



PREDICTORS OF EARLY INITIATION OF BREASTFEEDING AT BIRTH AMONG MOTHERS OF RURAL AREA OF HARYANA, INDIA

Community Medicine

Dr. Sunidhi Karol Junior resident, Department of community medicine, PGIMS, Rohtak

Dr. Pardeep Khanna* Senior professor & Head, Department of community medicine, PGIMS, Rohtak
*Corresponding Author

Dr. Ramesh Verma Professor, Department of community medicine, PGIMS, Rohtak

Dr. Mohit Karol Senior Resident, Department of pediatrics, IGMC, Shimla

ABSTRACT

Introduction: Early initiation of breastfeeding protects newborns from early neonatal mortality, hence it is important to meet the sustainable development goal.

Methods: Community based cross sectional study was conducted to assess timely initiation of breastfeeding among mothers & factors affecting it. **Results:** A sample of 400 mothers was included in the study. Breastfeeding was initiated by 73.8 % of mothers within the first hour of childbirth, Colostrum was given to 93.8% & pre-lacteal feeds 33.3%. mode of delivery, place of delivery, knowledge during ANC & low birth weight were significant factors affecting early initiation of breastfeeding at birth.

Conclusion: compliance to IYCF practices has shown slight improvement in feeding practices since the last NFHS survey in 2015-2016 but still well below the WHO recommended guidelines for Infant and Young Child Feeding.

KEYWORDS

Breastfeeding, Predictors, Rural Haryana

Introduction

The World Health Organization and United Nation Children's Fund recommends the initiation of breastfeeding within the first hour after birth. This practice is one of the IYCF core indicator termed as early initiation of breastfeeding. It is the time after birth when the mother puts baby first to breast to initiate breastfeeding regardless of the breast milk arrival. Early initiation of breastfeeding reduces child morbidity and mortality in the first two years of life. If all infants started breastfeeding within the first hour of birth, 22% of neonatal deaths could be prevented. [1] In developing countries alone, early initiation of breastfeeding could save as many as 1.45 million lives each year by reducing deaths mainly due to diarrheal disorders and lower respiratory tract infections in children. [2]

The recent National Family Health Survey (NFHS-4) for India & Haryana estimated that only 42% new-born were timely initiated breastfeeding at birth. This percentage is far from the WHO recommendation of 90% coverage for this IYCF practice [3, 4]. The practice of giving pre-lacteal feeds has been shown to delay the initiation of breastfeeding. By interfering with breastfeeding during this period, pre-lacteal feeding reduces the immunological benefits which new-born receives, thus increasing his/her susceptibility to infection and subsequent vicious cycle of infection and malnutrition. Pre-lacteal feeding may also affect neonatal health by disrupting the priming of the gastrointestinal tract [5]. Predictors of early initiation of breastfeeding have not been previously reported in the study area. To address this gap, this study aimed to estimate the magnitude of timely initiation of breastfeeding and to identify potential factors associated with initiation of breastfeeding among mothers of rural community of Haryana. The current study could help policy makers and implementers on breastfeeding promotion programs to design appropriate strategies to tackle the problem.

India contributes to 40 per cent of the malnourished child population in the world, and 53 per cent of all Indian children under the age of five years are undernourished [6]. Among the many causes of the sorry state of health of our children are poverty, illiteracy, large family size, inadequate implementation of health and family planning policies, inadequate health infrastructure, ignorance of parents regarding child nutrition (including breastfeeding), unethical promotion of artificial milk and cereals, and the apathetic attitude of health professionals and health workers towards patient and community education. Breastfeeding practice is key component of primary health care. Therefore, to meet the sustainable development goal for reduction of child mortality, early initiation of breastfeeding is high priority when it comes to protecting, promoting and supporting breastfeeding practice.

Material and Methods

A community based cross-sectional study was conducted in Community Development Block Beri, district Jhajjar, Haryana over the period of year from April 2016 to March 2017. Mothers having children aged 6-23 months were included in the study. Mothers who did not consented, mentally unsound, migrants residing for less than one year in study area during the data collection period were excluded from the study. Sample size was calculated, considering prevalence of timely initiation of breastfeeding to be 66%, sample size comes out to be 325 using formula $4PQ/L^2$ taking precision to be 5% and level of confidence to be 95% where P is Prevalence, Q is 1-P and L is allowable error. Thus, total 400 mothers were studied.

