Original Article

Study on Impact of Tertiary Care Baby Friendly Hospital on Exclusive Breast Feeding and Child Health

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Abstract

Background*: Initiation of breast-feeding within 1hour after birth has been associated with reduced neonatal mortality. Baby Friendly Hospital Initiative has profound effects on appropriate practice of BF and thus helps to reduce infant mortality and morbidity.*

Objective: *This study was conductedin the dept.Gynae & Obs and Dept of Paediatrics of Shaheed Suhrawardy Medical College Hospital,Dhaka, to observe the rates of exclusive breast feeding and child health status after cancelling from Baby Friendly Hospital*

Methodology*: 100 term babies of normal birth weight irrespective of sex, born in Sh.SMCH by NVD or caesarian section were included. Data was collected from the mother with a pretested questionnaire at postnatal period, at 6th week, 14th week & 6th month of age.*

Result*: The mean age of studiednewborn (100) was 20.02±19.54 hours. All the infants started breast feeding after birth and among them fifty six percent initiated with in 1 hour. Fifty five percent mothers were fed breast milk more than 8 times of her baby in last 24 hours. Difficulty in breast feeding was found in 36(36.0%) infants, which was resolved mostly (94%) by nurse. Exclusive breastfeeding was found in 100% of infants during discharge from hospital. In 1st and 2nd follow up 95(95.0%) and 89(89.0%) infants were exclusively breastfed. In 3rd follow up at last week of 6th month 78(78.0%) infants were exclusively breast fed. Five(5%) and six(6%) infants received supplementary food in 1st and 2nd follow up respectively. In last follow up the number were eleven (11%) and the total number was 22(22%).The causes of supplementation were crying of baby due to perceived insufficient breast milk and job of the mother in 1st& 2nd and 3rd visit respectively. Weight was significantly ($p<0.05$) higher in exclusive breast feeding group than the non EBF group and sickness were also more in non EBF group.*

Conclusion: *Exclusive breast feeding was found in 78.0% of infants upto last week of 6 months. Crying of baby due to perception of insufficient breast milk and joining in outside job of the mother were the causes of introduction of formula milk in the 1st,2nd and 3rd visit respectively. Weight gain and sickness were significantly less in EBF group than in non EBF group.*

Key Words:
Exclusive breastfeeding, Baby friendly hospital.

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Introduction:

The international Baby Friendly Hospital Initiative (BFHI), was launched in 1991 to promote and protect maternal and child health by ensuring support for breastfeeding in maternity care facilities. Since that time, more than 20,000 health care facilities in more than 150 countries around the world have achieved Baby-Friendly certification from their national certifying body by implementing the 10 Steps to Successful Breastfeeding and ending the practice of distributing free or low-cost breast milk substitutes[1]. Breastfeeding is universally accepted as the best method of feeding babies. But in the twentieth century breast milk met with competition from industrial substitutes and mothers were drawn to prepackaged foods. Hospital practices were also cited for resulting in a decline in breastfeeding such as practices included mother and baby separation. The consequences of a decrease in

breastfeeding result in an increase in morbidity and mortality of children. According to WHO, every day between 3000 and 4000 infants die globally because they are not breastfed. The decline in breastfeeding was cause for concern and worldwide effort to protect, promote and support breastfeeding, thus ten steps of Baby Friendly Hospital initiative has been came infront.

Evidence from developed and developing countries indicates that the BFHI has had a direct impact on breastfeeding rates at the hospital level. According to the models, a country that implemented the BFHI would experience, on average, a 7.7- and 5.5-percentage point increase in the first two, and first six, months of EBF respectively, over a subsequent period of five years. Bangladesh has strong culture of breastfeeding but many aspects of infant and young child feeding are far from optimal[4]. Infant should be breastfed within half an hour of birth, exclusively breastfed for the first six months of life[4].

Recent research has shown that under five mortality can be reduced by 13% with optimal breastfeeding[4]. In our country the initiation of breastfeeding is often delayed. 42% of infants start breast feeding within an hour and 64% of infants are breastfed exclusively for 6 months[4,5]. About 60% infants were given complementary feeding timely but 44.4% of babies were given before six months of age[5]. Breast milk has been recognized as perfect infant food, it provides several important benefits to both mother and infant. It ensures nutrition, optimum growth and development, reduces morbidity and mortality of infants and also establishes bonding between mother and child6,[7,8].

