Original Research Article

Determinants of Breast Feeding Practices and Nutritional Status of Infants Under Six Months in A Rural MCH Clinic of Hooghly District, West Bengal

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ABSTRACT

Introduction: Exclusive breast feeding in early infancy is fundamental for survival, growth and development of infants. Breast milk not only provides all the nutritional requirements of the infants in exact proportions but also provides immunoglobulins and other protective factors to shield them from infections. WHO advocates exclusive breast feeding for the first six months of life.
Objectives: To assess the breast feeding practices and its determinants and also to elicit any association between exclusive breast feeding and growth pattern of children below six months.
Methodology: An observational, cross-sectional, descriptive study was conducted among infants below six months attending MCH clinic in a rural health centre of West Bengal. Anthropometric measurements were made following standard operative procedures.
Results: A total of 123 infants were assessed, most of them coming from Prasad's social class II, III and IV. 87.8% were exclusively breast fed.80.5% had early initiation of breast feeding and in 95.1% cases newborns received colostrum. No pre- lacteal feeds were administered in 90.2% cases. 51.2% children were fed on demand while 48.8% were fed at regular intervals. Age OR 8.25(CI 1.83-37.09), Education of mother OR 4.42(1.44-13.57), PCI OR 8.48 (CI 2.38-30.39), Exclusive breast feeding OR 63.70(CI 12.54-323.39) were significantly associated with nutritional status.
Conclusion: Proper breast feeding practices is one of foremost preventive intervention in bringing down childhood morbidity and mortality. While many mothers have resorted to correct breast feeding practices, a dearth of knowledge in some of the domains among few others need to be resolved at the earliest.

Key words: Exclusive breast feeding, early initiation, colostrum, pre-lacteal feeds.

INTRODUCTION

Breast feeding is a very natural and instinctive phenomenon in human infant as also with other members of mammalian species. Nature has designed this unique provision of readymade food supply in a manner which is species specific tailored to meet the needs of the baby. Breast milk contains all the nutrients in the exact proportions in an easily digestible form. It contains immunoglobulin and other anti-infective factors that shield the baby from infections. Hence it is absolutely essential for physical, mental, emotional growth of the baby. WHO advocates exclusive breast feeding for the first six months of life.

In developing counties bottle feeding has been labelled as one of the significant factors behind the high infant mortality. The breast milk is free from contamination and adulteration, is available at desired temperature, easy to administer at any time of the day. Mothers coming from low socio-economic background should be motivated for breast feeding for both hygienic and economic reasons .This would go a long way in reducing the hospitalisation and improving child survival.

However several factors come in the way of uninterrupted and exclusive breast feeding. Women often find it difficult to meet their personal goals and adhere strictly to the WHO recommendations of exclusive breast feeding. Various factors have been blamed for non adherence and the predictors are seen to vary between rural and urban settings. However the common causes besides the medical problems like cracked nipples include societal barriers like employment and duration of maternity leave, mother's perception of producing inadequate milk, lack of proper knowledge, inadequate support and guidance not only from the family and society but also from the health professionals, the people who matter most.

Objectives
- ➢ To find out the pattern of breast feeding among children below six months
- ➢ To elicit any association between exclusive breast feeding and nutritional status of children below six months

MATERIALS AND METHODS
Study settings
- ➢ This was a cross-sectional study conducted at Anandanagar rural health centre at Singur block in Hooghly district of West Bengal under the aegis of AIIH&PH. The

timeline of the study was between 1.12.2014 to 15.01.2015.
Study variables
- ➢ Socioeconomic factors:
- • Education of mother and occupation of the both parents
- • Per capita Income
- ➢ Demographic factors: Age and gender of the infant
- ➢ Practices regarding Breast feeding:
  - • Exclusively Breast fed or not
  - • Time of initiation
  - • Source of information
  - • Colostrum and pre-lacteal feeds
  - • Administration of feeds
  - • Cleaning of breasts

A scoring pattern was developed by the researcher- Exclusively breast fed were given a score of 2 and others were given 0. Early initiation of breast feeding was given 3 and others were given 0. Colostrum feeding was awarded 3 and those who discarded colostrum were given 0. No prelacteal feeds were given a score of 2 while no score was given to those using pre-lacteal feeds. Cleaning of breasts at birth was given 3 while other practices received 1. Maximum attainable score was 13.

