to the management of the nursing couple is establishing a sense of confidence in the mother and supporting her with simple consultation and demonstration for problems on breast feeding. Mothers may be helped by selecting a doula to support mothers. Raphael describes a doula as one of "those individuals who surround, interact with, and aid the mother at any time within the perinatal period, which

includes pregnancy, birth and lactation (Raphael D, 1976).

Immediately after the placenta has separated the establishment of lactation should be begun. This is a critical period because many mothers who do not receive the proper support in the hospitals are driven to failure. Many of the physicians and nurses are always concerned that the infant may aspirate. All newborn infants have to go straight to the breast on delivery. It has a physiological effect on the uterus as well, causing it to contract. The sugar water and cow's milk formulas are very irritating if aspirated. Colostrum is not irritating and is readily absorbed (Lawrence RA, 1980).

The cause of infantile obesity is related to caloric overdosage derived from the use of cow's milk-based formula and introduction of semi-solids in the first weeks or months of life. Because of maternal anxiety, economy and competitiveness, infants may take more than their basic needs.

Milk intake by the breast fed infant is determined by the amount needed to satisfy the infant. The mother of the formula fed infant may see some formula left in the bottle and induce the infant to consume more. Twice as many bottle fed infants as breast fed infants were receiving solid foods at age two months.

Allergy was observed to be associated with bottle feeding in infancy and rarer in breast fed infants. Since cholesterol in human breast milk is relatively very high, the infant receiving these high levels of cholesterol develops metabolic mechanisms for handling cholesterol which persist into later life.

Colostrum was fed to 74% of newborn infants in rural areas in 1975 and 49.1% in urban areas in 1976 (Lee IS, 1975). There was a sharp decline in the duration of breast feeding from 30 months in 1966 to 22.8 months in 1972 in rural Korea. (Kang KW *et al.*, 1973)

Some reports on the mortality of infants in regard to type of feeding showed less mortality at all ages for breast-fed infants (Woodbury RM, 1922).

The death rate is higher, malnutrition starts earlier and is more severe, and the incidence of infection is greater in formula-fed infants. Data from the work of Scrimshaw and associates show mortality of 950/1000 live births in the artificially fed infants and 120/1000 in breast-fed infants. The data were collected in Punjab villages from 1955 through (Scrimshaw NS, *et al.* 1968).

Specific objectives of this study are:

1. To know patterns of breastfeeding behavior by determining.
  - 1) length of exclusive breastfeeding
  - 2) length of partial breastfeeding
  - 3) type of supplementary weaning foods currently used
  - 4) timing of introduction of supplementary weaning foods.
2. To know factors related to breastfeeding behavior, including:
  - 1) social, economic and educational background of the mother
  - 2) prenatal and postpartum experience
  - 3) past experiences of breast feeding
  - 4) average number of times the breast was given
  - 5) unrestricted breast feeding or token breast feeding

## MATERIAL AND METHOD

Seven geographically distinct regions were defined as survey areas. The seven regions included two marginal agricultural areas in the country's mountaneous areas, a fishing area and other areas of intensive crop agriculture. Each region was selected from seven different prov-

inces.

In each region, 25 per cent of children aged 30 months or below were selected, the probability of selection being based on each region's population of children. At each area interviewers visited every fourth household with children aged 30 months or below.

The important items of the questionnaire are as follows:

1) Independent variable

- a. age of mother
- b. number of siblings
- c. age of last baby
- d. place of residency
- e. place of delivery
- f. delivery attendant
- g. past experience of breastfeeding

2) dependent variable

- a. proportion of mothers breastfeeding by age of infant.
- b. frequency of breastfeeding per day
- c. percentage of mothers who never breast-fed.
- d. reason why artificial feeding was started.
- e. age of the children when other milk was introduced.

Age was determined by questioning the mother or the responsible adult caring for the child, and the exact number of month after birth was used. All the interviews were conducted by a 2 person team, one American peace corps volunteer and one health worker from the health center in seven different regions.

The sample size is determined so that survey data will meet the following criteria:

- 1) A percentage estimate from the survey data will be precise within plus or minus 10 per cent.
- 2) The confidence interval is 95 per cent.