Analysis of data from 57 hospitals in Oregon, United States, show that breastfeeding rates at two days, and two weeks postpartum increased with the institution's implementation of the Ten Steps[9,10]. Similarly, results of the United States Infant Feeding Practices II Study indicate that mothers who experienced no Baby-Friendly practices in-hospital were 13 times more likely to stop breastfeeding before six weeks than mothers who experienced six specific Baby-Friendly practices.

Suhrawardy Medical College Hospital also serve the purpose of BFHI which are actively protect, promote, encourage and support breastfeeding through education of health care workers in maternity and neonatal services following the ten steps to successful breastfeeding. Every mother who has been delivered here gets help for BF. These efforts may help mother to breast feed exclusively for 6 months and help infants to grow optimally. So we like to see if there is any positive effect of the hospital practice on BF status in infants born in Shaheed Suhrawardy Medical College Hospital.

Materials and methods

Study protocol and subject

This Longitudinal observational study was was conducted at the Dept. of Gynae & Obs and Dept of Paediatrics of Shaheed Suhrawardy Medical College Hospital, Dhaka from January 2014 to 30th June 2014. The subjects were term babies of normal body weight irrespective of sex, born in ShSMCH by NVD or cesarean section. Total 100 termnewbornhaving normal birth weight were included in this study. Term but sick requiring hospitalization and whose mother deny to participate were excluded.

After the delivery of a baby in OBG dept, consent was taken from attendant or caregiver for the study and benefit of the study was explained. After taking history and performing physical examination, a baby was included or excluded as per inclusion / exclusion criteria. The information of the included babies in to a pretested proforma of structured questionnaire. As the hospital is a BFH, all the mother was helped in positioning and attachment after delivery. All mothers were offered to attend the breastfeeding corner if they have any difficulty in breast feeding. Follow up and further data collection was done at 6th week, 14th week and 6th months of age regarding breastfeeding, weight gain and sickness when baby was attend at EPI center and Breast feeding corner of ShSMCH.

Statistical analyse was carried out by using the Statistical Package for Social Sciences virsion 16.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The mean values were calculated by frequencies and percentages. Chi-Square test was used to analyze the categorical variables, shown with cross tabulation. Student t-test was used for continuous variables. P values <0.05 was considered as statistically significant.

This study was approved by the Institutional Review Board Shaheed Suhrawardy Medical College Hspital,Dhaka, Bangladesh.

Operational definitions:

Exclusive Breast feeding

EBF means giving baby breast milk only, not even a drop of water or other food till six months of age, medicine can be given when indicated.

Complimentary feeding

Getting the baby accustomed to other foods besides breast milk is termed complimentary feeding and will give timely after complitation of six months (180 days).

Supplementary Feedings

Feedings provided in place of breastfeeding, prior to 6 months, the recommended duration of exclusive feeding, are thus defined as supplementary feeding.

Baby friendly Hospital

A baby Friendly Hospital (BFH) is a health care facility where the practitioners who provide care for women and babies adopt practices that aim to protect, promote and support exclusive breastfeeding from birth.

Results

Among the studied population 61(61%) infants were included during 1st 24 hours of age, 31(31%) during the 2nd and 8(8%) during the third day of life. The mean age was 20.02±19.54 hours. Fifty five (55%) were Male and forty five (45%) were female child. (Table-1)

Table - I

Distribution of the infants by demographic variable (n=100)

Demographic variables	Number(N)	Percentage (%)
Age (in hours) at inclusion in the study		
1-24	61	61.0
25-48	31	31.0
49-72	8	8.0
Mean±SD	20.02	±19.54
Range (min, max)	1	, 72
Sex		
Male	55	55.0
Female	45	45.0

All the studied infants were given breast feeding after birth. Among them 56(56%) were given within 1 hour and 44(44%) were given after 1 hour of birth. (Table 2)

Table-II

Distribution of the infants by the time of initiation of breast feeding (n=100)

Time of Initiation of breast feeding	Number	Percentage (%)
Within 1 hour	56	56.0
After 1 hour	44	44.0

