

## COMPARISON OF BREASTFEEDING PRACTICES AND PROBLEMS AMONG CAESAREAN SECTION AND VAGINALLY DELIVERED TERM NEONATES: A CROSS SECTIONAL STUDY IN A TERTIARY CARE HOSPITAL

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### Abstract

**Background:** Breastfeeding is crucial for infants as it provides optimal nutrition, boosts the immune system, and reduces the risk of infections, allergies, and chronic conditions like obesity and diabetes. Breastfeeding practices can be influenced by a variety of variables such as mode of delivery, parity, breast or nipple abnormalities and knowledge. The objective is to compare the patterns of breastfeeding and to describe the problems of breastfeeding among women who delivered term babies via caesarean section and vaginal delivery and also to assess the knowledge of breastfeeding among the study samples. **Materials and Methods:** This was a hospital based cross sectional study for 3 months which included 180 women (90 in vaginal delivery group and 90 in caesarean section group). Early initiation was defined as breastfeeding within 1 hour of delivery. Mode and time of delivery and initiation of breast feeding within 1 hr of delivery observed and noted. On Day 3 breast feeding was assessed for positioning, latching, suckling and comfort. The relationship between mode of delivery and various aspects breast feeding was analysed based on the direct interview conducted on postnatal day 3. **Result:** Early initiation of breast feeding in vaginal delivery and caesarean section were 75.6% and 7.8% respectively ( $P < 0.001$ ). Successful establishment of breast feeding on day 3 was 87.8% and 85.6% in vaginal delivery and caesarean section respectively ( $p = 0.661$ ). 52.2% women who underwent LSCS had difficulty in initiation of breastfeeding, whereas it was 22.2% in vaginal delivery group ( $P < 0.001$ ). Positive correlation was found between day 3 establishment and early initiation. Women who initiated breast feeding  $< 1$ hr followed established breastfeeding 96% on day 3; among those who did not breastfeed within 1hr, 80% had established breast feeding pattern by day 3 ( $P < 0.05$ ). Post-delivery pain ( $P < 0.05$ ), improper latching, inadequate milk production were significantly more in women undergoing caesarean section. 97.8% mothers were aware of exclusive breast feeding. **Conclusion:** Caesarean section is associated with late initiation of breast feeding and difficulty in initiation. Increasing percentage of vaginal birth after caesarean section and aggressive counselling regarding benefits of breast feeding could positively increase early initiation of breast feeding, leading to various long term benefits.

## INTRODUCTION

Breastfeeding is one of the most effective ways to ensure child health and survival. Breastmilk is the ideal food for infants. It is safe, clean and contains antibodies which help protect against many common childhood illnesses.<sup>[1]</sup> WHO and UNICEF

recommends initiation of breastfeeding within the first hour of birth and exclusive breastfeeding for the first 6 months of life, meaning no other foods or liquids are provided, including water.<sup>[2]</sup> Early initiation and exclusive breast feeding till six months of life help ensure young children best possible start to life. It provides development and learning

opportunities to the infant, stimulating all five senses of the child, such as sight, smell, hearing, taste and touch.<sup>[3]</sup> Breastfeeding fosters emotional security and affection, with a lifelong impact on psychosocial development. Special fatty acids in breastmilk lead to increased intelligent quotient (IQ) and better visual acuity. A breastfed baby is likely to have an IQ of around 8 points higher than a non-breastfed baby.<sup>[4]</sup> Early initiation of breastfeeding lowers the mother's risk for excess post-partum bleeding and anaemia. Exclusive breastfeeding boosts mother's immune system, delays next pregnancy and reduces the insulin needs of diabetic mothers. Breastfeeding can help protect a mother from breast and ovarian cancers and osteoporosis.<sup>[5]</sup>

Breastfeeding practices can be influenced by a variety of variables. Besides known biological factors such as parity, mode of delivery, body mass index (BMI), smoking, breast or nipple abnormalities, surgery, illness, anxiety, and stress, there are behavioural factors that are equally as important.<sup>[6]</sup> There may also be infant characteristics that contribute to breastfeeding initiation such as gestational age, weight at birth, intrinsic disease, suckling ability, and temperament.<sup>[7]</sup> Caesarean deliveries have been associated with lower initiation rates and shorter breastfeeding duration compared to those undergoing a vaginal delivery.