The required sample size for each age (by month) group is calculated using the following formula:

$$N = \frac{K(P,Q)Z^2}{d^2}$$

where N = required sample size

K = clustering factor (K=2)

P = proportion breast-feeding

Q = proportion not breast-feeding

Z = confidence interval (95%=1.96)

d = precision (10%=0.10)

Number of interviews and areas are listed in Table 1.

For children in survey area where expected average breastfeeding rate is 50 percent, the minimum needed sample size is 45 for each of the age (by month) groups. Using the age groupings described above, a total sample size of 540 children will produce reliable prevalence data for breast feeding and other supplementary feeding.

## DATA PROCESSING AND ANALYSIS

Seven towns were selected from 7 different provinces for the survey (Table 1). One supervisor had visited each of the survey areas to supervise the interviewing and recording. Respondents to the interview were mothers with a child aged 0-30 completed months. The data was collected on survey forms and then sent

Table 1. Number of interviews according to area

County	Township	No.
Buk Jeju	Aewol	64
Yong In	Namsa	99
Hong Cheon	Seosuk	125
Cheon Won	Buk	73
Na Ju	Moon Pyung	85
Ui Sung	An Pyung	90
Ham An	Gun Buk	102
Total		638

on for coding and computerized analysis. Coding was undertaken by specially designated coders. Review, editing and analysis of information will be carried out by investigators.

## RESULTS

### 1) Proportion of mothers breastfeeding by age of child

Mothers were asked if they were breastfeeding the index child at the time of the interview and at each month of age. It is very difficult to distinguish between those who made no attempt to breastfeed and those who tried but failed. We can see from Figure 2 that most of the mothers started breastfeeding and it is quite universal in rural Korea. Two third of mothers are still fully breast feeding that babies at 5 months. It is virtually true to say that by 1 month, around 30 percent of breastfeeding mothers in these survey areas had already started supplementation for the baby (Fig. 1). By six months, only 31.5% of mothers was exclusively breastfeeding and 63.5% of the original breastfeeders were giving their babies some breast milk. In the first months, 30 percent of mothers delivered in the clinics started to supplement. Solids should be introduced not earlier than four months and not later than eight months but breast feeding can continue for as long as mother and baby both want it too.

In Figure 1, the prevalence of exclusive breastfeeding falls steeply by the time the child reaches 8 months. At 7th months after birth, 13.5% of the babies were still exclusively breastfed which might lead to nutritional deficiency. There was a higher percentage (29.4%) of mothers who never exclusively breastfed among the mothers whose index child birth was attended by physician. We can see from Figure 2, that general breastfeeding is well maintained.

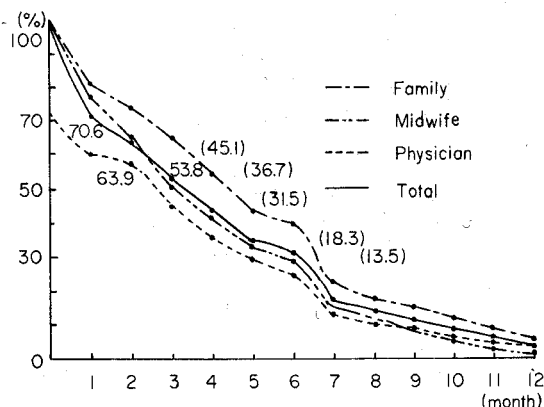


Fig. 1. Exclusive Breast Feeding Rate of Korean rural infants according to the birth attendants by month.

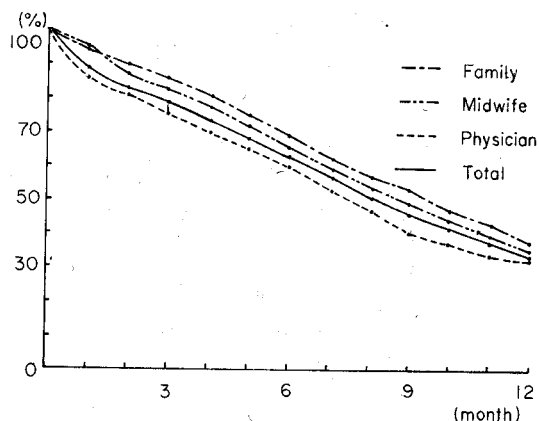


Fig. 2. General Breastfeeding rate according to the birth attendants.

