

A Prospective Study to Evaluate the Impact of Breast Feeding and Bottle Feeding Babies on Maternal and Fetal Health

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Abstract

Background: In the first days of life, breast-fed infants consume minimal amounts of milk; this may be explained by substrate limitation (limited milk output) and/or by self-limitation (through low appetite and/or suck-swallow competency). It is important to ensure the optimal growth and development of children so that they can effectively contribute towards progress of the nation. Children in their early life are completely dependent for their nutritional requirements on their person both in terms of quantity and quality. This, in term, is influenced by the customs, traditions and beliefs as well as socioeconomics and education status of their parents. **Aim:** To study the impact of breast feeding and bottle-feeding babies on maternal and fetal health. **Materials and Methods:** A prospective study was undertaken with 150 breast- and bottle-fed babies and their mothers. They were selected for this study from our OPD using Multistage Stratified Random Sampling Techniques. **Results:** Out of the 122 babies, majority (46.91%) were suffered from diarrhea, followed by 38.68% from fever and minimum (6.59%) were suffered from jaundice. Out of the 53 breast fed babies, majority (57.14%) were suffered from fever, followed by 22.86% for diarrhea and minimum (9.52%) were suffered from jaundice while out of 69 bottle bed babies, majority (50.72%) were suffered from diarrhea, followed by 39.13% from fever and minimum (4.35%) were suffered from jaundice. **Conclusion:** Formula-feeding places mothers and infants at increased risk of a broad spectrum of adverse health outcomes, ranging from infectious morbidity to chronic disease. Given compelling evidence for differences in health outcomes, breast-feeding should be acknowledged as the biological norm for infant feeding.

Keywords: Breast Feeding, Bottle Feeding, Maternal Health.

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Introduction

In the first days of life, breast-fed infants consume minimal amounts of milk, as little as 13 mL/kg/day on Day 1 and 40

mL/kg/day on Day 2 of life [1]. In theory, such small amounts may be due to low maternal colostrum output from a breast in

transition from pregnancy to lactation. It is known, however, that the breast milk production adjusts itself to the infant's requirements [2]. Whether low colostrum or milk output of the first two days of life is primarily due to a relative lack of readiness to lactate or is secondary to low consumption by the infant is unknown. We aimed to evaluate the spontaneous intake of infants fed formula (by maternal choice) ad libitum. We hypothesized that such infants consume greater amounts of milk in the first two days of life than breast-fed infants.

Children in their early life are completely dependent for their nutritional requirements on their person both in terms of quantity and quality. This, in term, is influenced by the customs, traditions and beliefs as well as socioeconomics and education status of their parents [1]. Breast feeding is almost universal in over the world, it was also common in the developed countries before advent of industrialism. However, the duration of breast feeding declined slowly due to several factors like education, urbanization, employment and availability of child rearing practice, yet some women resort to feeding of bottle milk to their babies because of various reasons. In recent years, numerous advantages of breast milk have been emphasized based on scientific experimentation [2]. Children are regarded as invaluable treasure of any country, but to prove their worthiness to society it is essential that they must grow well and to an optimal level.

Unfortunately, millions of children in India and other underdeveloped areas of the world are suffering from malnutrition as a result of poverty. Lack of knowledge, ignorance and superstitions. If a county is to thrive and prosper in all spheres of human activity, then, it should ensure the important elements of child health by immunization, good nutrition, growth promotion and the timely detection and treatment of common childhood disease like diarrhoea and respiratory illnesses [5].

Objective:

To study the impact of breast feeding and bottle feeding babies on maternal and fetal health.

Methodology:

This Multistage Stratified Random Sampling prospective study was conducted in Upgraded Department of Paediatrics, Patna Medical College and Hospital, Patna, Bihar, India. From March 2020 to March 2021. 150 breast- and bottle-fed babies and their mothers were selected for this study from our OPD.

A self-constructed schedule has been applied to collect the information as a research tool in the study. Schedule prepared by the researcher was divided into five parts which contains information related to residence, religion, caste, members in the family, type of the family, age education, occupation, age at marriage, duration of marriage, food and addiction habit and income of the parents.

Information related to babies i.e. sex, order of birth, number of sibling and type of delivery, height, weight, chest, head and mid upper arm circumference and information related to feeding practice. After getting the required information, the collected data were coded, tabulated and analyzed.

Results:

The breast-fed babies were more in joint families as compared to nuclear families while bottle fed babies were more in nuclear families as compared to joint families. The illiterate mothers were more in breast fed babies as compared to bottle fed babies while literate mothers were more in bottle fed babies as compared to breast fed babies. The mothers engaged in household activities were more in breast fed babies as compared to bottle fed babies while mothers engaged in service, teaching and labour were more in bottle fed babies as compared to breast fed babies.

The breast-fed babies were found more in urban areas as compared to rural areas while bottle fed babies were found more in rural areas as compared to urban areas. The males babies were more among the breast fed babies as compared to bottle fed while female babies were more among the bottle

fed as compared to breast fed. The normal delivery born was more among the breast-fed babies as compared to bottle fed babies while abnormal delivery born was more among the bottle-fed babies as compared to breast fed babies.