In the study populations it was observed that majority 55(55.0%) mothers breastfed their infants more than 8 times in last 24 hours during hospital stay. (Table III)

Table-III

Breast feeding frequency in last 24 hrs (n=100)

Number of feedings in . last 24 hrs	Number of population	(%)
More than 8 times	55	55.0
Less than 8 times	45	45.0

In the study, it was found 36(36%) mother had some shorts of difficulty in breast feeding. (Table4)

Table IV

Distribution of infants mother by difficulty in breast feeding (n=100)

Difficulty in breast feeding	Number	Percentage
Yes	36	36.0
No	64	64.0

In our study populations 56(56.0%) infant's mother received help for establishing of BF from hospital staff.(Table V)

Table V

Percentage of mother received help from hospital staff (n=100)for establishing of BF.

Help received for establishing of BF	Number	Percentage
Yes	56	56.0
No	44	44.0

In our study 99(99%) mother received advice for follow up visit for if any difficulty for breast feeding. (Table VI)

Table VI

Distribution of the mothers who receivedadvice for follow up if any problem with breastfeeding (n=100)

Advised for follow up if any problem with breastfeeding	Number	Percentage
Yes	99	99.0
No	1	1.0

In the study population exclusive breast feeding was found in 78(78.0%) infants up to last week of 6 months (Table VII)

Table VII

Distribution of the infants by breast feeding status upto last week of 6 months (n=100)

Breast feeding status	Number	Percentage
Exclusive breast feeding (EBF)	78	78.0
Not exclusive breast feeding	22	22.0

In our study children supplementary food was received by 5 (22.7%), 6928.2%) and 11(49.9%) infants in 1st, 2ndand in last follow up respectively. Most of the infants received supplementary food after 3 months of age(Table 3.8)

Table VIII

Distribution of the infants by the time when the supplementary food was started (n=22)*

When the supplementary food started	Number of population	Percentage
Follow up-1		
1-15 days	2	9.1
16-30 days	3	13.6
31-42 days	0	0.0
Follow up-2		
43-58days	3	13.6
59-73 days	2	9.1
74 days-98 days	1	4.5
Follow up-3		
99-114 days	5	22.7
115-129 days	2	9.1
130-145 days	3	13.6
146-160 days	1	4.5
161 days - last week of 6th month	0	0.0

*Not exclusive breast feeding population

In the studied populations the causes of supplementation was for crying of baby due to insufficient breast milk (misperception) in the 1st and 2nd follow up visit 3(13.6%) and 4(18.2%) respectively but in the 3rd visit It was mainly due to mother's job outside of the house 8(36.4%).(Table IX)

Table IX

Distribution of the infants by cause of supplementary feeding (n=22)*

Cause of supplementary feeding	Number	Percentage
Follow up-1		
Baby cries for feed	3	13.6
Insufficient breast milk	2	9.1
Follow up-2		
Insufficient breast milk	4	18.2
Service of mother	2	9.1
Follow up-3		
Baby cries for feed	1	4.5
Elder baby also drink BF	1	4.5
Insufficient breast milk	1	4.5
Service of mother	8	36.4

*Not exclusive breast feeding population

In the study,it was observed that in first follow at 6th week mean weight was found 4.46±0.47 kg in exclusive breast feeding group and 4.2±0.58 kg in not exclusive breast feeding group. In 2nd and 3rd follow up the result also showing same trained. Weight was significantly ($p<0.05$) higher in exclusive breast feeding group than the non EBF group.(Table-10)

Table X

Distribution of the infants by weight in different follow up (n=100)

Weight (KG)	Exclusive breast feeding(n=78)		Not exclusive breast feeding (n=22)		P
	Mean	±SD	Mean	±SD	value
Follow up-1 (At 6th week)	4.46	±0.47	4.2	±0.58	0.022s
Range (Min, max)	3.4	, 5.3	3.2	, 4.9	
Follow up-2 (At 14th week)	6.15	±0.57	5.77	±0.82	0.009s
Range (Min, max)	4.9	, 7.5	4.3	, 7	
Follow up-3 (At last wk of 6th month)	7.84	±0.57	6.98	±0.91	0.001s
Range (Min, max)	6.8	, 9	5.5	, 8.6	

ns= non-significant P value reached from unpaired t-test

Table XI

Distribution of the infants by type of illness during study period (n=100)

