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Effect of breast feeding and bottle feeding on the growth of the infants

SHIKHA SAXENA AND MAHEK SHARMA

ABSTRACT

This study was attempted to assess the effect of breast feeding and bottle feeding on the growth of the infants. The sample comprised of 100 lactating mothers from Delhi and Ghaziabad. Whole sample consisted of the mothers who were practicing breast feeding and bottle feeding (50 each). General information was drawn out with the help of questionnaire cum interview schedule. Height, weight, and head circumference were measured with the help of weighing and beam balance and infantometer for infants. 24 Dietary Recall method was used for dietary assessment of the mothers. According to the Gomez classification, among the breast fed infants, 15 % were moderately malnourished, 13 % mildly malnourished and 17 % were normal and Among bottle fed infants 9 % were severely malnourished, 17 % were moderately malnourished, 11 % mildly malnourished and 13 % were normal. According to the waterlow classification (height for age). Among the breast fed infants were marginally malnourished whereas 28 % were normal and among the bottle feed infants 12 % were severely malnourished and 13 % marginally malnourished whereas 17 % were normal. There was no significant difference between the growth of the infants or anthropometric measurements who were bottle or breast feeding. (P - Value = 0.18) and also there was no statistical difference between the dietary intakes between both the groups. This study shows that, there was no significant difference between the growths of the infants in between both the groups except in the pattern of weight changes among the lactating mothers of the two groups.

Key words : Bottle feeding, Breast feeding, Lactating mother, Infants

INTRODUCTION

Adequate nutrition of the mother during lactation is also of vital importance since during the first few months of life, the infant derives all his nutrition from mother's milk generally, the child is breastfed for 6-9 months. As the mother has to nourish a fully developed and rapidly growing infant, she needs extra nutrients to meet the baby's needs in addition to her own requirements. A well nourished mother on an average secretes about 850 ml of milk/day, whereas in case of severely malnourished mother, the level may go down to as low as 400ml/day. As far quality, the mother has an excellent body to breast feed her baby successfully, even if the diet is not able to meet her own nutritional needs adequately. In such case, the mother draws on her body reserves to meet the needs of lactation at the cost of her own health. However, dietary deficiencies of water soluble vitamins like ascorbic acid and vitamins of B-group, lead to lower levels of these

vitamins in the breast milk. The protein, carbohydrate and calcium, content in mother's milk is not altered even when the mother is malnourished. The main objectives of the study were to conduct the dietary assessment of mothers, to find out the Anthropometric measurements of infants, to find out the prevalence of various complications in the infants regarding their feeding practices and to seek variation in the body weight of mothers who adapts breast and bottle feeding.

The reviewing of literature for the understanding of previous work that has been done in the objective subjects and to chalk out a research endeavors with the focus on the unexplored aspects of the problem is as follows:

Dhandapany *et al.* (2008) stated existing antenatal counseling on breastfeeding is inadequate in the population studied and needs to be strengthened. Informing all pregnant women about the benefits and management of breastfeeding should be a priority during antenatal visits.

This descriptive study was conducted at a tertiary hospital in Pondicherry, India. Every third primigravida mother admitted in the maternity ward from June to December 2005 was recruited. Among these 144 primigravida mothers, 108 who had a minimum of three antenatal visits (“booked”) were included in the study. It was concluded that this descriptive study was undertaken to assess whether antenatal visits were utilized for promotion of exclusive breastfeeding in addition to the routine obstetric services.

Matusiak (2005) concluded a study on a cultural perspective of the feeding habits. The culprit is society in general from the male dominated cultural aspects to the manufactures of artificial breast-milk to the advertising departments who want to do nothing but sell the product, no matter how the product is re-hydrated for use. Infant feeding habits have changed over the past several decades. This has been due to many factors, including cultural or societal beliefs, government intervention and economic circumstances. The overall problem is that the children of the world are not becoming healthy from the foods being prepared for them as infants. In many cases, those children are dying.

MATERIALS AND METHODS

The study was conducted to assess the infants growth who were fed on breast fed and bottle fed and nutritional status of their mothers. Information related to activity patterns, dietary habits, and anthropometric measurements has been also collected. The comparison has been done between the two groups (breast and bottle fed). The observation involves the quantitative aspects *i.e.*, the physical parameters in terms of height, weight and head circumference. It was a retrospective study as the exposure and the outcome of interest have already occurred when the study was initiated. Pre-experimental design comprised of static group comparison, in which two different groups were involved and they differed only in their exposure (independent variable) and then the outcome were compared.

Suitable questionnaire was formulated to collect the data on

- Demographic profile and baseline information including age, gender, family composition.
- Food consumption pattern like food habits, regularity of meals, missing of meal, eating out patterns etc.
- Feeding practices like time of feeding, way of feeding etc.
- Health status of the baby *i.e.* suffering from any

disease or not.

