

Original Research Article

Prelacteal Feeding Practices Of Mothers Attending Infant Welfare Clinic In A Tertiary Hospital In Port Harcourt, Nigeria.

ABSTRACT

Background: Breastfeeding pattern established in the immediate neonatal period is a determinant of long term breastfeeding behaviour.

Objectives: To determine prelacteal feeding practices of mothers attending the Infant Welfare Clinic of a tertiary hospital in Port Harcourt, Nigeria.

Subjects and Methods: This was a cross sectional hospital based study carried out over a 3 month period. A structured, self-administered questionnaire was distributed to mothers whose babies were 0 to 6months old, who visited the infant welfare clinics of the hospital for any of the child health services such as immunization, nutrition counselling, weighing and vitamin A supplementation. Questions asked included socio-demographics, the first feeds given immediately after birth, how long it took to commence breastfeeding and reasons for giving any feeds other than breast milk.

Results: A total of 207 mothers participated in this study, mean age $30.73 \pm 4.129SD$. 146 (70.5%) mothers gave breast milk as the first feeds to their babies while 61(29.5%) gave prelacteal feeds. Fifty eight (28%) of the babies were put to breast within 2-12 hours after delivery. There was a significant relationship between time to first breast feed and administration of prelacteal feeds ($p = 0.000$)

Reasons for giving substances other than breast milk included poor or no lactation and caesarian section delivery. The commonest reason for not giving breast milk as the first feed was because breast milk did not flow. Factors which positively influenced giving breastmilk as the first feed included maternal level of education ($p=0.018$), delivery in government health facilities ($p=0.00$) and having vaginal delivery ($p=0.008$).

Conclusion: Prelacteal feeding practice is common among mothers in Port Harcourt. Time to first breast feed, mode of delivery and place of delivery were some of the factors that influenced use of prelacteal feeds.

Key words: prelacteal, feeding, practice

Introduction:

Human breast milk is accepted all over the world as the best source of nutrition for the human infant in the early days of life and is recommended by the World Health Organization (WHO) exclusively for the first six months of life with the introduction of age appropriate foods while continuing breast milk/breast feeding for two years and beyond.¹ This provides for adequate growth and reduces infant morbidity and mortality especially in developing countries.¹ However there are certain factors that mitigate against the practice of breast feeding, one of which is the administration of prelacteal feeds after birth. Prelacteal feeds are foods or fluids given to the newborn infant before breastfeeding is initiated.² Some of these foods/fluids include water, infant formula, glucose drinks or other readily available fluids within the environment. Studies have shown that such feeds constitute a barrier to both exclusive breast feeding and overall duration of breast feeding.^{2,3} The World Health Organization (WHO) and UNICEF have discouraged the

use of prelacteal feeds except medically indicated because of their adverse effects on infant feeding. However such practices still exist in many developing countries.⁴⁻⁷

Our hospital which is a tertiary institution was designated a Baby Friendly hospital several years ago and one of the WHO rules for a baby friendly hospital is that no fluids or drinks be given to newborn infants except medically indicated. The aim of the study was to determine prelacteal feeding practices among mothers bringing their babies for various reasons such as immunization, growth monitoring and nutrition counselling to the infant welfare clinics of the hospital.

Methods:

This was a cross sectional hospital based study carried out at the infant welfare clinics of the University of Port Harcourt Teaching Hospital (UPTH) over a 3 month period. The hospital provides pediatric and child health services to both inpatients and outpatients in and around the state and is one of the accredited Baby Friendly Hospital Initiative (BFHI) centers in Nigeria. The Infant Welfare Clinics of the hospital are run daily from 8am to 4pm except at weekends. Activities in the clinic include routine immunization, growth monitoring and nutritional counseling. Mothers who presented with children 0-6 months for routine immunization or other services were randomly recruited for the study over the period. Only mothers who gave consent for the study participated. Data were collected using a simple structured self-administered questionnaire. Information obtained included biodata, socio-demographics, place of antenatal care and delivery, mode of delivery, type of first feeds given to their babies, and reasons for any feeds other than breast milk. Investigators were on ground to assist mothers who had difficulties in reading or writing. Mothers were not allowed to take away the questionnaires and same were retrieved as soon as they had been filled. Parental educational status and occupation were used to

determine social class using Oyedeji's method.⁸ Data collected were entered into an excel spread sheet and analyzed using the Statistical Package for Social Sciences version 20.0 software. Chi-square test was used to test for association between independent variables. P values < 0.05 were considered statistically significant.