Table 1: Distribution of breast-and bottle-fed babies according to occupation of their mothers.

Mother's education	Feeding practice					
	Breast		Bottle		Total	
	No.	%	No.	%	No.	%
Service	2	2.67	2	2.67	4	2.67
Labour	1	1.33	1	1.33	2	1.33
Teaching	1	1.33	7	9.33	8	5.33
Housewife	71	94.67	65	86.67	136	90.67
Total	75	50.00	75	50.00	150	100.00

Table 2: Mean height in cms, mean weight in kgs, Mean chest circumference in cms. and feeding practice

Age in months	Mean height in cms, mean weight in kgs, Mean chest circumference in cms. and feeding practice							
	Breast				Bottle			
	No.	Mean Height	Mean weight	Mean chest circumference	No.	Mean Height	Mean weight	Mean chest circumference
6	9	65.00	6.37	42.11	4	61.89	5.67	41.22
7	28	66.89	7.14	44.23	15	63.10	6.50	42.30
8	6	69.38	8.08	44.85	12	65.62	6.67	43.42
9	22	71.63	9.00	45.33	21	66.60	6.70	43.91
10	3	73.60	9.80	45.60	6	68.09	6.82	44.18
11	3	74.33	9.67	45.83	11	71.75	7.45	43.60
12	4	75.43	10.71	47.43	6	71.85	7.69	45.38
Total	75	69.15	8.01	44.59	75	66.71	6.79	43.45

Table 3: Distribution according to disease

Name of disease	Feeding practice					
	Breast		Bottle		Total	
	No.	%	No.	%	No.	%
Diarrhoea	12	22.86	35	50.72	47	38.68
Fever	30	57.14	27	39.13	57	46.91
Pneumonia	5	10.48	4	58.00	9	7.82
Jaundice	6	9.52	3	4.35	9	6.59
Total	53	43.21	69	56.79	122	100.00

Out of the 122 babies, majority (46.91%) were suffered from diarrhea, followed by 38.68% from fever and minimum (6.59%) were suffered from jaundice. Out of the 53

breast fed babies, majority (57.14%) were suffered from fever, followed by 22.86% for diarrhea and minimum (9.52%) were suffered from jaundice while out of 69

bottle fed babies, majority (50.72%) were suffered from diarrhea, followed by 39.13% from fever and minimum (4.35%) were suffered from jaundice.

Discussion:

Premature weaning, or not breast-feeding, is associated with health risks for mothers as well as for infants. Epidemiological data suggest that women who do not breast-feed face higher risks of cancer and cardiovascular diseases. It should be noted that in many studies of maternal health outcomes, associations have been reported according to lifetime duration across all pregnancies, rather than the duration of feeding for each pregnancy. In addition, most evidence arises from observational studies, which may be subject to confounding by other health behaviors. Premature weaning, or not breast-feeding, is associated with health risks for mothers as well as for infants. Epidemiological data suggest that women who do not breast-feed face higher risks of cancer and cardiovascular diseases. It should be noted that in many studies of maternal health outcomes, associations have been reported according to lifetime duration across all pregnancies, rather than the duration of feeding for each pregnancy. In addition, most evidence arises from observational studies, which may be subject to confounding by other health behaviors.

Dollberg S et al did a comparison of intakes of breast-fed and bottle-fed infants during the first two days of life. They compared the spontaneous formula intake of unrestricted formula-fed infants to that of breast-fed infants over the first 48 hours of life. They hypothesized that 1) spontaneous formula intake of unrestricted infants is much higher than that of breast-fed infants and 2) spontaneous formula intake correlates positively with gestational age or birthweight. Breast-fed infants lost significantly more weight on Day 2. It was concluded that newborn infants offered formula ad libitum every four hours consumed much larger amounts than

breast-fed infants fed according to the same schedule. In addition, weight loss was more marked in breast-fed infants on day 2 of life [5].

Faber HK, Sutton TL. Et al did a statistical comparison of breast-fed and bottle-fed babies during the first year: with special reference to gain in weight and to morbidity. They revealed alarming hazards of bottle feeding, and it formed the basis of teaching to medical students, mothers and the public generally, that breast feeding under practically all conditions and continued for the most protracted period possible is preferable to bottle feeding. They also concluded that those breast-fed babies are healthier, more resistant to infection and stronger, have firmer flesh, and are less subject to various nutritional disturbances [6].

There is need for more cautious use of the available data and investigators must seek ways to design future studies to take into account the differences between breast-feeding and bottle-feeding mothers that affect both reported and actual infant morbidity.

Conclusion:

Formula-feeding places mothers and infants at increased risk of a broad spectrum of adverse health outcomes, ranging from infectious morbidity to chronic disease. Given compelling evidence for differences in health outcomes, breast-feeding should be acknowledged as the biological norm for infant feeding. Physician counseling, office and hospital practices should be aligned to ensure that the breast-feeding mother–infant dyad has the best chance for a successful breast-feeding experience throughout the infant's first year of life, and as long thereafter as is mutually desired by mother and child.

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