Sampling Technique

Multi stage random sampling technique was used for selecting mothers. The study area comprised of total 177 Anganwadi centres in 33 villages. In first stage. 10 villages were randomly selected having 66 Anganwadi centres of which 25 Anganwadi centres were randomly selected in next stage and from each Anganwadi centre, 16 mothers were randomly selected from attendance register maintained by Anganwadi worker. Thus, sample size of 400 mothers were covered.

Data collection

The study was conducted by house to house visits of selected mothers. All the subjects were fully informed about the purpose of study. Informed consent was taken from the study subjects before conducting the interview. A predesigned, pretested semi-structured schedule mainly based on the standard IYCF indicators given by WHO was used for data collection. Early initiation of breastfeeding was the dependent outcome variable. Socio-demographic characteristics (maternal age, marital status, educational status, household income, age of the child, sex of child, birth weight of child, gestational age) and maternal health service (place of birth, assistance during delivery, health education on breastfeeding, source of information about breastfeeding, antenatal care) were independent variables. Data was analyzed by using Statistical Package for Social Sciences (SPSS) version 20.0.

Results

Socio-demographic characteristics

The age of mothers ranged from 18 years to 40 years with mean age of 24.97 ± 3.41 years. The mean age of study participants was 24.9 ± 3.41 years. The majority of mothers (48%) were in 15-24 years age group followed by 40.8% in the age group of 25-29 years and 10.8% were in age group more than 30 years. 98.6% study subjects were Hindus by religion. Other Backward Classes and Scheduled Castes/Tribes together constituted 45.2%. Joint Family was the dominant family type, with 66 % respondents living in joint family and only 34% were

living in nuclear family. The family size of the study subjects ranged from 1 to 8 children with mean of 1.77 ± 0.84 children. 93.3% of study participants were married and living together with their spouses while 6.5% were married but not living together and only 0.3% of study subjects were divorced. 91% of the study participants were married at or after legal age of marriage. Only 9% were married under 18 years of age. Regarding mothers' occupation, 94.5% mothers were homemakers followed by 5% working in an organized sector and 0.5% mothers were completing their education. On the basis of education status, 13.3% mothers were illiterate. (Table 1)

The majority of children were in the age group of 13-23 months (58.5%), out of which, 29.75% were males and 28.75% were females. In 6-12 months slab there were 41.5% infants in which 21.75% were males and 19.75% were females. The majority of infants (93.8%) were born at term gestational age (≥ 37 weeks) and only 6.3% were born prematurely at less than 37 weeks of gestation, 4.25% males and 2% females. 68(17%) of them were of low birth weight weighing less than 2.5 kg, in which 37(9.25%) males and 31(7.75%) females (Figure 5,6). 206(51.5%) were males and 194(48.5%) were females.

MCH services availed by Study Subjects

The mean age for registration of pregnancy was 2.74 ± 1.04 months among study participants, means most of study subjects (86.3%) got themselves registered with in first trimester. The majority of study subjects (75.5%) availed more than four antenatal check-ups during antenatal visits while only 24.5% respondents had less than four antenatal check-ups. The majority of the study subjects (96.4%) had institutional delivery of which 71.3% delivered in government institution while 25.5% delivered in private hospitals and only 3.5% delivered at home. 85.5% of the study participants delivered by normal vaginal delivery while 14.5% delivered by caesarean section. In 71.8% of the study subjects' delivery was attended by doctors followed by 25.3% nurses and 3% by traditional birth attendants. More than half (61.6%) of the study subjects had 48 hours hospital stay in case of normal delivery and 7 days stay in case of caesarean section delivery. More than two-third of the study participants (67.8%) received information about optimal breast-feeding in new-borns during antenatal while (69%) during hospital stay. However, 32% did not get any information regarding optimal breastfeeding from any of the health worker before and after delivery. Nearly two-third (65.8%) mothers received breastfeeding knowledge from Anganwadi workers.

