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Assessment of breastfeeding position and attachment (ABPA) in a tertiary care centre in Chennai, India: an observational descriptive cross-sectional study

Nalini Aswathaman¹, Mohamed Sajjid^{2*}, C. N. Kamalarathnam¹, A. T. Arasar Seeralar¹

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*Correspondence: Dr. Mohamed Sajjid,

E-mail: mdsajjid@yahoo.com

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ABSTRACT

Background: Effective breastfeeding becomes an art with experience. Correct position and attachment is the first step necessary for exclusive breast feeding. However, studies assessing correct position and attachment for breastfeeding in South India are sparse. Hence our study aimed to assess the percentage of mother infant dyads with correct breastfeeding position and attachment along with factors influencing them in a Tertiary care Hospital.

Methods: A descriptive cross-sectional study was conducted among the stable dyads in Institute of Obstetrics and Gynaecology using quasi random sampling. 101 dyads were observed for correct position, attachment and effective suckling using WHO B-R-E-A-S-T feed observation form and were scored. Data was analyzed using SPSS software with chi square test, univariate logistic regression and spearman correlation test.

Results: Among the 101 dyads, only 30.7% of them had good or average position, 52.47% had good or average attachment and 62.3% had effective suckling at breast. There was significant correlation between breast problem in mother with incorrect position and poor attachment. NICU stay and breast problems were significantly associated with poor attachment. Effective suckling improved significantly as gestational age matured and in infants who had no NICU stay.

Conclusions: Practical demonstration on how to hold infants in correct breastfeeding position and drilling with key points for correct position and attachment as soon as possible after delivery will go a long way for promoting exclusive and effective breastfeeding by learning correct technique. Rechecking after counselling will reinforce this learned art.

Keywords: Breastfeeding assessment, BREAST feed observation

INTRODUCTION

Effective breastfeeding is an art with experience.¹ Breastmilk is the only food for the neonate with vast benefits. Breastfeeding protects infants from diarrhoea, pneumonia and malnutrition which are the major

contributors of infant death, on long run protects from asthma, diabetes and chronic intestinal diseases.²⁻⁴ Artificial feeds contribute to infant deaths.^{5,6} Exclusive breastfeeding rates are low in Tamil Nadu only 65.5% with 48.6% (NFHS 3 survey), 56% (NFHS 4 Survey) in India and 52% in Irular community in Chennai.^{1,7-9} One

¹Department of Neonatology, Institute of Child Health and Hospital for Children, Madras Medical College, Chennai, Tamil Nadu, India

²Department of Neonatology, Institute of Obstetrics and Gynaecology, Madras Medical College, Chennai, Tamil Nadu, India

of the reasons for this may be perceived less milk secretion by the mother due to incorrect positioning and attachment of neonates to the breast. Modern world feed the neonate with breastmilk less and opt for formula may be due to inadequate practical knowledge of breastfeeding position and attachment. Hence correct position and attachment is the first step necessary for exclusive breast feeding however its practical assessment is lacking. Hence, mother infant dyad should be observed so that wrong position and attachment can be corrected.

Vast number of studies are there in breastfeeding rate. however very few studies are there in assessment of correct position and attachment of mother infant dyad especially in Tamil Nadu. One study assessed correct position, attachment of neonate on breastfeeding after video counselling.¹⁰ In another study conducted in Tamil Nadu had trained ANM on correct position and attachment as per Integrated Management of Neonatal and Childhood illness (IMNCI) guidelines during breastfeeding week similar to that Dongre, Gupta and Gera study. 11-14 Integrated health and nutrition programme along with nongovernmental organisation in community level will increase exclusive breastfeeding rates. 15-19 However, there are studies from Libya and North India on this aspect of breastfeeding. 12-14 Most of the problems associated with breastfeeding can be solved with correct position and latchment in will not come early in neonatal period.¹² Significant association with nipple sore and incorrect position has been found. In Libyan study primipara and young mothers had association with poor position (24%) and attachment (30%).²⁰ WHO breast feed observation form has multiple components on position and attachment which was used to observe and assess breastfeeding in neonates.²¹ Optimal position and attachment will avoid sore nipples.²² Feasibility study was conducted in rural North India on IMNCI guidelines on effective breastfeeding.¹³

By knowing the magnitude of problem and factors influencing the problem of incorrect position and attachment, this study will pave way for interventions needed to make major change in the practice of point of care service needed by the mother and neonate dyad. It will improve the quality of essential newborn care in a low resource setting using simple measures. The aim of this study was to assess the practical knowledge of mother infant dyad on breastfeeding position and attachment among women delivered in a tertiary care hospital in Chennai.