This may be due to delays in mother/infant skin-to-skin contact, mother's post-surgery physical complications, and effects of anesthetics.<sup>[8,9]</sup>

These inherent difficulties and potential complications that can compromise a woman's ability to breastfeed are of interest. The present study aims to assess the Knowledge of breastfeeding, breastfeeding practices and problems among caesarean section and vaginally delivered mothers in a tertiary care hospital.

## MATERIALS AND METHODS

A hospital based cross sectional study was conducted among Mothers, who delivered term babies via caesarean section or vaginal delivery at Mandya institute of medical sciences, Mandya, from April 2024 to June 2024. This study included 180 cases (90 in vaginal delivery group and 90 in caesarean section group). Institutional ethics committee approval was taken, and informed consent was obtained from all patients included in the study. Mothers, between age group 18-45, who delivered term babies, via caesarean section or vaginal delivery were included in the group. Mothers, who are extremely sick to interview, including acute heart failure, eclampsia and mothers, whose babies got admitted in NICU at birth or before initiation of breastfeeding were excluded from the study.

Demographic details of the women were collected including age, region of residence, religion, occupation of mother, educational status of mother, socioeconomic status, and duration of married life. Relevant obstetric history was taken, including

obstetric score, previous pregnancy details, previous breastfeeding details, any antenatal medical illness, number of antenatal visits, onset and duration of labour and adequate pain relief. Mode and time of delivery and initiation of breast feeding within 1hr (early initiation) of delivery was noted. Emergency and elective caesarean sections were not noted separately, and instrumental deliveries are included with the vaginal delivery itself. A semi-structured questionnaire based direct interview was conducted within 72hrs of the delivery, which included questions to assess knowledge regarding breastfeeding and practices among caesarean section and vaginally delivered mothers. Mothers will be interviewed on or within postnatal day 3 to identify if latching and positioning of baby is correct, if baby is breastfeeding frequently with no discomfort to mother. If so, it was termed as established breast feeding. Any additional help required by mother to support her in breastfeeding was noted.

Mothers were also asked regarding various factors which she felt affected her breastfeeding like insufficient milk production, latching issues, sleepy baby, breast engorgement, cracked nipple, inverted or flat nipple.

**Statistical analysis:** All the data collected was entered in MS excel and analysed using SPS trial version software. Descriptive statistics like percentage, proportion for categorical data mean and standard deviation for continuous data was used. The results are presented in Means  $\pm$ SD and percentage. P values of  $<0.05$  is considered statistically significant.

## RESULTS

The study population comprised of 180 mother - infant pair. Amongst them 90 delivered had vaginally and 90 women underwent caesarean section. Mean age was 25.35 years. 79.4% mothers had 1-5 years of married life. 86.1% of mothers in our study were staying in rural areas and 82.2% were educated only upto school. 58.3% belonged to lower middle class of modified Kuppaswamy socio-economic status (SES) and 86.1% were housewives [Table 1].

[Table 2] shows comparison of mode of delivery to various obstetric parameters. Mean age, married life and gender of the infant were similar for both groups. Majority of women in both groups were booked cases (vaginal delivery – 98.9% vs caesarean section - 100%). Number of mothers with associated medical disorders had significant positive correlation, 38.9% had antenatal medical disorders in caesarean section group, whereas it was 10% in vaginal delivery group. Common medical disorders were hypothyroidism (10.6%), gestational diabetes mellitus (5%), hypertension (5.6%). 43.9% women were in labour for 1-4 hours and 42.8% women were in labour for 5-10 hours.

The correlation between the mode of delivery and various aspects of breast feeding are summarized in

[Table 3]. Early initiation of breast feeding was noted in 75.6% and 7.8% of vaginal delivery (VD) and caesarean section (CS) group respectively (P <0.001). Significant association was noted between mode of delivery and difficulty in initiating breast feeding for first time (VD – 22.2% vs CS -52.2%) (P < 0.001). On day 3 established breast feeding was noted in 87.8% and 85.6% of women who delivered vaginally and by caesarean section respectively (P = 0.661).