The prevalence of breastfeeding fell linearly until 12 months of age. At six months, at least 63.5% of mothers were still breastfeeding and at 12 months the proportion was 35.6%.

The economically and culturally advantaged mothers in urban areas breastfed for relatively short periods. In general, breast-feeding was more common among mothers who were attended in their last childbirth by family. Since sudden decreases were noticed in the first month and in the 6-7 month period, a high incidence of supplementation was expected in the same period. Formula feeding rate sharply increased during the first month of age and kept plateau thereafter (Fig. 3). All rural mothers started breastfeeding after childbirth and the general

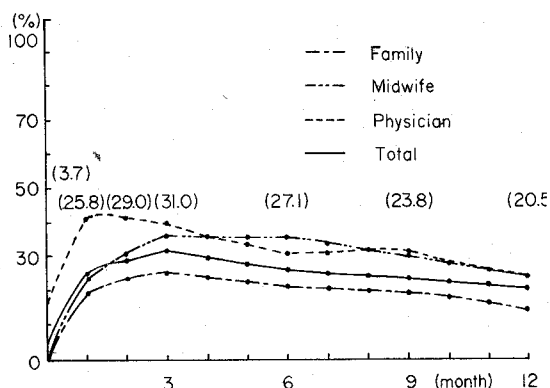


Fig. 3. Formula Feeding rate according to the birth attendants.

breastfeeding rate slowly decreased and turned out to be 63.5% at 6 months and 36.6% at 12 months (Fig. 2). Among women who delivered at a clinic, only 71% breastfed exclusively immediately after childbirth. Patterns of breastfeeding frequency by the age of the child are shown in Figure 4. The percentages of general breast-feeding do not fall as the age increases until 15 months or older, while the percentages of exclusive breast-feeding fall steeply as the age increases. The percentages of formula feeding keep as high as 30-40% and will not fall even after 15 months and the percentages of supplementation rapidly increase as the age increases. At 12 months, 75% of mothers breast-feed the baby, 40% feed artificially and over 90% of mothers supplement their babies. The percentages of general breastfeeding fall linearly and the percentages of exclusive breastfeeding fall more steeply than those of general breast-feeding. We can see from Figure 5 that the percentage of exclusive breastfeeding of the babies born 4th or later fall vertically during the first 3 months of life.

## 2) Frequency of breastfeeding

Mothers were asked whether babies were breastfed "on demand" or how many times they breastfed the baby. Table 2 shows percentage frequencies of breast feeding and "feeding on demand". Feeding on demand was only 25.5%.

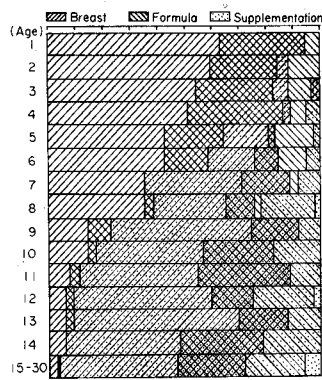


Fig. 4. Feeding patterns of Korean rural children according to monthly age.

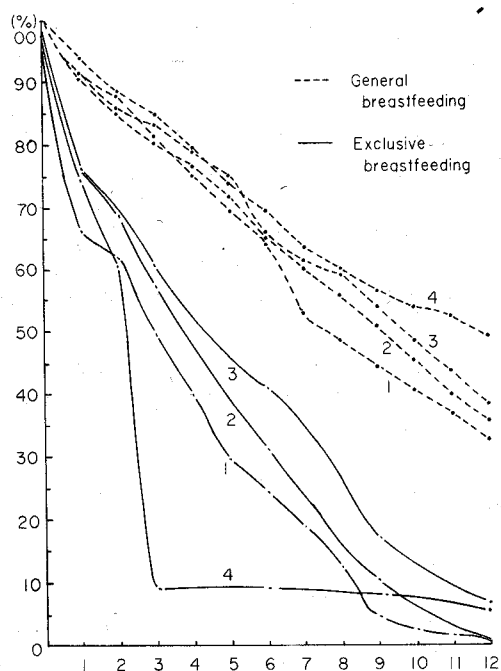


Fig. 5. Monthly rate of exclusive and general breast feeding among Korean rural infants according to birth order of infants.