Early initiation of breastfeeding and related practices

This practice was observed among 73.8% mothers following child's birth with slight gender variation. 26.2% of study subjects were unable to initiate breastfeeding within one hour in normal deliveries and within four hours in caesarean section because of certain medical (40%), cultural (10%) and other (5%) reasons. First milk, which is secreted during first three days in small amount was universally given to 95% infants by study subjects; 49% males and 46% females while only 5% did not receive first milk. Pre-lacteal feed in the form of sweetened water (3%), honey (36%), ghutti (41%), tea (02%), water (1%) was reported to have been given to 33.3% of infants by the study subjects. At the time of birth, less than one-fifth were given animal milk (8%) followed by (4%) packet milk and (1%) powdered milk. Males (16%) and females (17%) received almost equal proportion of pre-lacteal feeds. (Table 1)

Early initiation of breastfeeding & predicting factors

As depicted in (Table 2), on applying bivariate binary logistic analysis, significant associated factors for early initiation of breastfeeding were mode of delivery, place of delivery, birth weight and breastfeeding knowledge during antenatal period. After adjustment of all confounding factors using multivariate logistic analysis as shown in (Table 3), mode of delivery, birth weight of baby and breastfeeding knowledge during antenatal period were observed to be significant factors as

Discussion

In the present study, 73.8% mothers initiated breastfeeding at birth according to recommendations with little difference among both sexes. Colostrum was given to 95% children however, 5% could not be given because of medical reasons like sick baby, sick mother and delayed milk secretion. This practice of pre-lacteal feeding was observed among 33.3% mothers. The major types of pre-lacteal feeds were ghutti (41%), honey (36%), animal milk (8%) and sweetened water (3%). Among mothers who didn't initiated timely breastfeeding

to the new-borns, the main reasons were (49%) medical reasons like mother's inability to feed following caesarean sections, sick baby, low birth weight. (36%) delayed milk secretion, cultural beliefs (10%) i.e. rituals & ceremonies which are performed after child birth and in others (5%) includes baby slept after birth. In the present study, mode of delivery and place of delivery, birth weight and knowledge regarding breastfeeding during antenatal period were significant factors affecting timely initiation breastfeeding. However, other factors like maternal age, age at marriage, mother's education, occupation, socioeconomic status, type of family and birth order were not observed to have any significant effect on timely initiation of breastfeeding. This indicator was slightly higher when compared to DLHS-4 data for district Jhajjar (66.3%) [10] and NFHS-4 data for India (41.6%) [3] & Haryana (42.4%)[4]. Similar, observation reported from study done by Tewabe, [12] in Ethiopia (78.8%). Our study finding was observed to be higher when compared with the study conducted by Parashar et al [8] in Shimla district of Himachal Pradesh. 50.5% mothers initiated breastfeeding within the first hour of birth. A similar study from Madhya Pradesh done by Jain et al [10] had shown it around 67% for early initiation of breastfeeding at birth. Another community based study conducted by Khanna et al, [10] in rural Belgaum, Karnataka, early initiation of breast-feeding at birth was 64.89%. An epidemiological evidence of causal association between timely initiation of breastfeeding and infection specific neonatal mortality has been documented [9]. Timely initiation of breastfeeding at birth has shown improvement due to increased availability of MCH services under NHM in rural areas because of which rate of institutional deliveries had shown a rising trend in the last few years and the information given to mothers regarding optimal breastfeeding practices by health functionaries and community workers during home based postnatal care. Timely initiation of breastfeeding was observed to be more common among the mothers who were living in joint family as compared to those living in nuclear family but association was not found to be statistically significant. Reason could be, the encouragement and support which mothers receives by other family member may be lacking amongst mothers living in nuclear families.

Mode of delivery observed to be a major factor affecting the timely initiation of breastfeeding. Mothers who undergo Caesarean-sections find it difficult to initiate breastfeeding within four hours. In the present study, mothers who delivered normally had 3.4 times higher odds to timely initiate breastfeeding at birth than mothers who gave birth by caesarean section. Similar, observation had been reported from study done by Patel et al. [11] where mothers who delivered normally were found to be 3.8 times more likely to initiate breastfeeding at birth. Emergency and planned caesarean-sections may adversely affect breastfeeding initiation, milk supply and infant breastfeeding receptivity compared to vaginal deliveries.