[Table 4] shows correlation between various problems faced during breastfeeding and mode of delivery. 10% of mothers who delivered via caesarean section had post-delivery pain which affected breastfeeding, whereas only 1.67% mothers delivered vaginally had pain (P<0.05). Other problems faced during breastfeeding were improper latching/sucking (11.67%), inadequate secretions (LSCS-21.67%, VD-14.44%), retracted nipple (10.56%) and sleepy baby (17.22%). 40% of mothers did not face any problems during breast feeding (P=0.05).

Sub analysis of factors affecting early initiation of breast feeding is noted in [Table 5]. Early initiation of breast feeding had a significant positive correlation with established breast feeding on D3. Women who initiated breast feeding <1hr followed established BF 96% on D3; among those who did not breastfeed within 1hr, 80% had established breast feeding pattern by D3 (P=0.002). There was no significant relation between region of stay or occupation of mother and early initiation.

Socioeconomic status was similar between the two groups and there was no significant correlation with initiation of breastfeeding. Duration of each feed showed significant correlation, those who initiated

breastfeeding within 1 hour, were feeding the baby for 10- 20min (57.3%) and 20-30min (16%), whereas 41.9% of those who did not initiate within 1 hour were feeding for only for 5-10min. (P=0.031). Other variables like duration of labour, married life, number of family members, spouse education did not show significant difference in initiation of breastfeeding in our study.

Single most important factor affecting established breast feeding on D3 was early initiation within 1 hour. Other factors like mother's educational status, occupation, region, religion, socioeconomic status, married life did not show correlation with day 3 establishment of breastfeeding in our study (table 6). A positive correlation was found between duration of each feed and day 3 breastfeeding establishment. It was seen that those who had established breastfeeding by day 3, were also feeding the baby for a longer duration [10-20min (54.5%) 20-30min (11.5%)], compared those did not establish breastfeeding by day 3 [10-20min (25%) 20-30min (8.3%)] shown in [Table 6].

[Table 7] shows awareness of breastfeeding among mothers, assessed using a structured questionnaire. 100% women were aware about giving colostrum of breastmilk, also 99.4% disagreed about giving prelacteal feeds. 97.8% mothers were aware of exclusive breastfeeding, 100% were aware of nutritional value of breastmilk. 96.7% agreed that breastmilk is better than formula feeds and 100% mothers were aware of demand feeding. This could be due to postnatal counselling. 97.8% mothers received postnatal counselling regarding breastfeeding. 65.6% of them were counselled by doctor and 34.4% received counselling from lactational counsellor.

**Table 1: Distribution of study population (N=180).**

Baseline data		No of patients	%
Age in years	Less than or equal to 20	15	8.3
	21 to 30	148	82.2
	31 to 40	16	8.9
	Greater than 40	1	0.6
Region	Rural	155	86.1
	Urban	25	13.9
Education of mother	School	148	82.2
	Degree	29	16.1
	Graduate	3	1.7
Occupation	Housewife	155	86.1
	Working	25	13.9
Socio- economic status	Lower	21	11.7
	Lower Middle	105	58.3
	Upper Lower	7	3.9
	Upper Middle	47	26.1
Married life	1-5 years	143	79.4
	6-10 years	30	16.7
	11-15 years	7	3.9
Obstetric score	Primi	82	45
	Multi	98	54

**Table 2: Descriptive details of present pregnancy based on the mode of delivery**

Variables	Mode of Delivery		Total	P value
	LSCS (n=90)	Vaginal (n=90)		
Age In Years	26.52±4.579	24.18±3.446	25.35±3.20	<0.0001
Gender	Female	41 (45.6%)	40 (44.4%)	0.364
	Male	49 (54.4%)	50 (55.6%)	

Married life in years	1 to 5	67 (74.4%)	76 (84.4%)	143 (79.4%)	0.097
	6 to 10	17 (18.9%)	13 (14.4%)	30 (16.7%)	
	>10	6 (6.7%)	1 (1.1%)	7 (3.9%)	
Booked/Unbooked Case	Booked	90 (100%)	89 (98.9%)	179 (99.4%)	0.316
	Unbooked	0 (0%)	1 (1.1%)	1 (0.6%)	
Duration of labour in hours	1 to 4	40 (44.4%)	39 (43.3%)	79 (43.9%)	0.987
	5 to 10	38 (42.2%)	39 (43.3%)	77 (42.8%)	
	11 to 18	12 (13.3%)	12 (13.3%)	24 (13.3%)	
Antenatal Medical Disorders	Absent	55 (61.1%)	81 (90%)	136 (75.6%)	<0.0001
	Present	35 (38.9%)	9 (10%)	44 (24.4%)	