Results:

Two hundred and seven mothers participated in the study. The mean age of the mothers was 30.73 ± 4.13 . One hundred and forty six (70.5%) mothers had tertiary level of education while 55 (26.6%) had secondary level of education. Two hundred and one mothers (97.1%) had antenatal care, most of whom were in recognized Government owned health facilities including UPTH (111; 53.9%). One hundred and fifteen (55.6%) mothers delivered vaginally while 98 (47.3%) delivered by caesarian sections either elective or emergency.

Table 1 shows the general characteristics of the mothers.

Forty seven mothers (22.7%) put their babies to the breast within one hour of delivery while 38 (18.4%) put their babies to breast after 24 hours.

One hundred and forty six (70.5%) mothers gave breast milk as the first feed to their babies.

Other substances given included water, glucose drinks and infant formula. Table II shows different first feeds given to babies and time to first breast feed. There was a significant relationship between time to first breast feed and administration of prelacteal feeds ($p = 0.000$)

Reasons for giving substances other than breast milk included poor or no lactation and caesarian section delivery. (Table III)

Tale IV shows relationship between different variables and administration of prelacteal feeds.

There was a significant relationship between place of birth and administration of prelacteal feeds

$p=0.000$. Babies born outside the UPTH were more likely to receive prelacteal feeds.

Maternal level of education and mode of delivery were also significantly associated with administration of prelacteal feeds ($p<0.05$).

There was no significant relationship between maternal age, baby's sex and social class ($p\geq 0.05$)

One hundred and thirty six mothers (65.7%) were exclusively breast feeding at the time of this

report. Of the 71 (34.3%) mothers who were not exclusively breast feeding, reasons given

included; not enough breast milk (43; 60.6%), inability to cope because of work (18; 25.4%),

preference for mixed feeding (7; 9.9%) and medical reasons (2; 2.8%). Mothers who did not

administer prelacteal feeds were more likely to sustain exclusive breast feeding $p = 0.000$ (Table

V)

Table 1: Maternal characteristics

Place of antenatal care	Frequency	Percent
Government owned health facility	171	82.6
Private health facility	25	12.1
Others- Traditional birth attendant, home, maternity homes, etc	11	5.3
Place of delivery		
Government owned health facility	149	72
Private health facility	41	19.8
Others- Traditional birth attendant, home, maternity homes, etc	12	5.8
Total		
Type of delivery		
Normal delivery	115	55.6
Caesarian section	88	42.5
Elective	45	21.7
Emergency	43	20.8
Assisted vaginal delivery	4	1.9
	207	100
Mothers education		

Tertiary	146	70.5
Secondary	55	26.6
Primary	5	2.4
None	1	0.5
Total	207	100

Table II: Types of first feeds given to babies and time to first breast feed

Variable	Frequency	Percentage
First feed given to babies		
Breast milk	146	70.5%
Glucose drinks	40	19.3
Infant formula	10	4.8
Water	9	4.4
Others	2	1.0
Total	207	100.0
Time to first breastfeed		
Within 30mins	23	11.1
30mins – 1 hour	24	11.6
>1-2 hours	45	21.7
>2-12 hours	58	28
>12-24 hours	14	6.8
>24 hours	41	19.8

Never breastfed	2	1
-----------------	---	---

Table III: Reasons for administration of prelacteal feeds

Reason	Frequency	Percent
Breast milk not flowing	55	26.6
Caesarian section delivery	3	1.4
Baby was too hungry	1	0.5
Breast milk was sour	1	0.5
Retracted nipples	1	0.5

Table IV: Relationship between different variables and administration of prelacteal feeds

Variable	Administration of prelacteal feeds		P-value
	No (%)	Yes (%)	
Delivery place			
UPTH	111 (53.9)	23(11.1)	P=0.000
Other Government facility	13 (6.3)	7(3.4)	
Private hospital	13 (6.3)	29(14.0)	

Others – Home, maternity, TBA	8 (3.9)	3(1.5)	
Delivery mode			
Vaginal	89(43)	15(7.2)	P =0.008
Assisted vaginal	1(0.5)	3(1.5)	
Emergency cs	32(15.5)	13(6.3)	
Elective cs	24(11.6)	19(9.2)	
Maternal education			
None	0 (0)	1 (0.5)	X ² 24,36P= 0.018
Primary	2 (1.0)	3 (1.5)	
Secondary	39 (18.8)	16 (7.7)	
Tertiary	105 (50.7)	41 (19.8)	
Social class			
High	25	8	P=0.842
Middle	75	33	
Low	46	20	
Baby's sex			
Male	74	31	P=0.995
Female	72	30	
Maternal age (years)			
<16-20	0	0	X ² 267,09, p=0.17
21-25	8 (3.9)	11 (5.3)	
26-30	62(30)	27(13)	