The relatively high percentages of mothers who breastfed 6 or more times daily suggests around half to 60% of mothers breastfed frequently or on demand. The validity of responses regarding frequency of breastfeeding could not be confirmed because it was difficult for mothers to have any precise idea of the number of night feedings given. The data on frequency are thought to under-estimate the true frequencies

Table 2. Frequency of breastfeeding and percent of mothers breastfeeding on demand according to past experience of breastfeeding

frequency past of BF experience of BF	1-3	4	5	6	7 or more	on demand	Total
Yes	50 (14.9)	33 ( 9.9)	68 (20.3)	63 (18.8)	41 (12.2)	80 (23.9)	335 (100.0)
No	2 ( 6.5)	5 (16.1)	3 ( 9.7)	8 (25.8)	8 ( 3.2)	12 (38.7)	31 (100.0)
First child	21 (10.2)	30 (14.6)	28 (13.6)	48 (23.3)	25 (12.1)	54 (26.2)	206 (100.0)
Total	73 (12.8)	68 (11.9)	99 (17.3)	119 (20.8)	67 (11.7)	146 (25.5)	572 (100.0)

$$\chi^2 = 20.296 \quad P = 0.12$$

by a considerable amount. The most commonly reported frequency of feeding was 5-6 times. Feeding on demand was more frequent among

women who have no past experience of breastfeeding. No significant difference in frequency of breastfeeding was noticed in comparison to

Table 3. Frequency of breastfeeding and percent of mothers breastfeeding on demand according to birth attendant

frequency of BF birth attendant	1-3	4	5	6	7 or more	on demand	Total
Midwife	27 (17.8)	13 ( 8.6)	25 (16.4)	129 (19.1)	21 (13.8)	37 (24.3)	152 (26.6)
Physician	17 (10.4)	21 (12.9)	20 (12.3)	38 (23.3)	24 (14.7)	43 (26.4)	163 (28.5)
Friend or neighbour	14 (14.4)	11 (11.3)	19 (19.6)	15 (16.5)	4 ( 4.1)	33 (34.0)	97 (20.0)
Family	114 ( 9.7)	121 (14.6)	31 (24.5)	32 (22.2)	19 (13.2)	27 (18.8)	144 (25.2)
Self	2 (15.4)	13 (23.1)	2 (15.4)	2 (15.4)	0 ( 0 )	4 (30.8)	13 ( 2.3)
Nurse	1 (33.3)	0 ( 0 )	1 (33.3)	0 ( 0 )	0 ( 0 )	1 (33.3)	3 ( 0.5)
Total	75 (13.0)	69 (12.1)	98 (17.1)	117 (20.5)	68 (11.9)	145 (25.4)	572 (110.0)

$$\chi^2 = 52.16 \quad P = 0.0311$$

past experience of breastfeeding. Past experience in breastfeeding did not appear to affect the frequency of breastfeeding.

We know from Table 3 that the percentage of mothers breastfeeding on demand or on schedule shows no difference in regard to the birth attendants of the index child.

The physician attendance rate at childbirth was 28.5% in the study areas. 26.6%(152) were attended by a midwife. Jelliffe and Jelliffe felt that modern clinicians encourage bottle feeding and thus became one of the causes fostering a decline of breastfeeding. No such an alarming warning situation was noted in rural Korean circumstances of delivery. There were no differences in frequency of breastfeed-

ing among mothers who delivered in different places.

### 3) Trends in exclusive breastfeeding by month

The percentages of women exclusively breastfeeding the child during the first 3 months of age were reviewed according to year from 1979 to 1981 (Fig. 6). The exclusive breastfeeding rate of children under 3 months of age in 1979 was the highest throughout all months and the rate of breastfeeding at the same age in 1981 was the lowest and fell steeply to a zero point at 6 months of age. We can easily imagine that breastfed children are supplemented from 1-6 months of age especially in the year 1981.