**Table 3: Correlation of various aspects of breast feeding and mode of delivery**

Variables		Mode of delivery		Total	P value
		LSCS (n=90)	Vaginal (n=90)		
Initiation of breastfeeding	<1hr	7 (7.8%)	68 (75.6%)	75 (41.7%)	<0.0001
	1-6hrs	83 (92.2%)	22 (24.4%)	105 (58.3%)	
Difficulty in initiation	No	43 (47.8%)	70 (77.8%)	113 (62.8%)	<0.0001
	Yes	47 (52.2%)	20 (22.2%)	67 (37.2%)	
Day 3 establishment	No	13 (14.4%)	11 (12.2%)	24 (13.3%)	0.661
	Yes	77 (85.6%)	79 (87.8%)	156 (86.7%)	

**Table 4: Correlation of problems in breastfeeding with mode of delivery**

Problems in breastfeeding	LSCS (n=90)	Vaginal (n=90)	Grand total	P value
Baby is not sucking/latching	14 (7.78%)	7 (3.89%)	21 (11.67%)	0.104
Breast engorgement	1 (0.56%)	1 (0.56%)	2 (1.11%)	1.000
Inadequate secretions	39 (21.67%)	26 (14.44%)	65 (36.11%)	0.166
Pain	18 (10%)	3 (1.67%)	21 (11.67%)	0.043
Retracted nipple	8 (4.44%)	11 (6.11%)	19 (10.56%)	0.466
Sleepy baby	17 (9.44%)	14 (7.78%)	31 (17.22%)	0.553
Vomiting	0 (0.0%)	1 (0.56%)	1 (0.56%)	0.315
Nil	26 (14.44%)	46 (25.56%)	72 (40%)	0.005

**Table 5: Initiation of breast feeding (BF) <1hr**

Variables		Initiation		Total	P value
		<1hr (n=75)	1-6hrs (n=105)		
Day 3 establishment	No	3 (4%)	21(20%)	24(13.3%)	0.002
	Yes	72 (96%)	84(80%)	156(86.7%)	
Mother's education	School	64 (85.3%)	84(80%)	148(82.2%)	0.653
	Degree	10 (13.3%)	19(18.1%)	29(16.1%)	
	Graduate	1 (1.3%)	2(1.9%)	3(1.7%)	
Religion	hindu	62 (82.7%)	93(88.6%)	155(86.1%)	0.259
	muslim	13 (17.3%)	12(11.4%)	25(13.9%)	
Residence	rural	64 (85.3%)	91(86.7%)	155(86.1%)	0.799
	urban	11 (14.7%)	14(13.3%)	25(13.9%)	
Occupation	working	9 (12%)	16(15.2%)	25(13.9%)	0.822
	housewife	66 (88%)	89(84.8%)	155(86.1%)	
Socioeconomic status	lower	9 (12%)	12(11.4%)	21(11.7%)	0.155
	lower middle	42 (56%)	63(60%)	105(58.3%)	
	upper lower	6 (8%)	1(1%)	7(3.9%)	
	upper middle	18 (24%)	29(27.6%)	47(26.1%)	
Duration of each feed in min	<5	1 (1.3%)	5(4.8%)	6(3.3%)	0.031
	5 to 10	19 (25.3%)	44(41.9%)	63(35%)	
	10 to 20	43 (57.3%)	48(45.7%)	91(50.6%)	
	20 to 30	12 (16%)	8(7.6%)	20(11.1%)	
Duration of labour	1 to 4	35 (46.7%)	44(41.9%)	79(43.9%)	0.794
	5 to 10	31 (41.3%)	46(43.8%)	77(42.8%)	
	11 to 18	9 (12%)	15(14.3%)	24(13.3%)	
Married life in years	1 to 5	62 (82.7%)	81(77.1%)	143(79.4%)	0.074
	6 to 10	13 (17.3%)	17(16.2%)	30(16.7%)	
	>10	0 (0%)	7(6.7%)	7(3.9%)	
Number of family members	less than or equal to 2	2 (2.7%)	1(1%)	3(1.7%)	0.646
	3 to 5	54 (72%)	79(75.2%)	133(73.9%)	
	6 to 8	19 (25.3%)	25(23.8%)	44(24.4%)	
Spouse education	School	57 (76%)	74(70.4%)	131(72.8%)	0.275
	Degree	10 (13.3%)	22(21%)	32(17.8%)	
	Graduate	8 (10.7%)	9(8.6%)	17(9.4%)	