31-35	54(26.1)	15(7.2)	
≥36	22(10.6)	8(3.9)	

Table V: Relationship between prelacteal feeds and sustained exclusive breast feeding

	Exclusive breast feeding		P value
	Yes	No	
Prelacteal feeds			0.000
Yes	61	33	
No	146	38	
Total	207	71	

Discussion:

The study shows a prevalence of prelacteal feeding of 29.5% among the mothers studied. This prevalence was lower than previously reported prevalence over time as shown from the Nigeria Demographic and Health Survey data for the period (2003–2013).⁹ The survey showed higher but fluctuating prevalence of prelacteal feeding practices over time. The difference may be due to the differences in the study groups i.e. house hold surveys versus this study done in a Baby Friendly hospital. It was also low when compared to findings from other developing countries.^{10,}
¹¹ The prevalence was however higher than 11% reported in Benin, Nigeria.¹² These different rates could be due to differences in cultural beliefs and practices in different communities even within the same country. Studies have shown a relationship between prelacteal feeding patterns and cultural practices of nursing mothers [4,5].^{13, 14}

It is also important to note that this study, was based on self-reports, which have been reported as a likely source of measurement bias,¹⁵ as it was dependent on mothers' ability to recall first feeds. However the fact that only mothers who were nursing infants aged 0-6 months participated may have reduced this bias.

Many of the mothers had either secondary or tertiary education, corroborating findings that mothers' level of education correlates with their use of health services.^{16, 17} A previous study in Benin on prelacteal feeds showed similar maternal characteristics.¹²

There was a significant relationship between maternal education and introduction of prelacteal feeds. The higher the level of education the less likely the mothers were to give prelacteal feeds.

This is in keeping with findings from a demographic survey done in Nigeria which showed significantly lower rates among mothers with secondary or higher levels of education.⁹ Other authors also reported that when compared to the mothers with no education, mothers with some

level of education were less likely to provide prelacteal feeds.^{2,10} This could be attributed to the fact that educated mothers are more likely to have antenatal care and hence better access to information on breast feeding and its beneficial effects. However, findings were at variance with reports from Benin, Nigeria which showed no significant relationship between maternal education and prelacteal feeding.¹² This disparity cannot be readily explained as both the Benin study¹² and the present study had similar characteristics in terms of educational status of the participants. This may point to other factors such as culture influencing practice.

The finding of a non-significant relationship between socioeconomic class and administration of prelacteal feeds was at variance with reports from the Nigerian Demographic Health Survey.

⁹The reason for this disparity may be the relatively lower numbers of mothers in the low social classes in this study. It also differed from the Nepal study² which showed lower prelacteal feeding practice rates amongst the poorest wealth groups and also at variance with findings by Wadde et al¹⁸ and Dawa et al¹⁹ in India which showed higher rates of prelacteal feeding in the lower socioeconomic groups. These findings again may represent variations in cultural practices in different communities.

Mothers who delivered in the Government owned health facilities especially UPTH were less likely to use prelacteal feeds. This is not unexpected as the hospital is baby friendly and mothers are more likely to receive breast feeding education in such centers. Information about breastfeeding given by health professionals to pregnant woman during antenatal visits encourage good breastfeeding practices and mitigate against harmful practices like prelacteal feeding.²⁰

Compared to mothers who delivered vaginally, more than half of the mothers who had operative deliveries administered prelacteal feeds to their babies. This has been reported by other authors.

²¹⁻²³ Cesarean delivery has been documented as an important barrier to breastfeeding initiation and this is attributed to the routines of postoperative care which delay or interrupt the contact between mothers and their newborns.²¹⁻²³ This delay encourages use of prelacteal feeds. Authors have suggested that reducing the rates of cesarean section deliveries is likely to reduce the prevalence of prelacteal feeding.²²

The study did not also show a relationship between maternal age and administration of prelacteal feeds. This was in contrast to the findings in Benin.¹² It is possible that other factors such as education and place of delivery could have blunted any effects of maternal age in this study. There was also no relationship between infants' sex and administration of PLF. This is similar in finding in Egypt demographic and health survey 2008. Other authors have shown that females were more likely to be given prelacteal feeds.^{23, 24}