- ➢ Malnutrition status was assessed using CIAF (Composite Index of Anthropometric Failure) criteria. According to CIAF criteria children can be divided into seven groups:
  Group A: No failure
  Group B: Wasting only
  Group C: Wasting and Underweight
  Group D: Wasting, stunting and underweight
  Group E: Stunting and underweight
  Group F: Stunting only
  Group Y: underweight only. [1]

Study tools
- ➢ A pre-designed, pre-tested schedule
- ➢ Infant weighing machine (properly calibrated)
- ➢ Infantometer

Sample Design

All the mothers who attended the MCH clinic were interviewed were included following the complete enumeration (census) method.

Sample size

The final sample size at the end of study period was 123

Method of data collection

Mothers of children who arrived at the MCH clinic were interviewed using a predesigned, pretested schedule and after obtaining clearance from the Institutional Ethics Committee. Informed verbal consent was obtained from the mothers. Mothers were assured of the anonymity and confidentiality of the information. Background information regarding the relevant socioeconomic and demographic factors of the infant was obtained. Those who were feeding their babies solely with breast milk in the last 24 hours were taken as exclusively breast fed. For assessing the nutritional status anthropometric measurements were carried out using standard operating procedure following WHO (2006) reference standards. Weight was measured with a standard infant weighing machine. Recumbent length was measured using an infantometer. Each measure was taken thrice and the arithmetic mean of three readings was considered during data entry. Data collected were analysed using appropriate statistical tests using SPSS version 20.

RESULTS

About 56.1% of the infants were females. Most of the mothers were educated from middle class to secondary standards (57.7%). Most of the families belonged to social class II, III and IV. An overwhelming majority (92.7%) of the mothers were homemakers while 7.3% were engaged in services. Only 17.9% of the fathers were engaged in service. Others were mainly skilled workers (46.3%) and farmers (16.3%). (Table 1)

Table 1: Background characteristics of study population

Variables	Frequency (%)
Sex(n=123)	
Male	54(43.9)
Female	69(56.1)
Age (n=123)	
>1.5 months	77(62.6)
≤1.5 months	46(37.4)
Education of the mother(n=123)	
Primary	16(13)
Middle class to Secondary	71(57.7)
HS	27(22)
Graduate & Above	9(7.3)
PCI(n=123)	
2808-5614	23(18.7)
1685-2807	35(28.5)
842-1684	49(39.8)
<842	16(13)
Occupation of Mother(n=123)	
Homemaker	114(92.7)
Service	9(7.3)
Occupation of Father(n=123)	
Farmer	20(16.3)
Unskilled labours	15(12.2)
Skilled Workers	57(46.3)
Business/Professionals	9(7.3)
Service	22(17.9)

87.8% of the infants were exclusively breast fed. Doctors (48.8%) were the chief motivators who inspired the mothers for exclusive breast feeding by communicating them the merits of exclusive breast feeding and hazards of not adhering to it. In other cases health workers (26.8%) and nurses (24.4%) provided them the necessary inputs. Early initiation of breast feeding was seen in 80.5% cases. Majority of the mothers (95.1%) fed their babies with colostrum and 4.9% discarded it. Pre-lacteal feeds were not used in 90.2% cases. Others who used pre-lacteal feeds were given either artificial milk or sugar solution. However on enquiry most of these infants were initially sick and had not been handed over to the mother. 51.2% of the babies were fed on demand and others were being fed at regular intervals. Mothers differed in the practice of cleaning of their breasts after feeding. While 68.3% mothers thought that cleaning their breasts at the time of bath was sufficient others were doing it more frequently. (Table 2)