Place of delivery was also found to be a significant factor associated with timely initiation of breastfeeding. Mothers who had delivered in a tertiary care centre i.e. PGIMS, Rohtak observed to have 1.8 times higher odds to initiate breastfeeding at birth than home delivered mothers. Similar finding was observed from study done by Tewabe, T [12] in Ethiopia which reported mothers who delivered their child in health institution were almost 3.5 times more likely to practice timely initiation of breastfeeding than others. Higher odds for this practice among babies delivered at health facilities can be explained by the presence of health professional, their monitoring and support for the breastfeeding, which assures mothers not only to start early initiation of breastfeeding but also to exclusively breastfeed their babies for 6 months. But, on adjusting all other factors place of delivery was not found to have significant effect on early initiation of breastfeeding. LBW can be a consequence of preterm birth (defined as birth before 37 completed weeks of gestation), or due to small size for gestational age (SGA, defined as weight for gestation. Being born with LBW is generally recognized as a disadvantage for the infant. LBW infants are at higher risk of early growth retardation, infectious disease, developmental delay and death during infancy and childhood. In the present study, 17% were low birth weight babies and observed to have 47% less odds to be timely breastfeed at the time of birth than babies more than 2.5 kg birth weight.

In the present study, no significant association was observed for timely initiation of breastfeeding with mother's age, age at marriage, mother's education, occupation, socio-economic status, type of family and birth order. However, study done by Kakati et al [13] in Assam, where timely initiation of breastfeeding was significantly associated with type of family, educational status, occupational status, socio-economic status

of the mothers. In their study, support from the family and society is important factor for successful initiation of breastfeeding. Women's knowledge about the benefit of breastfeeding and their perception plays an important role to initiate breastfeeding early. Also, Wealthier mothers are more likely to deliver at the health facility and receive postnatal care where they can get more support for breastfeeding initiation while poorest mothers are deprived from those advantages.

In current study, practice of pre-lacteal feeding was seen in 33.3% mothers which was less when compared to the reported data for other parts of India, (Ashwini et al; Prashar et al [14,8]. Another study conducted by Demilew et al [15] in Ethiopia, where 15% mothers gave pre-lacteal feeds. This practice was more common in illiterate mothers (12%) which is similar to the findings in other studies done by Kulkarni et al [16] in Mumbai, Parmar et al [17] in Chandigarh. The most common reason for giving pre-lacteal feed in the current study was observed to be traditional practice and religious beliefs running since ages where mother in law or relatives gives sweetened water or honey to new-born. Although this practice has been found to be prevalent across the cultures, there is an international consensus that providing other liquids in addition to breast milk in the first month of life is unnecessary and harmful. The practice of giving pre-lacteal feed is now decreasing because of the counselling which mothers received during antenatal check-ups and postnatal stay. Thus, literacy plays a very vital role in understanding the danger of pre-lacteal feeding.

Conclusion

The study concluded that compliance to IYCF practices has shown slight improvement in feeding practices since the last NFHS survey in 2015-2016 but still well below the WHO recommended guidelines for Infant and Young Child Feeding. Mother's knowledge, mode of delivery, place of delivery and low birth weight were significant factors associated with IYCF practices.

Conflicts of interest: None

Table 1: Early initiation of breastfeeding and related practices among children

IYCF Practice	Frequency	Percentage
Timely Initiation of Breastfeeding		
Yes	295	73.8
No	105	26.2
Colostrum Feeding		
Yes	379	94.8
No	21	5.2
Pre-lacteal Feeds Given		
Yes	133	33.3
No	267	66.7

Table 2: Socio-demographic characteristics of study participants (n=400)

Socio demographic characteristics	Frequency	Percentage (%)
Age Group		
15-19	6	1.4
20-24	188	47
25-29	163	40.8
30-34	36	9
≥ 35	7	1.8
Caste		
General	219	54.8
OBC	69	17.2
SC/ST	112	28
Type of Family		
Nuclear	136	34
Joint	264	66
Marital Status		
Married living together	373	93.2
Married not living together	26	6.5
Divorced	1	0.3
Age at Marriage		
>18 years	364	91.0
< 18 years	36	9.0
Occupation		
Homemaker	378	94.5
Employed	20	05
Student	02	0.5