### 4) Reason for artificial feeding

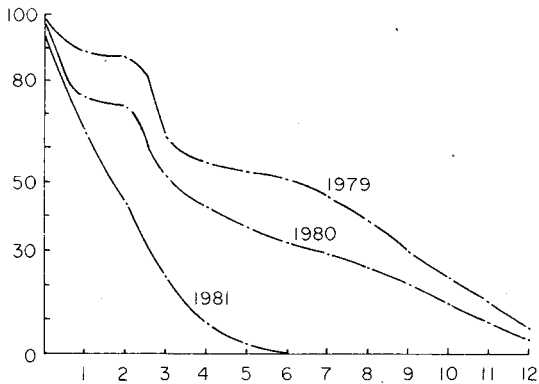
Mothers were asked what the reason was for

Table 4. Percentage of mothers who artificially fed their babies and the reason for artificial feeding and the relationship to the birth attendant

Reason for artificial birth attendant	not feeding applicable	insufficient milk	conven- ient	go back to work	more nutri- tious	others	unknown	Total
midwife	76	65 (61.3)	13 (12.3)	7 ( 6.6)	9 ( 8.5)	12 (11.3)	0 ( 0.0)	182 (28.5)
Physician	65	80 (69.0)	6 ( 5.2)	14 (12.1)	6 ( 5.2)	10 ( 8.6)	0 ( 0.0)	181 (28.4)
Friend or neighbour	70	26 (23.9)	4 ( 3.7)	1 ( 0.9)	1 ( 0.9)	7 ( 6.4)	0 ( 0.0)	109 (17.1)
Family	76	47 (32.0)	5 ( 3.4)	6 ( 4.1)	4 ( 2.7)	6 ( 4.1)	3 ( 2.0)	147 (23.0)
Self	13	3 (18.8)	0 ( 0.0)	0 ( 0.0)	0 ( 0.0)	0 ( 0.0)	0 ( 0.0)	16 ( 2.5)
Nurse	1	0 ( 0.0)	0 ( 0.0)	0 ( 0.0)	1 (33.3)	0 ( 0.0)	1 (33.3)	3 ( 0.5)
		(100.0)			(66.6)		(66.6)	
Total	301	221 (65.6)	28 ( 8.3)	28 ( 8.3)	21 ( 6.2)	35 (10.4)	4 ( 1.2)	638 (100.0)

$$\chi^2 = 115.28 \quad p = 0.001$$





(Fig. 6. Exclusive Breastfeeding rate of Korean rural infants under 3 months in the last 3 years (retrospective cohort method).

starting artificial feeding at any time after childbirth. It was difficult to clearly differentiate the artificial feeding for real weaning from partly intended feeding. In most groups the most common reason given for not breastfeeding was "lack of or insufficient milk." This is more important than other reasons (real problems like soreness of breast or nipple), far more im-

portant than the "mothers go back to work". Drying up of milk is reported to be the important misfortune of breast feeding among mothers delivered at hospital. It is well known that insufficient milk supply is a preventable problem in almost every mother. Medical personnel in hospital have to encourage mothers to breast-feed and teach how to prepare and practice breastfeeding (Table 4).

Among the mothers delivered at home, it was evident that 57.0% were considered to have started artificial feeding for real supplementation to breastmilk. Among the mothers delivered in the hospital, mother's thought of insufficient milk or lack of confidence in breast feeding was the main reason for artificial feeding.