Type of Illness		Exclusive breast feeding(n=78)		Not exclusive breast feeding (n=22)		P value
		n	%	n	%	
Follow up-1						
	Cough & cold	4	5.1	6	27.3	
	Diarrhea	1	1.3	1	4.5	0.001[ns]
	Pneumonia	1	1.3	4	18.2	
Follow up-2						
	Bronchiolitis	2	2.6	3	13.6	
	Cough & cold	2	2.6	4	18.2	0.001[s]
	Diarrhea	1	1.3	2	9.1	
Follow up-3						
	Bronchiolitis	1	1.3	2	9.1	
	Cough & cold	3	3.8	9	40.9	0.001[s]
	Diarrhea	4	5.1	9	40.9	
	Vomiting	2	2.6	3	13.6	

s=significant

P value reached from chi square test

In the studied population it was observed that in 1st follow up 1(5.1%) infants had pneumonia in exclusive breast feeding group and 4(18.2%) had pneumonia in not exclusive breast feeding group. In 2nd follow up there was more illness in nonexclusive breast feeding group than exclusive breast feeding group. In 3rd follow up 4(5.1%) and 9(40.9%) infants had diarrhea in EBF and not EBF respectively. Not EBF group had suffered significantly more than the EBF group from different illness which was statistically significant ($p<0.05$) between two groups.(Table-11)

Discussion

This Longitudinal observational study was carried out with an aim to observe the rates of exclusive breast feeding and home based compliance of BF in infants born in a Tertiary care Baby Friendly Hospital also to determine the proportion of infants on exclusively breast feed up to 6th completed month who born in ShSMCH.

In this present study it was observed that 61(61%) infants were included in the study during 1st 24 hours of birth and follow up to 6 month of age. The mean age was found 20.02±19.54 hours. Follow up was done at 6th week, 14th week and last week of 6th months of age. Cesar et al.[24] undertaken a population base case control study and showed 31.0% and 27.0% infant's age were <3 months in group I (case EBF) and group II (non EBF) respectively. Infant age 3 - <6 months were found 41.0% and 38.0% in group I and group II respectively, which is comparable with the current

In this series it was observed that fifty five percent infants were male and male to female ratio was 1:1.2. Cesar et al.[24] reported that 53.0% and 50.0% infants were male in group I and group II respectively. Chudasama et al.[25] observed 55.0% and 45.0% infants were male and female respectively. There were slightly more male infants than female infants also observed by Tan[26].

In our country the initiation of breastfeeding is often delayed. 42% of infants start breast feeding within an hour and 64% of infants are breastfed exclusively for 6 months[4,5]. All the infants started breast feeding after birth and 56.0% infants initiated breast feeding with in 1 hour of birth, 39% started within first six hours, while only 15.5% started after 6 hours of delivery. Lee et al.[27] reported that the overall percentage of breastfed infants was particularly low (9.6%), 36.1% had already given up breastfeeding and were being formula-fed (FFBF), 54.3% have been exclusively formula-fed immediate after birth. Saka[29] found that breastfeeding initiation that is within one hour was done mostly by those who had vaginal delivery by 69%, while for all who delayed (more than one hour and more than a day) 43% had caesarean section. In another study, Mullany et al.[18] found only 3.4% breast-fed within the first hour after birth, but breast-feeding within the first 24 hours was 56.6% and within first 48 hours was 83.1% commonly. In this series it was observed that majority 55(55.0%) mothers were fed breast milk more than 8 times of her child in last 24 hours during hospital stay.

In this study it was observed that total 56 infants-mother face difficulties to initiation of breast feeding and received help for establishing of BF from hospital staff.Difficulty in breast feeding was found in 36.0% population in a studyby Chudasama et al.[25] Determinants of Exclusive Breastfeeding in South Gujarat Region of India, found 18.0% mothers reported some initial difficulty in breastfeeding, which is lesser with the current study.

In this series it was observed that 99.0% population was given advised for follow up if any problem with breastfeeding during discharge. No literature was found to compare with the present study during the study period in this regard.