Education status		
Illiterate	53	13.2
Read & Write	5	1.3
Primary school	53	13.2
Middle school	86	21.5
Secondary school	97	24.3
Graduate & above	106	26.5
Socio-economic Status (B.G. Prasad Scale; May 2016)		
I. Upper	68	17
II. Upper middle	92	23
III. Middle	104	26
IV. Lower middle	89	22.2
V. Lower	47	11.8

Table 3: Bivariate analysis of independent factors affecting early initiation of breastfeeding

Characteristics	Initiation of breastfeeding		Unadjusted OR(CI)	p value
Age group(yrs)	Within 1 hr n (%)	After 1 hr n (%)		
15-19	5(83.3)	1(16.7)	1	1
20-24	144(76.6)	44(23.4)	0.655(0.07,5.75)	0.702
25-29	118(72.4)	45(27.6)	0.524(0.06,4.61)	0.561
30-34	25(69.4)	11(30.6)	0.455(0.04,4.36)	0.494
≥ 35	3(42.9)	4(57.1)	0.150(0.01,2.05)	0.155
Type of family				
Nuclear	95(69.8)	41(30.2)	1	1
Joint	200(75.7)	64(24.3)	1.34(0.85,2.14)	0.204
Education				
Illiterate	38(71.6)	15(28.3)	1	1
Read & write	4(80)	1(20)	0.90(0.43,1.90)	0.801
Primary school	39(73.5)	14(26.5)	1.43(0.15,13.4)	0.751
Middle school	64(74.4)	22(25.5)	1.00(0.47,2.11)	1.000
Secondary school	72(74.3)	25(25.7)	1.04(0.54,1.99)	0.89
Graduate & above	78(73.6)	28(26.4)	1.03(0.55,1.93)	0.91
Socio economic status				
Upper	44(64.7)	24(35.3)	0.70(0.31,1.57)	0.39
Upper middle	77(83.7)	15(16.3)	1.96(0.84,4.57)	0.11
Middle	79(76)	25(24)	1.20(0.55,2.64)	0.63
Lower middle	61(68.5)	28(31.5)	0.83(0.38,1.81)	0.64
Lower	34(72.3)	13	1	1
Marital status				
Married	274(73.5)	99(26.5)	0.79(0.31,2.01)	0.62
Others	21(77.8)	6(22.2)	1	1
Age at marriage				
< 18 years	28(77.8)	8(22.2)	1	1
>18 years	267(73.4)	97(26.6)	1.27(0.56,2.88)	0.56
Parity				
P=1	122(71.4)	49(28.6)	0.80(0.51,1.26)	0.34
P≥ 2	173(75.5)	56(24.5)	1	1
Mode of delivery				
Normal	267(90.5)	75(9.5)	3.8(2.14,6.78)	0.00
Caesarean	28(71.4)	30(28.6)	1	1
Place of delivery				
Home	11(78.5)	3(21.4)	1	1
Public health facility	162(81)	38(19)	1.6(0.42,6.23)	0.48
Tertiary care centre	52(61.1)	33(38.9)	1.8(1.08,3.27)	0.02
Private hospital	70(69.3)	31(30.7)	0.69(0.38,1.28)	0.24
Gender				
Male	155(75.2)	51(24.8)	1	1
Female	140(72.2)	54(27.8)	1.71(0.75,1.83)	0.48
Gestational age				
Term	280(74.7)	95(25.3)	0.50(0.22,1.17)	0.11
Preterm	15(60)	10(40)	1	1
Birth weight				
<2.5 kg	40(58.8)	28(41.2)	0.43(0.25,0.74)	0.00
>2.5kg	255(76.8)	77(23.2)	1	1
Pre-lacteal feeds				
Yes	93(69.9)	40(30.1)	0.74(0.47,1.19)	0.22
No	202(75.7)	65(24.3)	1	1

