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Factors Associated with Timely Initiation of Breast Feeding: a Hospital Based Study

Anil C Mathew[1*], Dona Maria Philip[2], Jibin K Benny[2], Dhanya C[2], Manju T M[3], Ramesh S[4], Neelakandan K[5]

[1]Professor of Biostatistics, Department of Community Medicine PSG Institute of Medical Science and Research, Coimbatore, Tamil Nadu, India

[2]Trainee Biostatistician, Department of Statistics and Biostatistics, St. Thomas College, Pala, Kerala

[3]MD Community Medicine First year, Department of Community Medicine, PSG Institute of Medical Science and Research , Coimbatore, Tamil Nadu, India

[4]Associate Professor of Paediatrics, Department of Paediatrics, PSG Institute of Medical Science and Research, Coimbatore, Tamil Nadu, India

[5]Professor of Paediatrics, Department of Paediatrics, PSG Institute of Medical Science and Research, Coimbatore, Tamil Nadu, India

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Abstract

Background: Early or timely initiation of breastfeeding, specifically within 1 h of birth, refers to the best practice recommendation by the World Health Organization (WHO). Timely initiation of breastfeeding has the potential to prevent 22 % of neonatal deaths if all infants were breastfed within an hour after birth [1]. The primary objective of the paper is to estimate the prevalence of breast feeding initiation within first hour of life and the clinical correlates and socio demographic factors. **Material and methods:** This study was conducted at PSG Institute of Medical Science and Research, Coimbatore in the month of July 2018. Mothers with the children age below four years attending paediatric outpatient department were included in the study. Multivariate logistic analysis was usedto determine the factors associated with timely initiation breastfeeding practice. **Results:** The prevalence of timely initiation of breastfeeding within one hour was 56.5%. It was observed that the caesarean delivery, preterm delivery, sick condition of the baby, earlier breast surgery, lack of counselling after delivery and lack of skin to skin contact at birth were negatively associated with timely initiation of breastfeeding within one hour. **Conclusion:** The findings clearly indicated that nearly half of the mothers did not initiate breastfeeding within one hour of birth.

Key Words: breastfeeding, prevalence, sociodemographic factors, timely initiation.

Introduction

Timely initiation of breastfeeding is defined as putting the new born to the breast within one hour of birth [1] .Early or timely initiation of breastfeeding, specifically within 1 h of birth, refers to the best practice recommendation by the World Health Organization (WHO) [1]. Few studies revealed that breastfeeding initiation after the first hour of birth doubles the risk of neonatal mortality [2] and the promotion of breast feeding within one hour is a key component in child survival.

**Correspondence*

Anil C Mathew

Professor of Biostatistics, Department of Community Medicine PSG Institute of Medical Science and Research, Coimbatore, Tamil Nadu, India.

E-Mail: anilpsgmet@gmail.com

In addition it has also been shown that a total of 71% of neonatal mortality could be prevented by using antenatal, intra-partum and post natal interventions related to breastfeeding. In addition, many studies reported that the initiation of breast feeding within 24 hours of birth was significantly associated with reduction in 'all cause of mortality'. Recognizing the importance of timely initiation of breastfeeding, the Ethiopian government had developed infant and young child feeding guidelines giving appropriate emphasis to key messages on timely initiation of breastfeeding in 2004. Early initiation of breastfeeding (EIBF) promotes the release of oxytocin that enables contraction of the uterus and decreases postpartum haemorrhage [3]. Though the breast feeding within first hour of life is considered as an indicator of excellence of breast feeding and only 39% of the new born in the

developing countries are put to breast within one hour of birth. According to national family health survey 3, in India, the rate of early initiation of breast feeding stands low at 24.5% [4]. The characteristics associated with the practice have been little investigated. Hence the current aim is to estimate the prevalence of breastfeeding initiation within first hour of life and examine the factors associated with timely initiation of breastfeeding.