Primary objective of this study was to assess the percentage of mother infant dyads with correct position and attachment on breastfeeding and the factors associated with incorrect position and attachment.

Secondary objectives of this study were to assess the percentage of neonates with effective suckling and factors involved in it and to assess whether any significant relationship exists between position, attachment and

effective suckling and factors influencing them significantly.

METHODS

It was a descriptive cross-sectional study conducted in Institute of Obstetrics and Gynaecology (IOG) Chennai over a period of 1 month (June 2018) on infant mother dyad admitted in IOG.

Nearly 1000 deliveries happen in IOG monthly including LSCS 40% and vaginal delivery 60%. 10% of total population was selected randomly from the case records separately in vaginal delivery ward and LSCS ward to understand the magnitude of the problem as in proportion to both modes of delivery. 101 mother-infant dyads (64 vaginal delivery and 37 LSCS) admitted in IOG postnatal ward in a stable condition on breast feeds were chosen using one population dichotomous variable by quasi random method after getting institutional ethical committee clearance. Dyads who were fulfilling all the inclusion criteria. They were excluded even if they had one exclusion criteria.

Inclusion criteria

- Stable mother infant dyad in postnatal ward
- Given informed consent.

Exclusion criteria

- Sick neonate in NICU or transferred to NICU
- Sick mother in ICU
- Not given informed consent
- Infants fed within 1 hour.

Each mother was taken informed written consent in local language (Tamil) and if they are willing to participate in the study, mother infant dyad was observed for 5 minutes by a single observer, if at least an hour had lapsed since last feed. They were graded according to WHO breast feed form. Scores were given as good, poor or average for position, attachment and effective suckling as adapted from the Libyan study. Totally 101 mother infant dyads were assessed over a period of 1 month. Data was collected, categorical variables were expressed in number and percentages. Descriptive and bivariate analysis was conducted. Statistical analysis was performed using IBM SPSS statistics version 22.0 with Chi square test, univariate logistic regression and spearman correlation. p value of <0.05 was considered statistically significant.

RESULTS

Among 101 dyads, 61.3% of mothers delivered vaginally. 4% of mothers had teenage pregnancy and 61.3% were primiparous mother. More than one fifth of mothers had breast problems in the form of breast engorgement (45.4%), sore nipple (4.4%), flat nipple (13.6%) and

pulled down breast (36.6%). Only two fifths of the mothers (43.6%) were taught how to breast feed. Among those people who were taught breastfeeding, only 45.45% (36.36% by nurses and 9.09% by doctors) were taught by medical professional. Rest (54.55%) of them were taught

by relatives, own experience or neighbour. Only 30.7% of mothers held their infants in good or average position and 60.4% of mothers' emotional attachment with their babies were good (Table 1).

Table 1: Demographic characteristics of mothers.

Maternal characteristics	Classification	Vaginal delivery No. (%) 64 (61.3)	LSCS No. (%) 37 (38.7)	Total No. (%) 101 (100)
	<20	4 (6.2)	0 (0)	4 (4)
Maternal age(years)	20-30	59 (92.2)	31(83.8)	90 (89.1)
	>30	1 (1.6)	6 (16.2)	7 (6.9)
	1	41(64.1)	21 (56.8)	62 (61.4)
Parity	2	18 (28.1)	13 (35.1)	31 (30.7)
-	3	5 (7.8)	3 (8.1)	8 (7.9)
Education	Up to 10th	24 (37.5)	18 (48.6)	42 (41.6)
	Higher secondary/Diploma	24 (37.5)	11 (29.8)	35 (34.6)
	Graduate	16 (25)	8 (21.6)	24 (23.8)
D (11	Yes	9 (14.1)	13 (35.1)	22 (21.8)
Breast problem	No	55 (85.9)	24 (64.9)	79 (78.2)
Anatomy of breast	Good	49 (76.6)	25 (67.6)	74 (73.3)
	Average	13 (20.3)	12 (32.4)	25 (24.8)
	Poor	2 (3.1)	0 (0)	2 (1.9)
Shown how to breast feed	Yes	33 (51.6)	11 (29.8)	44 (43.6)
	No	31 (48.4)	26 (70.2)	57 (56.4)
Position	Good	11 (17.2)	3 (8.1)	14 (13.9)
	Average	11 (17.2)	6 (16.2)	17 (16.8)
	Poor	42 (65.6)	28 (75.7)	70 (69.3)
Emotional response	Good	45 (70.3)	16 (43.2)	61 (60.4)
	Poor	19 (29.7)	21 (56.8)	40 (39.6)

Table 2: Demographic characteristics of infants.