Follow up and further data collection were done at 6th week, 14th week and last week of 6th months of age when the baby attended at EPI center and Breast feeding corner of ShSMCH. Exclusive breast feeding was found in 78.0% infants up to last week of 6 month. In Diallo et al.[31]study sample, the authors found that 44.8% infants were exclusively breastfed at any period before their enrolment in the study while 55.2% infants were not. Only 15.5% infants were exclusively breastfed up to six months of age. In another study Chudasama et al.[25] mentioned that more than 80% children were still exclusively breastfed, which is closely resembled agrees with the present study.

In this current study it was observed that five infants received supplementary food in 1st flow up. In 2nd follow up total six infants were given supplementary food and in last follow up the number were eleven. Most the infants received supplementary food after 3 month of age. Giashuddin and Kabir[23]showed that 69.9% women gave supplementary food to their babies before reaching six months of age.

In 1st follow up, 95(95.0%) infants were exclusively breast fed and in 2nd follow up, 89(89.0%) infants were exclusively breast fed. In 3rd follow up, at last week of 6th month 78(78.0%) infants were exclusively breast fed and seventeen (17%) infants received formula milk with breast milk. No baby was only on artificial milk. Inanother study Cesar et al.[24] showed breast milk was given alone in 5.9%, breast and formula milk in 15.1% and other fluids alone (completely weaned) 78.9%. Complementary breastfeeding which involves use of both breast milk, infant formula and other non-milk feeds was practiced by significantly more 39.0% mothers surveyed compared to EBF 34.0% and predominant breastfeeding 28.0% found by Onahet al.[30]. In another study Senbanjo et al.[32] reported that66.6% children were given infant formula feeds, of which 84.5% children were introduced to infant formula feeds before the age of 6 months. In this current study it was observed that mostly mother herself had taken decision to start supplementary feeding.

In this series it was observed that in 1st and 2nd follow up the cause of supplementation were crying of baby due to insufficient breast milk which may be. In 3rd follow up, cause of supplementation was job of the mother.

Weight was significantly ($p<0.05$) higher in exclusive breast feeding group in all three follow up visits. Saha et al.3 done a prospective cohort study involved 1343 infants with monthly measurements on infant feeding practices (IFPs) and anthropometry at 17 occasions from birth to 24 mo. of age and found the mean (±SD) birth weight was 2.7±0.4kg among them 30% weighed under 2.5 kg and mean body weight at 12 months was 7.9±1.1kg and at 24 months was 9.7±1.3kg.

In this present study it was observed that nonexclusive breastfed babies suffered significant more different diseases like pneumonia and diarrhea than EBF babies. Among infantile morbidities, respiratory infections were the most frequently encountered 39.8% followed by diarrhea 22.6%, otitis 17.9%, low growth 5.6%, urinary infection 0.6%, and meningitis 0.2% observed by Diallo et al.27, which is comparable with the current study.

Conclusion:

All the infants started breast feeding just after birth and more than a half (56.0%) of the infants initiated breast feeding with in 1 hour of birth. Difficulty in breast feeding was observed and helped to overcome by doctor and nurses of the hospital. Exclusive breast feeding was found 78.0% infants up to last week of 6 months which is better than national Exclusive breast feeding rate (64.0%). Most the infants received supplementary food after 3 month of age. Causes of supplementation were mostly crying of baby in early month and job of the mother at later month. Follow up visit showed that exclusively breastfed babies had batter weight gain and less illness. So influence of BFHI was good in maintaining EBF in babies who was delivered in this Baby Friendly Hospital.

Limitation of the study

1. The study population was selected from one selected hospital in Dhaka city, so that the results of the study may not be reflect the exact picture of the country inclusion of more Baby Friendly Hospital may have shown better picture.
2. The present study was conducted at a very short period of time.
3. Small sample size was also a limitation of the present study. Therefore, in future further study may be under taken with large sample size.

Recommendations:

Further studies may be undertaken by including large number of hospitals which may show actual picture. Children born in a baby-friendly health facility are more likely to be breastfed for a longer time, particularly if the hospital shows high compliance with UNICEF guidelines. Therefore, the baby-friendly health Initiative (BFHI) should be continued and extended to include monitoring for compliance, to promote the full effect of the BFHI.

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