Materials and Methods

Study methods and participants

This study was conducted in the month of July 2018 at PSG Institute of Medical Science and Research, Coimbatore. Ethical clearance from the institution was obtained prior to the study. A total of 527 mothers of children under four years were participated in the study. Mothers with the children age below four years attending paediatric outpatient department were included in the study. Babies with congenital anomalies that interfere with breastfeeding were excluded from the study. A structured interviewer administered questionnaire was used to collect data from mothers about timely initiation of breast feeding related with youngest child. The mothers were asked how long after birth their babies were first put to the breast. Initiating breastfeeding within one hour was categorized as "yes", whereas later than one hour was categorized as "no". The socio-demographic characteristics considered were as education of the mother, age of the mother, occupation of the mother, education of the father, socio economic status, gender of the child, gestational age of the child, birth weight of the child, mode of delivery, condition of the child soon after delivery and counselling for breastfeeding after delivery. Modified BG Prasad socioeconomic scale has been inuse for determining the socio-economic status with people having per-capita income greater than or equal to Rs.6180 is included in class 1, class 2 ranging from Rs.3090-6179, class 3 ranging from Rs.1850-3089, class 4 ranging from Rs.930-1849 and below Rs.930 is included in class 5. The classification is done based on the Consumer Price Index (CPI) value of 279 for Coimbatore [5]. Each study participant was adequately informed about the objectives of the study and obtained consent for ensuring their confidentiality.

Statistical methods

The collected data were checked manually for completeness and entered in to SPSS (23) for analysis. Descriptive statistics was used to summarize and analyse the socio-demographic characteristics of the study participants and the prevalence of timely initiation of breast feeding. Proportions were compared by timely initiation of breast feeding using Chi-square test.To determine the factors associated with timely initiation breastfeeding practice, binary logistic regression analysis carried out. Variables that showed significant association with timely initiation of breastfeeding in the bivariate models were entered in a multivariable logistic model. Strength of association was measured using odds ratio and 95 % confidence intervals. p value < 0.05 was considered as statistically significant.

Results

A total of 527 women were studied. The socio-demographic characteristics of children and families were given in Table 1. The prevalence of timely initiation of breastfeeding within one hour was 56.5% (Table 2).

Table 1: Socio demographic characteristics of infants and Families

Characteristics		Number (%)
Infant characteristics Child's age(months) (Mean ± SD)		15.55 ± 11.92
Education of the Mother	Below 12th standard	138(26.2)
	Above 12th standard	389(73.8)
Mother's age (years)	15-24	108(20.5)
	25-34	388(73.6)
	35-44	31(5.9)

Mother's Occupation	House wife	403(76.5)
	Paid worker	124(23.5)
Education of the Father	Below 12th standard	129(24.5)
	Above 12th standard	398(75.5)
Socio economic status	Class 1 & 2	426(80.8)
	Class 3,4 & 5	101(19.2)
Gender of the child	Female	246(46.7)
	Male	281(53.3)
Gestational age of the child	Term	469(89.0)
	Pre term	58(11.0)
Birth weight of the child (gm)	<=2500	126(23.9)
	>2500	401(76.1)
Mode of delivery	Vaginal delivery	336(63.8)
	Caesarean	191(36.2)
Condition of the child	Well	454(86.1)
	Sick	73(13.9)
Counselling after delivery	Yes	326(61.9)
	No	201(38.1)

Table 2: Timely initiation of Breast Feeding (Hours)

Brest feeding in hours	**Number (%)**
Within one hour	298 (56.5)
Between 1-4hr	78(14.8)
After 4hr	151 (28.7)
Total	527 (100)