Infant characteristics	Classification	Vaginal delivery No. (%)	LSCS No. (%)	Total No. (%)
Gestational age(weeks)	<34	4 (6.3)	4 (10.8)	8 (8)
	34-36	7 (10.9)	9 (24.3)	16 (15.8)
	>/=37	53 (82.8)	24 (64.9)	77 (76.2)
Birth weight (Kg)	<2.5	16 (25)	10 (27)	26 (25.8)
	>/=2.5	48 (75)	27 (63)	75 (74.2)
Sex	Male	39 (60.9)	23 (62.2)	62 (61.4)
	Female	25 (39.1)	14 (37.8)	39 (38.6)
Age	0-7 days	48 (75)	21 (56.8)	69 (68.3)
	8-28 days	16 (25)	16 (43.2)	32 (31.7)
NICU care	Yes	24 (37.5)	18 (48.6)	42 (41.6)
	No	40 (62.5)	19 (51.4)	59 (58.4)
Singleton	Singleton	64 (100)	35 (94.6)	99 (98.0)
	Twins	0 (0)	2 (5.4)	2 (2.0)
Attachment	Good	34 (53.1)	13 (35.1)	47 (46.5)
	Average	4 (6.3)	2 (5.4)	6 (6.0)
	Poor	26 (40.6)	22 (59.5)	48 (47.5)
Effective suckling	Good	46 (71.9)	17 (45.9)	63 (62.4)
	Poor	18 (28.1)	20 (54.1)	38 (37.6)
Response of the baby	Good	54 (84.4)	28 (75.7)	82 (81.2)
	Average	7 (10.9)	5 (13.5)	12 (11.9)
	Poor	3 (4.7)	4 (10.8)	7 (6.9)

76.2% were term babies with three fifths being male. Only one set of twins were there. 25.8% of babies were low birth weight and 41.6% of babies required NICU care

totally. Good attachment was seen only in 46.5% of infants and good response to feed in 81.2% (Table 2).

Table 3: Factors affecting poor position, attachment and effective suckling.

Poor position	Odds ratio	95% cor	nf.interval	P value
Mode of delivery	- Odds 14110	70 70 001		T varae
Vaginal	Ref			
Lscs/forceps	2.89	1.10	7.57	0.03
Breast problem	_10/	1110	7107	0.00
Yes	12.86	1.64	100.00	0.02
No	Ref	1.01	100.00	0.02
Poor attachment	-	•		-
NICU				
Yes	2.73	1.21	6.18	0.02
No	Ref		0.120	
Mode of delivery		-		
Vaginal	Ref			
Lscs/forceps	2.53	1.11	5.77	0.03
Breast problem				
Yes	7.35	2.27	23.80	0.00
No	Ref			
Response		-		
Maternal age				
<20 years	1.00	-		
20-30 years	Ref			
>30 years	6.80	1.05	44.19	0.05
Gestational age				
<34 weeks	8.22	1.14	59.15	0.04
34-36 weeks	3.52	0.54	23.05	0.19
≥37 weeks	Ref			
Breast problem				
Yes	11.32	2.02	63.36	0.01
No	Ref			
Emotional bonding		-		
Mode of delivery				
Vaginal	Ref			
Lscs/forceps	3.16	1.37	7.31	0.01
Breast problem		-		
Yes	8.28	2.73	25.09	0.00
No	Ref			
Response				
Maternal age	-			-
<20 years	1.00			
20-30 years	Ref			-
>30 years	6.80	1.05	44.19	0.05
Gestational age				
<34 weeks	8.22	1.14	59.15	0.04
34-36 weeks	3.52	0.54	23.05	0.19
≥37 weeks	Ref			
Breast problem				
Yes	11.32	2.02	63.36	0.01
No	Ref			
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Reason for poor position was assessed using maternal characteristics like maternal age, parity, mode of delivery, education of the mother and whether been taught how to feed and if they had any breast problems. Only breast problem and LSCS in the mother was significantly associated with poor position with odds ratio and 95% confidence interval of 12.86 (1.64-100.00) and 2.89 (1.1-7.57) respectively with p value of <0.05. Though the odds among mother of elder age and primiparous mothers were higher they were not statistically significant. Interestingly teenage mothers and

below higher secondary education mothers had lower odds of poor position but not statistically significant. Reasons for poor attachment like early neonatal period, prematurity and NICU stay were assessed. Among them, NICU stay, LSCS and breast problem were significantly associated with poor attachment to the breast with odds ratio and 95% confidence interval of 2.73 (1.21-6.18), 2.53 (1.11-5.77) and 7.35 (2.27-23.8) respectively. Though preterm and low birth weight babies had higher odds of poor attachment, it was not statistically significant.