The commonest reason for prelacteal feeding was insufficient milk production or delayed lactation and water was the main prelacteal feed. This has been reported by other Nigerian authors.^{12, 25} In many developing countries, portable water is often in short supply, thus water as a prelacteal feed may in addition to inhibit breastfeeding, also be harmful to the newborn. WHO reports that diarrhea and malnutrition linked to ingestion of contaminated water causes significant morbidity and mortality in young children.²⁶ Furthermore the study showed that time to first breast feed was significantly associated with introduction of prelacteal feeds. Delayed breastfeeding initiation has been reported as a reason for premature introduction to prelacteal feeding with the associated risk of depriving children from the protective effects of colostrum.²⁷ Similarly, prelacteal feeding has been linked to sub-optimal breastfeeding practices such as not giving colostrum to newborns and delayed initiation of breast feeding.²⁸ In a population based

cohort study from the Honduras water and milk based prelacteal feeds were associated with delay in the time at which the child was offered the breast for the first time.²⁹ It could be inferred that when breast feeding initiation is delayed there is a tendency to initiate prelacteal feeds and once prelacteal feeds are introduced there is a tendency to delay breast feeding. This vicious cycle has been noticed and reported and is one of the reasons why WHO discourages prelacteal feeding.^{30,31}

There was also significant relationship between nonuse of prelacteal feeds and maintenance of exclusive breast feeding. This has also been reported by other authors.^{27,28,32} This buttresses the fact that administration of prelacteal feeds should be strongly discouraged and mothers need support to promote and protect breastfeeding especially in the immediate post partum period.

Conclusion:

The practice of prelacteal feeding is common. Factors such as maternal education, place of delivery, mode of delivery and time to first breast feed are significantly associated with administration of prelacteal feeds. Exclusive breast feeding rates are lower in mothers who administer prelacteal feeds to their babies. Mothers therefore need education and support to promote and protect breastfeeding in the immediate post-partum period.

References

1. WHO/UNICEF. Global strategy for infant and young child feeding. Geneva, Switzerland: WHO; 2003.
2. Vishnu Khanal, Mandira Adhikari, Kay Sauer, Yun Zhao. Factors associated with the introduction of prelacteal feeds in Nepal: findings from the Nepal Demographic and Health Survey 2011 *Int Breastfeed J.* 2013; 8: 9.

3. Xu F, Binns C, Zheng S, Wang Y, Zhao Y, Lee A. Determinants of exclusive breastfeeding duration in Xinjiang, PR China. *Asia Pac J Clin Nutr.* 2007; 16(2):316-21.
4. Roy M.P., Mohan U., Singh S.K., Singh V.K., Srivastava A.K. Determinants of prelacteal feeding in rural northern India. *Int. J. Prev. Med.* 2014;5:658–663.
5. Salve Dawal S., Inamdar I.F., Saleem T., Priyanka S., Doibale M.K. Study of pre lacteal feeding practices and its determinants in a rural area of Maharashtra. *Sch. J. Appl. Med. Sci.* 2014; 2: 1422–1427.
6. Boccolini C., Pérez-Escamilla R. Risk factors for prelacteal feedings in seven Latin America and Caribbean countries: A multilevel analysis. *FASEB J.* 2014;28(Suppl. 131.7)
7. Boccolini C.S., Pérez-Escamilla R., Giugliani E.R., Boccolini P.M. Inequities in milk-based prelacteal feedings in Latin America and the Caribbean: The role of cesarean section delivery. *J. Hum. Lact.* 2014;31:89–98. doi: 10.1177/0890334414559074.
8. Oyedeji, G.A. (1985) Socioeconomic and Cultural Background of Hospitalized Patients in Ilesa. *Nigerian Journal of Paediatrics*, 12, 111-117.
9. National Population Commission (NPC) [Nigeria] and ICF International. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria and Rockville, Maryland, USA: NPC and ICF International; 2014.
10. Kishore S, Garg B S. Practice of prelacteal feeding in a rural community. *Indian J Pub Hlth* 1999; 43:144-7.

