

EFFECT OF INFANT FEEDING PRACTICES ON BIRTH INTERVAL AND MORBIDITY AMONG CHILDREN IN NORTH WEST FRONTIER PROVINCE OF PAKISTAN

FOUZIA BUSHRA*
NASEERA AHMAD*
TAJAMMAL HUSSAIN**
FAZLI MANAN**

SUMMARY: A study was undertaken to assess the effect of feeding practices on birth interval and morbidity among children. A sample population of 200 mothers was randomly selected from rural and urban areas of North Western Frontier (NWFP) in Pakistan. It was observed that mothers who exclusively breast fed their children for 18 months, their mean birth interval was 20 months as compared to 14 months for partial breast feeding and 2 months for totally bottle feeding for the same duration. Moreover, diarrhea and respiratory tract infections in partially breast fed and totally bottle fed children was higher than exclusively breast fed children.

Key Words: Feeding practices, birth interval, morbidity.

INTRODUCTION

Malnutrition and mortality among infant and children in developing countries are the major health problems, mainly associated with the unhygienic feeding practices. The international Code of Breast Milk Substitute (1) reported that improper feeding increases infant morbidity, diseases and infections. Breast feeding is the safest, least allergic and best infant feeding method. It has nutritional, immunological, behavioral and economic benefits and also provide desirable mother infant bonding (2). During the first 4-6 months, breast milk alone is effective in ensuring the best growth and development of the child. Breast feeding provides anti-bacterial, anti-viral substances and protects the child against infections. It has maternal bene-

fits as well, which may be due to the action of hormone oxytocin in the anovulation of the uterus and after birth, which stimulates uterine contraction that help reduce blood loss. Carcinoma of breast appears less frequently in communities where prolonged lactation is common (3).

Breast feeding also has a contraceptive advantage to lactation. Some studies (4,5) indicate that exclusive breast feeding has contraceptive effect and helps in maintaining prolonged birth interval. This effect may be related to anovulatory effect of prolactin and other hormones secreted during lactation. Morley (6) reported that breast feeding has a positive effect on the control of population growth rate than bottle feeding practices. Breast feeding is particularly important in countries like Pakistan where women are either unwilling or unable to use other methods of contraception.

* From College of Home Economics, University of Peshawar, Pakistan.

** From Faculty of Nutritional Sciences, NWFP Agricultural University Peshawar, Pakistan.

Pakistan with a population of 120 million and a birth rate of 3.1%, can ill afford to ignore to advantages of mothers' milk. As no work has been done on breast feeding and its impact on birth interval, therefore it was considered to be of interest to study the effect of feeding practices on birth interval and morbidity among children in North West Frontier Province of Pakistan.

MATERIALS AND METHODS

Sample population

In the present investigation, a sample of 200 mothers ranging between 17-40 years of age randomly selected from urban and rural community of Peshawar District in the North West Frontier Province of Pakistan. Demographic and anthropometric data from the respondent mothers were collected on a pre-designed questionnaire.

Methods

A questionnaire was developed and completed by the investigators with the information obtained from each respondent mother. The questionnaire was designed to collect the following information;

a. Breast feeding practices and effect of breast feeding on birth interval

Mother's breast feeding pattern and number of pregnancies and the effect of different feeding methods on the birth interval was determined from the information obtained from mothers.

b. Morbidity among children

Information on morbidity among children including gastrointestinal disorder and respiratory tract infection was collected.

RESULTS AND DISCUSSION

Effect of feeding practices on birth interval and morbidity

Exclusive breast feeding (EBF)

A sample of 200 mothers was randomly selected, out of which 166 mothers exclusively breast fed their children. Reason given for the breast feeding included convenience, traditional advice and baby performance. All mothers were aware of the nutritional significance of breast feeding but unaware that breast feeding increases birth interval.