In logistic regression analysis, (Table 3) it was observed that the timely initiation of breast feeding was lower among caesarean delivery compared to vaginal delivery and the difference was statistically significant ($p<0.001$). The timely initiation of breastfeeding was more when the condition of mother was well as compared to those mothers with sick condition ($p<0.05$). Timely initiation of breastfeeding was lower among mothers having low birth weight children than children having normal birth weight ($p<0.001$). Late initiation of breast feeding was higher for pre- term babies than term babies($p<0.001$). It was also observed that the mothers with the well children tend to initiate breastfeeding within one hour than sick children ($p<0.001$). Increased number of antenatal visits had significantly higher prevalence of timely initiation of breastfeeding than less antenatal visits ($p<0.01$). The timely initiation of breastfeeding was less in mothers who had earlier breast surgery compared to mothers who had no earlier breast surgery ($p<0.05$). It was also observed that counselling about timely initiation of breastfeeding after delivery ($p<0.001$) and skin to skin contact at birth ($p<0.001$) were significantly associated with timely initiation of breastfeeding.

Table 3: Factors associated with timely initiation of breast feeding in univariate analysis

Variable		Total	Feeding started within one hour (%)	Feeding started after one hour (%)	odds ratio	p value
Total		527	298(56.5)	229(43.5)		
Age (mean, SD)		27.72,3.95	27.69,4.06	27.75,3.82		
Age of the mother (years)	35-44	31(5.9)	15(5)	16(7)	1.676	0.403
	25-34	388(73.6)	217(72.8)	171(74.7)	1.238	
	15-24	108(70.5)	66(22.2)	42(18.3)	1	
Education of the mother	Above 12th	389(73.8)	226(75.8)	163(71.2)	0.787	0.228
	Below 12th	138(26.2)	72(24.2)	66(28.8)	1	
Occupation of the mother	Employed	124(23.5)	73(24.5)	51(22.3)	0.883	0.550
	House wife	403(76.5)	225(75.5)	178(77.7)	1	
Mode of delivery	caesarean	191(36.2)	46(15.4)	145(63.3)	9.457	P<0.001
	vaginal	336(63.8)	252(84.6)	84(36.7)	1	
Condition of mother	Sick	28(5.3)	11(3.7)	17(7.4)	2.092	P<0.05
	Well	499(94.7)	287(96.6)	212(92.2)	1	
Use of medication	Yes	66(12.5)	35(11.7)	31(13.5)	1.176	0.538
	No	461(87.5)	263(88.3)	198(86.5)	1	
Religion	others	2(0.4)	2(7.0)	0(0)	0.000	0.513
	Muslim	28(5.3)	18(6.1)	10(4.3)	0.704	
	Christian	48(9.1)	27(9.1)	21(9.1)	0.986	
	Hindu	449(85.2)	251(84.2)	198(86.5)	1	
Gender of the baby	female	246(46.7)	150(50.3)	96(41.9)	0.712	0.055
	male	281(53.3)	148(49.7)	133(58.1)	1	
Birth weight of the baby(Kg) (mean, SD)		2.88,0.56	2.97,0.45	2.76,0.65		
Birth weight of the baby(gram)	<=2500	126(23.9)	53(17.8)	73(31.9)	0.462	P<0.001
	>2500	401(76.1)	245(82.2)	156(68.1)	1	
Gestational age at delivery	Pre term	58(11.0)	12(4.0)	46(20.1)	5.991	P<0.001
	Term	469(89.0)	286(96.0)	183(79.9)	1	
Condition of baby	Sick	73(13.9)	26(8.7)	47(20.4)	2.702	p<0.001
	Well	454(86.1)	272(91.3)	182(79.6)	1	
Education of the father	Above 12th	398(75.5)	232(77.9)	166(72.5)	0.750	0.156
	Below 12th	129(24.5)	66(22.1)	63(27.5)	1	
Parity	>=2	162(30.7)	98(32.9)	64(27.9)	.792	0.223
	1	365(69.3)	200(67.1)	165(72.1)	1	
Past experience in breast feeding	No	366(69.4)	200(67.1)	166(72.5)	1.291	0.184
	Yes	161(30.6)	98(32.9)	63(27.5)	1	
Antenatal visits	>8	379(71.9)	231(77.5)	148(64.6)	1	p<0.01
	≤8	148(28.1)	67(22.5)	81(35.4)	1.887	
Earlier Breast surgery	Yes	6(1.1)	1(0.3)	5(2.2)	6.629	p<0.05
	No	521(98.9)	297(99.7)	224(97.8)	1	