Delivery conducted by				
Doctor	204(71.1)	83(28.9)	1.4(0.35,5.82)	0.61
Nurse	82(81.2)	19(18.8)	0.81(0.21,3.10)	0.76
Dai	9(75)	3(25)	1	1
Breastfeeding knowledge during antenatal visits				
Yes	211(77.9)	60(22.1)	1	1
No	84(65.1)	45(34.9)	0.531(0.33,0.84)	0.00

References

- Baker EJ, Sanej LC, Franklin N. Early Initiation of and Exclusive Breastfeeding in Large-scale Community-based Programmes in Bolivia and Madagascar. *J Health Popul Nutr.* 2006 Dec; 24(4): 530-9.
- Hailemariam WH, Adeba E, Sufa A. Predictors of early breastfeeding initiation among mothers of children under 24 months of age in rural part of West Ethiopia. *BMC Public Health.* 2015; 15: 1076.
- India Fact Sheet. National Family Health Survey-4: Mumbai: IIPS; 2015-16. 8p. Available from: http://rchiips.org/NFHS/factsheet_NFHS-4.shtml
- Haryana Fact Sheet. National Family Health Survey-4: Mumbai: International Institute for Population Sciences; 2016. 6p. Available from: http://rchiips.org/NFHS/pdf/NFHS4/HR_FactSheet.pdf
- Nguyen PH, Keithly SC, Nguyen NT, Tran LM, Hajejebhoy N. Pre-lactal feeding practices in Vietnam: challenges and associated factors. *BMC Public Health.* 2013; 13: 932.
- Yadav SS, Yadav ST, Mishra P, Mittal A, Kumar R, Singh J. An Epidemiological Study of Malnutrition Among Under Five Children of Rural and Urban Haryana. *J Clin Diagn Res.* 2016 Feb; 10(2):07-10
- District Fact Sheet. District Level Household and Facility survey -4: Mumbai: International Institute for Population Sciences; 2014. 8 p.
- Parashar A, Sharma D, Thakur A, Mazta SR. Infant and young child feeding practices - insights from a cross-sectional study in a hilly state of North India. *International Journal of Nutritional Pharmacology, Neurological Diseases.* 2015 Jun 08; 5(3): 103-7
- Jain S, Borle A, Agrawal SS, Mishra MK, Gupta SK, Bathma V. Assessment of Infant and Young Child Feeding Practices Among Mothers in Rural Madhya Pradesh. *National Journal of Community Medicine.* 2014 Dec 31; 5(4): 419-23.
- Khanna A, Kadeangadi DM, Mallapur MD. Descriptive study on Infant and young child feeding practices in rural area of Belgaum. *Global Journal of Medicine and Public Health.* 2014;3(2). 101-5.
- Patel A, Badhoniya N, Khadse S, Senarath U, Agho KE, Dibley MJ. South Asia: Infant Feeding Research Network. *Food Nutrition Bulletin.* 2010 Jun;31(2):314-3.
- Tewabe T. Timely initiation of breastfeeding and associated factors among mothers in Motta town, East Gojjam zone, Amhara regional state, Ethiopia, 2015: a cross-sectional study. *BMC Pregnancy Childbirth.* 2016 Oct 19; 16: 314-21.
- Kakati R, Rahman SJ. Timely Initiation of Breast Feeding and Its Determinants Among Mothers in Rural Areas of Kamrup District, Assam, India. *Indian Journal of Applied Research.* 2016 Aug; 6(8): 49-53.
- Ashwini S, Katti S. M. Comparison of breast feeding practices among urban and rural mothers: A cross-sectional study. *International Journal of Medicine and Public Health.* 2014; 4(1): 120-4.
- Demilew YM, Tafere TM, Abitew DB. Infant and young child feeding practice among mothers with 0-24 months old children in Slum areas of Bahir Dar City, Ethiopia. *International Breastfeeding Journal.* 2017; 12(26): 1-9.
- Kulkarni RN, Anjenaya S, Gujar R. Breast feeding practices in an urban community of Kalamboli, Navi Mumbai. *Indian J Community Med.* 2004 Oct; 29(4): 179-80.
- Parmar VR, Salaria M, Poddar B, Singh K, Ghotra H, Sucharu. Knowledge, attitudes and practices (KAP) regarding breast feeding at Chandigarh. *Indian J Public Health.* 2000;44:131-3. associated with early initiation of breastfeeding.