Table 1 shows that for mothers who exclusively

breast fed their children from the first day up to 3 years, the mean birth interval ranged from 15.7 to 21.4 months. These results indicated that 31% of the children who were exclusively breast fed for 12 months showed a maximum birth interval of 21.4 months. A similar birth interval of 21.3 months was observed for only 6% of the children who were breast fed for 30-36 months. A shorter birth interval of 15.7 months was noted for 18% of children who were exclusively breast fed for 24-30 months. These results are somewhat similar to those of Prema (7) who reported that in developing countries the duration of lactation correlates well with the inter-pregnancy interval and appears to be a factor in decreasing the fertility of women who have no other modes of contraception. Breast feeding provides about 97% protection from pregnancy in the first 6 months, when a mother is fully breast feeding and remains amenorrhic (8). Similar results were also reported by Millman and Cooksey (9) and Davanzo and Starbird (10).

Table 1 also shows the mean monthly occurrence of diarrhea and respiratory tract infection which ranged from 1.3 to 2.4 and 1.2 to 1.4, respectively. In case of morbidity among children, diarrhea seem to increase with longer breast feeding probably due to intake of other foods along with breast milk after 2 years of age. Moreover, it was noted that the duration of breast feed-

Table 1: Birth Interval and Morbidity (Exclusive breast feeding).

Children		Breast feeding (M)	Birth spacing (M)	Diarrhoea*	RTI*
N	%				
52	31	0-12	21.4	1.6	1.3
42	25	12-18	20.3	1.4	1.4
31	18	18-24	21.1	1.3	1.3
30	18	24-30	15.7	1.8	1.3
11	6	30-36	21.3	2.4	1.2

N - denotes the number of cases examined

M - months.

RTI - Respiratory tract infection.

* - Mean monthly episode.

ing has no effect on respiratory tract infection among children. All the breast fed women can protect their children from multitude of problems that beset the artificial fed child because of the poor food supplementation and low levels of hygiene in the developing countries. Intergan supported breast feeding for longer than 6 months to be carried out for a healthy child.

Partial breast feeding (PBF)

From 200 randomly selected samples in this study 8 mother's partially breast fed their children. All of the mothers were aware of the nutritional importance of breast feeding but due to lack of sufficient breast milk, they started bottle feeding in order to meet the requirements of the infants. The results (Table 2) indicates that 5 children (62%) who were partially breast fed showed a birth interval of 14.6 months, while 3 children (37%) showed a birth interval of 13.0 months. Our results support those of Excler who reported that in exclusively breast fed and non-exclusive breast fed mother's postpartum amenorrhea (PPA) was 13.9±9 and 5.7±6.5 months with (PPA) of less than 12 months in 48 and 88.9% respectively. Postpartum amenorrhea and birth interval were correlated with breast feeding duration.

Koçtürk studied 269 infants and asked their mother's opinions about the advantages and disadvantages of breast feeding. The contraception effect was

considered the major advantage and the possibility of milk insufficiency, the major disadvantage. Similar results were also found by Sousa. They reported that the volume of milk decreased due to stress of the mother caused by the birth of a baby. Bottle feeding was usually introduced at this stage, which led to further decrease in breast milk. Table 2 also shows morbidity in partial breast fed children. In this group, the mean monthly diarrhea episode was 2.0 and 2.4 for those who were partially breast fed for 12 months and 12-18 months respectively, while respiratory tract infection was 1.8 and 3.0 for the same period of partial breast feeding. It is clear from our results that morbidity in partial breast fed babies is almost double as compared to exclusively breast fed children.

Total bottle feeding (TBF)

Out of the 200 randomly selected samples, 26 mothers totally bottle fed their children. All the mothers complained of insufficient milk due to which children neglected breast milk. One mother had nipple problem and the child was unable to suck milk while another mother willingly did not breast feed her child. Besides this 6 of the mothers had 3 and 4 months pregnancy and only one had breast sepsis due to which they started bottle feeding. The results given in Table 3 indicates that the mean birth interval ranged from 1.5 to 2.8 months which is the lowest as compared to exclu-

Table 2: Birth Interval and Morbidity (Partial Breast Feeding).