Counselling during antenatal visits	No	268(50.9)	146(49)	122(53.3)	1.187	0.330
	Yes	259(49.1)	152(51)	107(46.7)	1	
Counselling after delivery	No	201(38.1)	82(27.5)	119(52)	2.85	p<0.001
	Yes	326(61.9)	216(72.5)	110(48)	1	
skin to skin contact at birth	No	311(59.0)	132(44.3)	179(78.2)	4.502	p<0.001
	Yes	216(41.0)	166(55.7)	50(21.8)	1	
Socio-economic status	Class 5	4(0.8)	1(0.3)	3(1.3)	3.649	0.498
	Class 4	25(4.7)	12(4)	13(5.7)	1.318	
	Class 3	72(13.7)	42(14.1)	30(13.1)	0.869	
	Class 2	180(38.0)	122(36.2)	78(31.4)	0.811	
	Class 1	246(42.5)	135(45.3)	111(48.5)	1	

Inthe multivariate logistic regression analysis (Table 4)it was observed that caesarean delivery (p<0.001), preterm delivery (p<0.01), sick condition of the baby (p<0.01), earlier breast surgery (p<0.01), lack of counselling after delivery (p<0.001) and lack of skin to skin contact at birth (p<0.05) were negatively associated with timely initiation of breastfeeding within one hour.

Table 4: Factors associated with delayed initiation of breast feeding in multivariate analysis

Variables		**Adjusted Odds ratio**	**95% CI**	**p value**
Mode of delivery	caesarean	7.908	4.905-12.748	p<0.001
	vaginal	1		
Condition of mother	Sick	2.189	0.814-5.888	0.121
	Well	1		
Gestational age at delivery	Pre term	3.344	1.447-7.728	p<0.01
	Term	1		
Condition of the baby	Sick	2.943	1.280-4.858	p<0.01
	Well	1		
Antenatal visits	≤8	1.406	0.869-2.275	0.165
	>8	1		
Earlier breast surgery	Yes	20.378	1.962-211.695	p<0.01
	No	1		
Counselling after delivery	No	2.626	1.676-4.115	p<0.001
	Yes	1		
skin to skin contact at birth	No	1.847	1.144-2.983	p<0.05
	Yes	1		
Birth weight of the baby	>2500	0.736	0.428-1.265	0.267
	<=2500	1		

Discussion

Globally, around four million new born die, most from preventable causes each year. Death in the neonatal period accounts for 41 % of all deaths in children below four years. Timely initiation of breastfeeding can help to prevent neonatal deaths caused by infections such as sepsis, pneumonia and diarrhoea[6].In India, a multipronged strategy including large scale programmes, effective capacity building initiatives, strong partnerships, community-

based action, and strategic mass media communication led to an increase in the rates of early initiation of breastfeeding from 24.5% in 2006 to 44.6% in 2014 (i.e. a 1.8-fold increase) [7]. More recently, analyses on a large cohort of almost 100 000 new born from three large trials in Ghana, India and Tanzania has shown that, compared with infants who initiated breast feeding within the first hour of life, the risk of neonatal death among children who initiated breast feeding between 2 and 23 hours after birth was 41% higher (RR 1.41; 95% CI 1.24 to 1.62), and 79% higher among those who initiated breast feeding at 24–96 hours of birth (RR 1.79; 95% CI 1.39 to 2.30) [7].