#### 5) Motivation for artificial feeding

Mothers were asked what advice was given to them before they finally stopped breast feeding altogether. About 10 per cent of them were

Table 5. Motivations for artificial feeding in relation to the birth attendants

Motivation for AF birth attendant	non- applicable	Physician	Phar- macist advice	family advice	friend advice	self- desired-	from advertise- ment	others	Total
midwife	88	10	0 ( 0.0)	34 (36.2)	4 ( 4.3)	19 (20.2)	0 (0.0)	27 (28.7)	182 (28.5)
Physician	71	13 (11.8)	1 ( 0.9)	23 (20.9)	1 ( 0.9)	19 (17.3)	1 (0.9)	52 (47.3)	181 (28.4)
friend of neighbour	73	1 ( 2.8)	0 ( 0.0)	2 ( 5.6)	1 ( 2.8)	5 (13.9)	1 (2.8)	26 (72.2)	109 (17.1)
family	77	3 ( 4.3)	0 ( 0.0)	23 (32.9)	6 ( 8.6)	14 (20.0)	0 (0.0)	24 (34.3)	147 (23.0)
self	13	0 ( 0.0)	0 ( 0.0)	1 (33.3)	0 ( 0.0)	0 ( 0.0)	0 (0.0)	2 (66.7)	16 ( 2.3)
nurse	1	1 (50.0)	1 (50.0)	0 ( 0.0)	0 ( 0.0)	0 ( 0.0)	0 (0.0)	0 ( 0.0)	3 ( 0.5)
Total	323	28 ( 8.9)	2 ( 0.6)	83 (26.3)	12 ( 3.8)	57 (18.1)	2 (0.6)	131 (41.6)	638 (100.0)

$$\chi^2 = 117.284 \quad p = 0.000$$

told by health professionals to give cow's milk supplements or to stop breast feeding altogether or to put their babies on the bottle (Table 5). The proportion of mothers who were told by health professionals was highest when mothers had delivered their index babies under the attendance of physician or midwife. Some mothers gave more than one reason for not breast-feeding without indicating priorities. The most common overall reason was "lack of" or "insufficient" milk.

### 6) Supplementary feeding

Mothers started supplementing breastfeeding for the baby from the first month. Supplementary feeding rates gradually increased upto 12th months. The curves were steep from the second to the 7th month of age, which reflects the traditional common sense weaning period (Fig. 7).

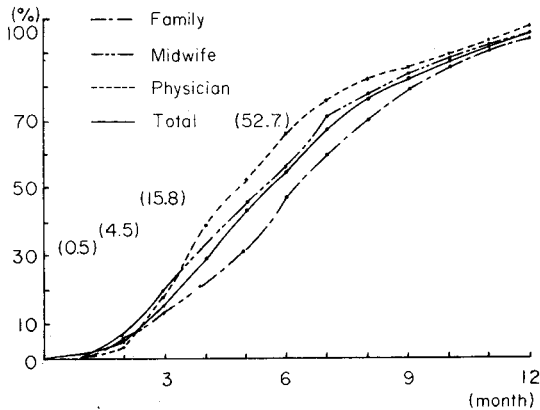


Fig. 7. Monthly Supplementary feeding rate according to the birth attendants.

### 7) Commercial weaning food

Mothers were asked whether they gave any commercial weaning food to children in their homes. Mothers who breastfeed their children would be less likely to give commercial weaning food to the children (Fig. 8). Cumulative frequency of infants having commercial weaning food reaches 20% at ninth months and then keeps a plateau.

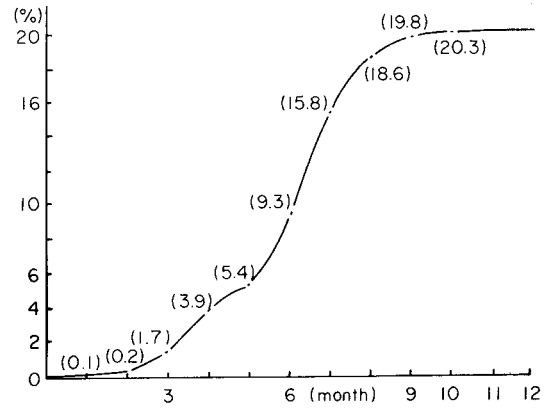


Fig. 8. Cumulative percentage of mothers who give commercial weaning food to the child.

## DISCUSSION

Older mothers having their first babies tend to produce less milk at first than younger ones. This particularly applied to women over thirty. It does not mean that their milk supply cannot be increased.