Children		Breast feeding (M)	Birth spacing (M)	Diarrhoea*	RTI*
N	%				
5	62	0-12	14.6	2.0	1.8
3	37	12-18	13.0	2.4	3.0
0	-	-	-	-	-
0	-	-	-	-	-
0	-	-	-	-	-

N - denotes the number of cases examined
 M - months.
 RTI - Respiratory tract infection.
 * - Mean monthly episode.

Table 3: Birth Interval and Morbidity (Total Bottle Feeding).

Children		Breast feeding (M)	Birth spacing (M)	Diarrhoea*	RTI*
N	%				
8	31	0-12	1.9	2.8	1.6
8	31	12-18	1.9	3.3	1.8
7	27	18-24	2.8	4.0	2.1
1	4	24-30	-	6.0	-
2	8	30-36	1.5	2.0	1.5

N - denotes the number of cases examined
 M - months.
 RTI - Respiratory tract infection.
 * - Mean monthly episode.

sively breast feeding and partially breast feeding. It shows that 8 children (31%) who were totally bottle fed for 12 months, the mean birth interval was 1.9. Similar results was observed for children fed for 12-18 months. The results also showed that 7 children (27%) who were totally bottle fed for 18-24 months had a birth interval of 2.8 months. The morbidity in totally bottle fed children showed that with increase in duration of bottle feeding, the mean monthly occurrence of diarrhea and respiratory tract infection also increases subsequently.

Moreover, it was observed that the monthly diarrhea and respiratory tract infections in totally bottle fed children was greater as compared to exclusively breast fed and partially breast fed children. Total bottle fed children have illness especially diarrhea, more frequently, more severely and at an earlier stage than do breast fed children. The reason may be lack of clean drinking water and unhygienic milk preparation and feeding. It was also noted that some mothers who totally bottle fed their children had abortion in subsequent pregnancies. Wynn and Zandro also reported that close birth interval increases the risk of miscarriage, congenital malformation and prenatal death. This may possibly be due to less time for mother to recover normal hormonal profile before beginning of next pregnancy. Also maternal vitamin depletion and damage to embryo results in new conditions responsible for pregnancy failure and maldevelopment of embryo.

Overall the results of this study show that those mothers who exclusively breast fed their children for 18 months, their mean birth interval was 20 months as compared to 14 months for partial breast fed and 2.0 months for total bottle fed children for the same dura-

tion. Similarly mean monthly diarrhea and respiratory tract infection in partial breast fed and total bottle fed children was found much higher than exclusively breast fed children.

REFERENCES

1. WHO (World Health Organization) : *International Code of Marketing Breast Milk Substitutes*. Geneva, Switzerland, 1981.
2. Mata L : "Breast Feeding", *Main promoter of infant health*. *Am J Clin Nutri*, 31:2058-2065, 1978.
3. Valman HB : *Weaning*, *British Medical Journal*, 29:913-915, 1980.
4. Wharton BA : *Food for the suckling: Revolution and development*. *Acta Paediatric Scandinavica Supplement*, p 299, 1982.
5. Sidhu LS, Grewal R and Bhatnagar DP : *A study of physical growth in breast fed and bottle fed male infants*. *Indian J Paediatric*, 48:75-79, 1981.
6. Morley D : *Pediatric Priorities in the Developing World*. Butterworth and Co, New York, 1973
7. Prema K : *Lactation and Fertility*: *Am J Clin Nutr*, 32:1298-1203, 1979.
8. Kennedy KI, Rivera R and McNeilly AS : *Consensus statement on the use of breast feeding as a family planning method*. *Contraception*, 39:477-496, 1989.
9. Millman SR and Cooksey EC : *Birth weight and the effect of birth spacing and breast feeding on infant mortality*. *Studies in Family Planning*, 18:202-212, 1987.
10. Davanzo J and Starbid EH : *Correlates of short inter-birth intervals in Peninsular Malaysia. Their Pathways*, 1991.

Correspondence:

Fouzia Bushra
College of Home Economics,
University of Peshawar,
Peshawar, PAKISTAN.