In this study, caesarean delivery was associated with delayed breastfeeding initiation compared to vaginal delivery. Caesarean delivery is the most consistent predictor of late initiation of breastfeeding reported by many studies conducted in Ethiopia and abroad [8]. Mothers might be uncomfortable to breastfeed due to the pain experienced after surgery and the related factors associated with caesarean delivery.

It was observed that the gestational age of the child is a predictor of timely initiation of breastfeeding. The timely initiation of breastfeeding was significantly lower in preterm children. This result may be explained by the common problems, such as limited oral-motor skills, delayed lactogenesis in prematurely delivered mothers and babies and babies were used to give formula feed from hospital. Thus, effective antenatal care to prevent premature births will contribute to early breastfeeding initiation. The observational prospective study conducted on 500 new born delivered at Department of Rajkiya Mahila Chikitsalaya (RMC), Ajmer and out born section of Department of paediatrics, JLN MC, Ajmer reported that preterm infants had significantly lower rate of early initiation of breastfeeding than term infants [9].

Furthermore, condition of the baby was significantly associated with timely initiation of breastfeeding. It was observed that sick condition of the baby adversely affect the initiation of breastfeeding within one hour. Babies who may have sick at birth include those who experienced a difficult delivery, jaundice after delivery, those with birth defects, those born prematurely and these problems can lead to late initiation of breastfeeding. Fortunately for these babies special care is available. New born babies who need intensive medical attention are often admitted in to Neonatal intensive care unit (NICU) for hours after delivery. So mothers failed to initiate breastfeeding in the first hour after delivery.

Earlier breast surgery was found to be statistically significant with timely initiation of breastfeeding. Women undergo breast surgery for many reasons. Augmentations, reductions, mastectomies, lumpectomies, and biopsies, are often carried out on women of childbearing age.

These surgeries can adversely affect timely initiation of breastfeeding and the ability to make healthy breast milk supply for a child.

In addition we have also observed a significant association between timely initiation of breast feeding and counselling about timely initiation after delivery. Counselling about timely initiation has a major impact on timely initiation of breastfeeding. The findings suggest that more efforts are needed to create awareness in providing counselling for the timely initiation during antenatal visits and delivery time. This might be related to the fact that mothers received breastfeeding information/counselling immediately after delivery which is the most appropriate time for delivering key messages about breastfeeding[10].

Baby put on mother's abdomen (skin to skin contact between mother and baby) is found to be an important factor to initiate breast feeding early. WHO recommends that early skin to skin contact between mother and baby helps to initiate early breast feeding.

Birth weight of the child is a predictor in the association of timely initiation of breast feeding in univariate analysis. Socio economic status did not have any association with timely initiation of breast feeding. Previous studies showed that initiations of breastfeeding in low birth weight children were significantly delayed [9]. Also, here educational status of mother did not have any significant association with timely initiation of breast feeding ($p>0.05$). Prior findings showed that education was found to have predominant importance for timely initiation of breastfeeding. Parity and initiation of breast feeding were found to have a lack of association in this study.

This study involves several limitations. One limitation is the recall bias caused by difference in the accuracy or completeness of the recollections retrieved by study participants regarding the breastfeeding practice from the past (retrospective reporting). Another limitation is that the region of study has a generally higher socio-economic status and it was a hospital based study. Community based study program is an approach that emphasize on community empowerment as an important tool in health promotion. Even though the study has several strengths. We have obtained a large number of demographic and clinical data which can influence the association of timely initiation of breastfeeding. All respondents are asked the same basic questions in the same order by the same interviewer to minimize the potential observer bias. Advanced statistical analysis was used to analyse the association

of socio demographic and clinical correlates with timely initiation of breastfeeding.

Conclusion

This study revealed that the prevalence of timely initiation of breastfeeding was significantly lower than the present WHO recommendations [11]. The findings clearly indicate that appropriate strategies are needed to minimize delays in initiation of breastfeeding and for practising better timely initiation of breastfeeding within one hour of birth.

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