Table 4: Significant correlation among good position, attachment and effective suckling.

Variables	Poor Position	Poor Response	Poor Emotional bonding	Poor Anatomy	Poor Attachment	Ineffective suckling
Poor	1	0.0971	0.495	0.0946	0.5043	0.4282
Position	1	(0.3342)	(<0.001)	(0.3468)	(<0.001)	(<0.001)
D	0.0971	1	0.0979	0.0388	0.2867	0.3514
Poor response	(0.3342)	1	(0.3303)	(0.7002)	(0.0036)	(0.0003)
Poor	0.495	0.0979	1	0.0302	0.4861	0.274 (0.0001)
Bonding	(<0.001)	(0.3303)	1	(0.7642)	(<0.001)	0.374 (0.0001)
Poor anatomy	0.0946	0.0388	0.0302	1	0.4861 (0.0)	0.374 (0.0001)
	(0.3468)	(0.7002)	(0.7642)	1		
Poor	0.5043	0.2867	0.4861	0.007	1	0.7752
attachment	(<0.001)	(0.0036)	(<0.001)	(0.9443)	1	(<0.001)
Ineffective	0.4282	0.3514	0.274 (0.0001)	0.0363	0.7752	1
Suckling	(<0.001)	(0.0003)	0.374 (0.0001)	(0.7185)	(<0.001)	1

Spearman rho (p value)

Among the factors studied like early neonatal periods, gestational age and NICU stay, ineffective suckling was significantly associated with NICU stay with odds ratio of 3.5 (95% CI of 1.5-8.3) and breast problems in the mother with odds ratio of 5.22 (95% CI of 1.88-14.47). Though preterm and low birth weight babies had higher odds of ineffective suckling, they were not statistically significant. Emotional bonding was significantly poor if there was breast problem and LSCS, with odds ratio & confidence interval of 8.28(2.73-25.09) 3.16(1.37-7.31) respectively. Baby's' response breastfeeding was significantly affected, if there was breast problem with odds ratio of 11.32 and 95% confidence interval of 2.02-63.3. Though the odds of poor response were higher in low birth weight babies and babies who had NICU stay, it was not statistically significant (Table 3).

Poor position was significantly correlated with poor emotional bonding, attachment and ineffective suckling. Poor attachment was significantly correlated with poor position, poor emotional bonding and ineffective suckling. Thus, poor position, poor attachment, poor emotional bonding, ineffective suckling and poor response of the baby were all interrelated with breast

problem being the predominant factor influencing all. (Table 4)

DISCUSSION

In our study, we found 4% of mothers had teenage pregnancy though legal at marriage is 18 years for girls and UNICEF reported 4.7% of teenage marriage similar to our study.²³ 61.3% of mothers were primiparous which may influence the percentage of correct position and attachment as studied by Goyal et al in his study of 24% incidence of poor position among primiparous women as against multi parous women.²⁰ More than one fifth of mothers had breast problems which were alarmingly high but was lower than 28.3% reported by an article cited in PubMed.²⁴ Breast problems were identified as breast engorgement (45.4%), sore nipple (4.4%), flat nipple (13.6%) and pulled down breast (36.6%). Only two fifths of the mothers (43.6%) were taught how to breast feed, which was emphasised as important factor by the studies of Brady, Cantrill, Kim, Lawrence and Renitha.²⁵⁻²⁹ It may be due to changing culture, inadequate knowledge of elders and health professional on practical aspects of how to breastfeed which needs to be explored. Among the people who were taught breastfeeding, only 45.45% (36.36% by nurses and 9.09% by doctors) were taught by medical professional which means negligence on the part of health care professionals as in a study done in Saudi.³⁰ Even though 54.55% of them were taught by relatives, own experience or neighbour, only 30.7% held their infants in good or average position as against 77.8% in Ram's study and 43% in Dongre study which means incorrect method of teaching which was learnt early.^{20,12}

As against Ram et al study where teenage pregnancy and primiparous mothers had poor position and attachment, our study did not have significant relationship with age of mother or parity. 60.4% of mothers' emotional attachment with their babies were good which shows that still rest 40% of mothers are not yet prepared for emotional bonding may be due to pain in the mother which prevents good bonding with their baby or delivered a child due to social stigma which needs to be explored. 76.2% of neonates were term babies with a male preponderance. Only one set of twins were there. One fourth of the babies were low birth weight and 41.6% of babies required NICU care totally, may be indicating high risk pregnancies referred to this tertiary centre from peripheral hospitals.