Mothers who really want to breastfeed actually produce more milk. Mothers who had said they preferred bottle feeding were three times more likely to say that their baby had refused the breast and twice as likely to say that their baby was a bad feeder, when compared with mothers whose intention it was to breast feed right from the start. Breast feeding is thus greatly helped by positive attitudes.

Mothers having their first babies tend to produce less milk than those who already have had one or more babies.

The more the mother suckles her baby, the more prolactin is secreted by the pituitary gland, the more milk is produced by the breasts and the better conditioned the let-down reflex becomes. It is the total length of suckling time each day that is important and that depends on the number and length of the feedings, together with the time given to comfort suckling. In 1965, over 95% of the mothers started out breast feeding, and 90% were still nursing at

10-12 months. In 1974, 90% of mothers started out breastfeeding at Suwon City (Lee HS, 1975). In 1970 the rate of exclusively breastfeeding was 66.4% and mixed feeding rate was 25.2% during the first months at Seoul and the breastfeeding rate was still 52.8%. (Kang SH, 1970) The rate of breastfeeding declined to 80% at the third month, and 53% were still nursing at 12 months in 1970. Only 73% of mothers started out breastfeeding in 1978.

According to the comparative study of the difference in breastfeeding behavior of hospital born infants from home delivered infants, 70% of hospital born infants were given sugar water other than breast milk as the prelacteal infant food. The starting period of lactation was more delayed in hospital delivered mothers.

Among hospital delivered mothers, 52.6% had already started bottle feeding within 2 weeks after delivery.

Over 80% of home delivered mothers breast-feed their babies on demand, while only 30% of hospital delivered mothers fed the baby on demand (Sung OH, 1979).

Unrestricted breast-feeding means the infant is put to the breast immediately following delivery and nursed on demand thereafter. The infant is put to the breast without rules or limitations. There may be ten or twelve feedings a day in the early weeks, with the number gradually decreasing over the first year of life. Breast milk continues to be a major source of nourishment beyond the first year of life.

Token breast-feeding is characterized by constant restrictions on the time and duration of nursing. Usually the feedings are scheduled. Even the amount of mother-infant contact is limited initially, such as in hospitals where newborns are kept in a central communal nursery and only taken out for feedings. The infant is often offered water or glucose water by rubber-nippled bottle, which confuses the infant

while he is trying to establish his sucking technique (Newton N. 1971).

There may be a difference between unrestricted and token feeding groups in the duration of breast-feeding. Token breast-feeding is characterized by rules and regulations. Feeding is done by the clock both in frequency and duration and weaning usually occurs by the third month. As a result of common supplementary bottles and solids in token breastfeeding, the let-down reflex is never well established.

Even unrestricted breast-feeding should be started for the baby immediately following delivery, I mean at least 2-4 hours after birth and the infant should be nursed on demand thereafter. Surprisingly enough, some hospitals in Korea regulate or forbid breast feeding during the hospital stay. The only given reason and which makes no sense, is because of possible hospital infection of the infant.

Hospitals in Korea almost always separate neonates from the family and set constant restrictions on the frequency and duration of nursing. Since neonates are kept in a central communal nursery, the amount of mother-infant contact is strictly limited. The infant is always offered glucose water by a rubber-nippled bottle, which make the infant loose sucking power for the nipple.

The weaning period and weaning food are the most common subject of research among all infant nutrition studies. But not only clients but also professionals are confused with the meaning of weaning, which is directly translated as "stop breast feeding" or "separation with breast" in Korean language. Mothers should gradually replace breast feeding with solid foods or bottle feeding, depending on the infants age and stage of development. Not a few medical professionals think mothers who have infants of 6 months or over should not give infants the breast.

Not only the nutrition values of the breast-

feeding but also the psychological and emotional benefits of breastfeeding should be emphasized. Since the maternal-infant bond is the strongest human bond, the infant's early growth is within the mother's body and after birth his survival depends on the mother's care (Klaus MH, and Kennell JH, 1976).