Knowledge of the lactating mothers as well.

RESULTS AND DISCUSSION

This study was conducted on 100 lactating mothers and their infants to study the effect of breast feeding and bottle feeding on the growth of the infants. Data regarding general information, age, occupation were collected by questionnaire method and dietary intakes with the help of 24 Dietary Recall method. Also anthropometric measurements were also collected to support the study.

Per cent adequacy:

With the help of RDA, was found out:

$$\% \text{ adequacy} = \frac{\text{Nutrient calculated}}{\text{RDA value}}$$

% adequacy helps us to find out the proper nutrition or adequate nutrient intake.

Every individual should consume at least 2/3 of the RDA requirement, if the %adequacy is less then 0.66, then the person is consuming inadequate amount of nutrients, on the other hand, if more then 0.66, then person is having proper nutrition.

Table 1 : Categorization on the basis of the dietary assessment and average per cent adequacy

Nutrients	Per cent adequacy	M ± SD
Energy(Kcal)	0.69	1677±309.1
Protein (g)	1.10	71.4±17.4
Iron(mg/d)	1.02	30.5±20.5
Calcium(mg/d)	1.13	1134.7±358.7
Folic acid(ug/d)	1.03	153.8±63.6
Vitamin C(mg/d)	.81	64.6±28.5

The lactating mothers were taking more than two third of the RDA or they were taking adequate amount of the all the nutrients (Table 1). Mean and standard deviation of the average intake for energy(Kcal)- 1677±309.1, protein (g)- 71.4±17.4, iron(mg/d) 30.5±20.5, calcium(mg/d)- 1134.7±358.7, folic acid(ug/d)- 153.8±63.6, vitamin C(mg/d)- 64.6±28.5.

The above Table 2 indicates that 63 % of the mothers had % adequacy of energy between 0.66-1 and above 1 protein level was also high in values >1 and about calcium 25 % were falling under the category of >1. Folic acid level was about 0.66-1 and between 0.66 to 1 in 37% of subjects. These values are useful in identifying and calculating the nutritional requirement of the mothers.

Table 2 : Categorization on the basis of individual per cent adequacy

Classification	Energy Kcal	Protein (g)	Iron (mg/d)	alcium mg/d	Folic acid (ug/d)	Vitamin C (mg/d)
<.66	35	0	25	7	9	33
0.66-1	63	49	53	25	54	39
>1	2	51	22	68	37	28

Table 3 : Categorization on the basis of goomez classification (indicator-weight for age)

Classification	Breast fed (%)	Bottle feed (%)	Type of malnutrition
<60%	5	9	Severe malnutrition
60 -75%	15	17	Moderate malnutrition
75-90%	13	11	Mild malnutrition
>90%	17	13	Normal

According to the Goomez classification (weight for age) among the breast feed infants, 15 % were moderately malnourished, 13 % mildly malnourished and 17 % were normal. Among bottle feed infants 9 % were severely malnourished, 17 % were moderately malnourished, 11 % mildly malnourished and 13 % were normal.

According to the water low classification (Height for age), the breast feed infants were marginally malnourished whereas 28 % were normal. Among the bottle feed infants 12 % were severely malnourished and 13 % marginally malnourished whereas 17 % were normal (Table 4).

Table 4 : Categorization on the basis of waterlow classification (Breast feed infants bottle and infants) Indicator-Height for age Reference population-NCHS

Classification	Breast fed (%)	Bottle feed (%)	Type of malnutrition
<85%	8	12	Severe Malnutrition
85 -90%	7	8	Moderate malnutrition
90-95%	7	13	Mild malnutrition
>95%	28	17	Normal

It was also observed that 27% of the infants were suffering from illness when it was asked from their mothers and in most of the cases, the infants were free from any other ailments (72%). Among 27 %, only 11% were breast fed and 16 % were from bottle fed infants who were suffering at the time of asking and among 72%, 38% from the breast feed and 34% from the bottle fed infants were free from any kind of infection.

There was great difference in the pattern of the weight changes among both the groups. The difference was huge *i.e.* -2.07 ± 1.3 in case of breast fed and -

Table 5 : Average weight of the lactating mothers who were practicing breast feeding and bottle feeding

Duration	Breast fed	Bottle fed
After Delivery	60.82 \pm 4.5	60.32 \pm 4.2
During the study	58.75 \pm 4.4	58.88 \pm 8.76
\pm Difference	-2.07 \pm 1.3	-0.98 \pm 1.07

0.98 \pm 1.07 in case of bottle fed infants (Table 5).

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Address for correspondence :

SHIKHA SAXENA

Department of Dietetics

Institute of Hotel Management and Catering Nutrition,

PUSA, NEW DELHI, INDIA

Authors' affiliations :

MAHEK SHARMA

Department of Dietetics

Institute of Hotel Management and Catering Nutrition,

PUSA, NEW DELHI, INDIA