Only breast problem and LSCS in the mother was significantly associated with poor position with odds ratio and 95% confidence interval of 12.86 (1.64-100.56) and 2.89 (1.1-757) respectively with p value of <0.05. Breast problems should be identified antenatally and mothers should be counselled the possibilities of difficulty in breastfeeding though most of the breast problems identified here are due to breast engorgement which happens postnatally. Odds of poor position among caesarean delivery and mothers with breast problems were significantly higher, may be due to pain. Though the odds of poor position among mother of elder age and primiparous mothers (No prior experience of feeding) were higher, they were not statistically significant. Interestingly teenage mothers and below higher secondary education mothers had lower odds of poor position but not statistically significant as they may be receptive to learning from the health care professionals.

Good attachment was seen only in 46.5% of infants in our study as against Ram's study of 66.7%.20 NICU stay, LSCS and breast problems were significantly associated with poor attachment with odds ratio and 95% confidence interval of 2.73 (1.21-6.18), 2.53 (1.11-5.77) and 7.35 (2.27-23.8) respectively. Illness in neonate, poor position among LSCS mothers and breast engorgement of mothers contributed to poor attachment as expected. Though preterm and low birth weight babies had higher odds of poor attachment, it was not statistically significant as we would expect due to immaturity of sucking swallowing coordination reflex. Ineffective suckling was significantly associated with NICU stay with odds ratio of 3.5 (95% CI of 1.5-8.3) and breast problems in the mother with odds ratio of 5.22 (95% CI of 1.88-14.47). Though preterm and low birth weight babies had higher odds of ineffective suckling, they were not statistically

significant. 42.5% had poor suckling in Ram et al study compared to ours of only 38%.²⁰ Thus, breast problems were significantly associated with poor position, poor attachment and poor effective suckling. Position, attachment, effective suckling all are interrelated.

Emotional bonding was significantly poor if there was breast problem and LSCS with odds ratio and 95% confidence interval of 8.28 (2.73-25.09) and 3.16 (1.37-7.31) respectively. This may be due to pain they experience with both the conditions which need to be explored further. Vaginally delivered mothers had good breast anatomy with less engorgement and complete emptying of breasts. Vaginal delivery mothers were more comfortable, probably less painful than LSCS and they had good emotional bonding with their babies.

Good response to feed in was seen in 81.2% of babies as it was significantly associated with no breast problem in the mother. Good response pattern to breastfeed is needed for effective suckling and neonatal survival. Odds of poor response of the baby is significantly higher if less than 34 weeks as expected in that subgroup. Baby's' response to breastfeeding was also significantly affected, if there was breast problem with odds ratio of 11.32 and 95% confidence interval of 2.02-63.3. Though the odds of poor response were higher in low birth weight babies and babies who had NICU stay, it was not statistically significant.

Thus, breast problems were significantly associated with poor position, poor attachment, poor bonding, poor emotional response and ineffective suckling. Position, attachment, effective suckling all are interrelated. Showing mothers how to breastfeed improved position and attachment as part of feasibility of IMNCI guidelines in North India as shown by Gupta et al and this has to be implemented practically as reviewed by Cochrane data base. 31-36

Limitations of this study were: observer bias due to single observer was doing study assessment of dyads, generalizability may not be applicable due to geographical and cultural factors with different rates of incorrect position and attachment and causality cannot be made due to inherent study design

CONCLUSION

Practical demonstration on how to hold infants in correct breastfeeding position and drilling with key points for correct position and attachment as soon as possible after delivery will make long way for exclusive and effective breastfeeding by learning correct technique. It will prevent breast engorgement, allay the anxiety of caesarean section mothers so that proper position and attachment will be established even in the immediate post-operative period. Rechecking after counselling will reinforce this learned art.

Strengths of this study were: single observer was doing the assessment with no interobserver variability, nearly 10% of the study population was sampled over a short period.

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