It is well known that bottle-fed infants are particularly prone to diarrheal disease, which are almost unavoidable in the hygienic conditions of households of modest income. A vicious circle sets in diarrheal disease, i.e. reduced intake, early malnutrition, reduced appetite, reduced resistance and finally further diarrhea. The protective effect of breastfeeding against infection has been known from various reports in most parts of the world. Kannanch (1972) reported the incidence of infants hospitalized for diarrheal disease in relation to the method of feeding used. Differences were striking, with contrasting rates of 0.5 per cent for those solely breast-fed for 6 months compared with 24.8 per cent admissions in children bottle-fed for only three months.

In 1963, Gordon et al. reported "weaning diarrhea", which is an epidemiological entity and the end-result of the interactions of several factors - enteral infections with large doses of environmental bacterial contaminants and with the effects of malnutrition and with other solid foods. High parity, being one of the underprivileged for child health, can cause sudden drop of exclusive breast-feeding rate in early infant and induction of early intake of contaminated formula and supplementations.

There are advantages of carrying on breast feeding after six to 12 months. First, baby will continue to receive protection against infection though full breastfeeding only gives this advantage for eight months, after which time, from the infection point of view, the baby is just as well off without breast milk. Since it is true that

babies fully breast fed with no additional food for longer than eight months are at greater risk from infection than babies who are being weaned by then, so this is one argument for introducing solids by eight months. Second, mother and baby probably enjoy feed times together and will be extremely disappointed to give them up. Breast feeding is known to offer the baby emotional as well as nutritional sustenance. Many mothers reported that they remember their very real feelings of loss when they gave their baby the last breast feeding.

The realization of new advantages of breastfeeding will be persuasive, including the slimming effect of lactation, the lack of evidence that this leads to loss of the figure, and the nursing woman's increased sexuality. (Masters and Johnson 1966)

Knowledge is still very limited with respect to the metabolism of the various nutrients and their long-term effects on the development of the child.

In May 1981, the World Health Assembly adopted the International Code of Marketing of Breast-milk Substitutes with the aim to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breastfeeding, and by ensuring the proper use of breast-milk substitute, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution.

This study originated from a concern over the increased presence of foreign formula producing companies in Korea. The baby food market in Korea has up until only a few years ago consisted of exclusively domestic producers. Now that foreign formula producers are marketing their products here the Korean market will be more carefully observed by international agencies concerned with regulating foreign formula producers marketing practices in the third world.

Weaning means different things to different people but usually is defined as taking a baby off breast milk and feeding him with other sources of nourishment.

There is no such age or weight and there should be no hard rules about weaning time. It is generally understood that, as long as the baby is thriving, happy and gaining weight regularly and as long as mothers are enjoying it, carrying on breast feeding is strongly advised.

Breast milk alone is the best food for the baby for at least the first four months and for longer if he/she is satisfied. If cow's milk and solids are introduced before four months, the breast milk supply possibly will decrease and the baby will be laid open to the chance of foreign protein leaking into his bloodstream via his gut lining and possibly causing sensitization if he is susceptible.

If it is left to the baby to decide when he wants to start finger feeding, he'll probably try at about six months or so. Once other foods have been introduced, mothers can carry on breast feeding as long as baby wants and as long as breast milk supply lasts.

In modern society more mothers go out of home for work, for economic reasons and self esteem through social participation, and the size of families has become smaller. These changes caused marked effects on child rearing behavior including breastfeeding. Popkin and Solon have pointed out the evidence of negative relations between mother's participation in the labour force and the health and nutrition of their young children, as well as the difficulties in being able to make use of any social services, such as well baby clinics or health centers because of the mother's absence at work.

If the mother were persuaded to let her baby have cow's milk as well as breastmilk in the hospital, pharmacy or other places, it is known to be possible to start breast feeding fully once the mother gets home by reducing the amount

of cow's milk in the bottle, so baby will want more breast milk each feeding time. After two to three days of increased suckling time, the baby will suck as much as he wants to even an empty breast, the breast milk supply will begin to increase. Forty minutes every two hours is usually recommended.

Although a mother whose baby is having complements can increase her milk supply and wean her baby from cow's milk, this requires more expert advice from health professionals and more knowledge of the physiology of lactation and confidence on her part than is usually available.

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