Table 2: Distribution of study population according to pattern of Breast feeding

Variables	Frequency(%)
Exclusive Breast Feeding (n=123)	
No	15(12.2)
Yes	108(87.8)
Main motivator(n=123)	
Health Worker	33(26.8)
Nurse	30(24.4)
Doctor	60(48.8)
Initiation of Breast feeding(n=123)	
>24hours	18(14.6)
1-24hours	6(4.9)
Within 1 hour	99(80.5)
Colostrum feeding(n=123)	
Discarded colostrum	6(4.9)
Fed with colostrum	117(95.1)
Use of pre-lacteal feeds(n=123)	
Yes	12(9.8)
No	111(90.2)
Type of pre-lacteal feeds(n=12)	
Sugar water	3(2.4)
Artificial Milk	9(7.3)
Feeding Time(n=123)	
At regular intervals	60(48.8)
On demand	63(51.2)
Cleaning of the breasts(n=123)	
After each feed	18(14.6)
Sometimes after feed	21(17.1)
Only after bath	84(68.3)

Table 3 shows the association of breast feeding pattern with socioeconomic and demographic variable. Breast feeding pattern was assessed by the scoring system dichotomised by the mean score. Those above the mean score were considered as having good breast feeding practices. Bivariate regression analysis revealed that Sex OR 0.40(CI 0.19-0.89) and PCI OR0.39 (0.19-0.82) were significantly associated with good breast feeding practices and remained significant in multivariate analysis also- Sex AOR 0.40(CI 0.18-0.87) and PCI AOR 0.42(0.19-0.93).

Model I shows the association of socio-economic and demographic factors with CIAF in bivariate regression analysis. It is found that Sex OR 3.45(1.19-10.03), Age OR 8.25(1.83-37.09), Maternal education OR 4.42(1.44-13.57), PCI OR 8.48(2.38-30.39) were significantly associated with CIAF. Model II shows that Exclusive breast feeding OR 63.70(12.54-323.39), Pre-lacteal feeding OR 3.93(1.30-11.86), Colostrum feeding OR 5.76(1.06-30.65), Cleaning of breasts OR 2.94(1.16-7.47) were significantly associated with CIAF. Model III included all the variables found significant in bivariate analysis. After attenuation variables which remained significant were PCI AOR 14.51(1.43-146.36), Exclusive Breast feeding AOR 168.15(8.78-3219.82) and cleaning of breasts AOR 17.56(1.52-202.51).

Table 3: Association between maternal breast feeding practices and demographic and socio-economic factors

Explanatory Variables	Good Breast feeding pattern n (%)	OR(95%CI)	AOR(95%CI)
Sex			
Female	31(44.92)	0.40(0.19-0.89)*	0.406(0.18-0.87)**
Male	36(66.66)	1	1
Age			
>1.5 months	40(51.94)	0.76(0.36-1.99)	0.72(0.32-1.59)
≤ 1.5 month	27(58.69)	1	1
Education			
Up to Primary	9(56.25)	1.08(0.37-3.15)	1.53(0.49-4.76)
Above Primary	58(54.20)	1	
PCI			
Class IV &V	28(43.75)	0.39(0.19-0.82)*	0.42(0.19-0.93)**
Class II & III	39(66.10)	1	1
Occupation of father			
Farmers, USW &SW[1]	46(50)	0.47(0.20-1.12)	0.60(0.23-1.53)
Business& Service	21(67.74)	1	1

* Sig at p<0.05   1-unskilled & skilled workers **Sig variables in multivariate analysis. For multivariate analysis Hosmer – Lemeshow gave a chi-square value of 10.85(p=0.21, not significant) indicating a good model fit.