11. Ahmed F U, Rahman M E, Alam M S. Prelacteal feeding: influencing factors and relation to establishment of lactation. *Bangladesh Med Res Counc Bull* 1996; 22:604. 7
12. Ibadin OM Ofili NA Monday P Nwajei CJ Prelacteal feeding practices among lactating mothers in Benin City, Nigeria. *Niger J Paed* 2013; 40 (2): 139 –144
13. Khanal V, Adhikari M, Sauer K, Zhao Y. Factors associated with the introduction of prelacteal feeds in Nepal: findings from the Nepal Demographic and Health Survey 2011. *Int Breastfeed J.* 2013; 8: 8(1):9.
14. Hossain MM, Radwan MM, Arafa SA, Habib M, DuPont HL Prelacteal infant feeding practices in rural Egypt *J Trop Pediatr.* 1992 Dec; 38(6):317-22.
15. Meghan E. Short, Ron Z. Goetzl, Xiaofei Pei, Maryam J. Tabrizi, Ronald J. Ozminkowski, Teresa B. Gibson, Dave M. DeJoy, Mark G. Wilson. How Accurate are Self-Reports? An Analysis of Self-Reported Healthcare Utilization and Absence When Compared to Administrative Data *J Occup Environ Med.*
16. Jaja T, Opara PI, Otaigbe BE. Healthcare seeking behavior for childhood illnesses in Port Harcourt, Southern Nigeria. *The Nigerian Health Journal* 2011; 10: 43-47
17. Thind A, Cruz AM. Determinants of children's health service utilization in the Phillipines. *J Trop Pediatr.* 2003;49:260–73.
18. Wadde SK, Yadav VB; Prelacteal Feeding Practices in a Rural Community. *Indian Medical Gazette.* September 2011; 337-41.
19. Dawal S , Inamdar I F, Saleem T, Priyanka S, Doibale M K. Study of Pre Lacteal Feeding Practices and its Determinants in a Rural Area of Maharashtra *Sch. J. App. Med. Sci.*, 2014; 2(4D):1422-1427

20. Vieira TO, Vieira GO, Giugliani ER, Mendes CM, Martins CC, Silva LR.
Determinants of breastfeeding initiation within the first hour of life in a Brazilian population: cross-sectional study. *BMC Public Health*. 2010 Dec 9; 10():760.
21. Patel A, Banerjee A, Kaletwad A. Factors associated with prelacteal feeding and timely initiation of breastfeeding in hospital-delivered infants in India. *J Hum Lact*. 2013 Nov; 29(4):572-8.
22. Boccolini CS, Pérez-Escamilla R, Giugliani ER, Boccolini Pde M. Inequities in milk-based prelacteal feedings in Latin America and the Caribbean: the role of cesarean section delivery. *J Hum Lact*. 2015 Feb;31(1):89-98. doi: 10.1177/0890334414559074. Epub 2014 Nov 24.
23. Abdel- Hady El- Gilany and Doaa M. Abdel Hady newborn first feed and prelacteal feeds in Mansoura, Egypt. *Biomed Research international* 2014;
24. Jagzape T, Lohkare A, Vagha J, Lakhkar BB. Prevalence of prelacteal feeding practice in Wardha and the effect of antenatal education on it. *Pediatric Oncall* 2009; 6
25. Jimoh AO, Adaji SE, Adelaiye HA, Olorukooba AA, Garba C, Mfuh AL, Bawa U, Idris S, Shittu OS. Factors associated with prelacteal feeding practices in a rural northern Nigerian setting, *South African Journal of Clinical Nutrition* 2018; 31:2, 37-42
26. Prüss-Üstün A, Bos R, Gore F, Bartram J. Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health. Geneva: World Health Organization; 2008

27. Setegn T, Gerbaba M, Belachew T. Determinants of timely initiation of breastfeeding among mothers in Goba Woreda, South East Ethiopia: a cross sectional study. *BMC Public Health*. 2011 Apr 8; 11(0):217.
28. Roy MP, Mohan U, Singh SK, *et al.*: Determinants of prelacteal feeding in rural northern India. *Int J Prev Med*.2014; **5**(5): 658–63.
29. Perez-Escamilla R, Segura-Millan S, Canahuati J, *et al.* Prelacteal feeds are negatively associated with breast-feeding outcomes in Honduras. *J Nutr*. 1996;126(11):2765–73.
30. Athavale AV, Athavale SA, Deshpande SG, Sangole S. Initiation of breast feeding by urban women. *Health and population perspectives and issues* 2004; **m27**; 117-125
31. WHO/UNICEF; Innocent Declaration on the protection, promotion and support of breast feeding in the 1990s. a global initiative, UNICEF, New YORK, NY, USA 1990.
32. Das A, Sai Mala G, Singh RS *et al.* Prelacteal feeding practice and maintenance of exclusive breast feeding in Bihar, India – identifying key demographic sections for childhood nutrition interventions: a cross-sectional study *Gates Open Res* 2019, 3:1