Table 4: Association of CIAF with socio-economic, demographic and breast feeding practices

Explanatory variables	CIAF n(%)	OR(95%CI)	Model III AOR(95%CI)
Model I			
Sex			
Female	18(26.08)	3.45(1.19-10.03)	2.29(0.38-13.72)
Male	5(9.25)	1	1
Age			
>1.5month	21(27.27)	8.25(1.83-37.09)	4.83(0.53-44.13)
≤1.5month	2(4.34)	1	1
Education of mother			
Up to Primary	7(43.75)	4.42(1.44-13.57)	14.30(0.89-228.58)
Above Primary	16(17.58)	1	1
PCI(B.G.Prasad)			
Class IV&V	20(31.25)	8.48(2.38-30.39)	14.51(1.43-146.36)*
Class II&III	3(5.08)	1	1
Occupation of father			
Farmers,usw&sw	20(21.73)	2.59(0.714-9.14)	
Business& Service	3(9.67)	1	
Model II			
Exclusive Breast feeding			
No	13(86.66)	63.70(12.54-323.39)	168.15(8.78-3219.82)*
Yes	10(9.25)	1	1
Colostrum			
Discarded	12(30.76)	5.76(1.06-30.65)	0.56(0.03-8.78)
Fed	11(13.09)	1	1
Initiation time			
Within 1hour	5(23.80)	1.45(0.47-4.49)	
>1hour	18(17.64)	1	
Pre-lacteal feeding			
Yes	7(41.17)	3.93(1.30-11.86)	3.35(0.38-29.47)
No	16(15.09)	1	1
Cleaning of Breasts			
More frequently	12(30.76)	2.94(1.16-7.47)	17.56(1.52-202.51)*
Only after bath	11(13.09)	1	1

Model III – Those variables which were significant in bivariate analysis .For multivariate analysis Hosmer –Lemeshow test gave a chi-square value of 2.16(p=0.97) indicating goodness of fit. Nagelkerke R^2=0.72 indicating that the above independent variables explain the occurrence of under nutrition (CIAF)

DISCUSSION

WHO recommends that breast feeding should be initiated within 1hour after birth and this has been accepted as one of the ten steps followed in Baby friendly Hospital Initiative. A study done in Akola, Maharashtra among 246 subjects reveal that 80.48% of the infants were initiated breast feeding within 1hour after birth. [2] However a study in rural Uttarakhand among 500 subjects found only 21.37% initiated breast feeding within 1hour. [3] In the present study 80.5% had started breast feeding within 1 hour of delivery.

The present study reveals that 87.8% were practicing exclusive breast feeding. This is much higher than rural population in North India where only 10% of the mothers practised breast feeding up to 6 months of age. [4] Similar study in rural Uttarakhand quotes a figure of 5.13%. [3]

In a community based cross-sectional study in rural Punjab among 1000 subjects 35.6% were unaware of the importance of colostrum. [5] In Uttarakhand 87.18% of the newborn received colostrum. Certain customs prevalent in areas contribute to discarding the colostum. [3] In the present study 95.1% of the study population fed the babies with colostrum.

In different cultural situation use of prelacteal feeds still continues. This is evident from results in rural Uttarakhand where 66.03% of the babies were given pre-lacteal feeds because the local belief that those who administered prelacteal feeds

would be looked after by the baby in future. [3] However the use of prelacteal feed was restricted in Maharashtra (15.85%).[2] However situation is much better here with 90.2% having abandoned pre-lacteal feeds.

In rural Uttarakhand 89% of the babies were fed on demand. [3] In our case 51.2% fed their babies on demand and the rest were feeding at regular intervals.

Our study had certain strengths namely 1) Standard operative procedures followed for measurements 2) it focussed simultaneously on the assessment of under nutrition.

Limitations of the study were 1) small sample size 2) limited study period 3) clinic based study. A longitudinal community based study would have been more useful.

CONCLUSION

Exclusive breast feeding in early infancy is of vital importance in preventing malnutrition as well as in bringing down the under- five mortality rates. Therefore advocacy regarding exclusive breast feeding in first six months of life should be carried out from the very antenatal period. In the present context it is found that rural women in Singur block had optimal knowledge of breast feeding and most of them were practising exclusive breast feeding as per WHO recommendations. This has been achieved through the untiring efforts of the health professionals and peripheral health workers of AIIH&PH. However it has been found that while most of the women had adequate knowledge, in a few others there is a lack of knowledge in some domains. It is therefore necessary to fight sigh of any complacency and bolster our efforts for spreading the correct message of high quality of child bearing and feeding practices.

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