**Table 6: D3 breast feeding established**

Variables		Day 3 establishment		Total	P value
		no (n=24)	yes (n=156)		
Mother's education	School	20 (83.3%)	128(82.1%)	148(82.2%)	0.922

	Degree	4 (16.7%)	25(16.0%)	29(16.1%)	
	Graduate	0 (0%)	3(1.9%)	3(1.7%)	
Religion	hindu	21 (87.5%)	134(85.9%)	155(86.1%)	0.326
	muslim	3 (12.5%)	22(14.1%)	25(13.9%)	
Residence	rural	21 (87.5%)	134(85.9%)	155(86.1%)	0.326
	urban	3 (12.5%)	22(14.1%)	25(13.9%)	
Occupation	Working	1 (4.2%)	24(15.4%)	25(13.9%)	0.995
	Notworking	23 (95.8%)	132(84.6%)	155(86.1%)	
Socioeconomic status	lower	7 (29.2%)	14(9.0%)	21(11.7%)	0.118
	lower middle	9 (37.5%)	96(61.5%)	105(58.3%)	
	upper lower	1 (4.2%)	6(3.9%)	7(3.9%)	
	upper middle	7 (29.2%)	40(25.6%)	47(26.1%)	
Duration of each feed in min	<5	6 (25%)	0(0%)	6(3.3%)	<0.0001
	5 to 10	10 (41.7%)	53(34.0%)	63(35%)	
	10 to 20	6 (25%)	85(54.5%)	91(50.6%)	
	20 to 30	2 (8.3%)	18(11.5%)	20(11.1%)	
Duration of labour	1 to 4	8 (33.3%)	71(45.5%)	79(43.9%)	0.052
	5 to 10	9 (37.5%)	68(43.6%)	77(42.8%)	
	11 to 18	7 (29.2%)	17(10.9%)	24(13.3%)	
Married life	1 to 5	22 (91.7%)	121(77.6%)	143(79.4%)	0.441
	6 to 10	1 (4.2%)	29(18.6%)	30(16.7%)	
	>10	1 (4.2%)	6(3.8%)	7(3.9%)	
Number of family members	less than or equal to 2	1 (4.2%)	2(1.3%)	3(1.7%)	0.772
	3 to 5	17 (70.8%)	116(74.4%)	133(73.9%)	
	6 to 8	6 (25%)	38(24.3%)	44(24.4%)	
Spouse education	School	17 (70.8%)	114(73.1%)	131(72.8%)	0.562
	degree	6 (25%)	26(16.7%)	32(17.8%)	
	graduate	1 (4.2%)	16(10.2%)	17(9.4%)	

**Table 7: Awareness of breast feeding**

Knowledge of breastfeeding	Agree (%)	Disagree (%)	Not aware (%)
Colostrum to be given	180 (100%)	0 (0.0%)	0 (0.0%)
Prelacteal feeds to be given	0 (0.0%)	179 (99.4%)	1 (0.6%)
Exclusive breast feeding for six months	176 (97.8%)	3 (1.7%)	1 (0.6%)
Breastmilk is nutritious	180 (100%)	0 (0.0%)	0 (0.0%)
Breastmilk is better than formula feeds	174 (96.7%)	0 (0.0%)	6 (3.3%)
On demand breastfeeding/2 <sup>nd</sup> hourly	180 (100%)	0 (0.0%)	0 (0.0%)

## DISCUSSION

This study was done to compare the patterns of breastfeeding and to describe the problems of breastfeeding among women who delivered term babies via caesarean section and vaginal delivery and also to assess the knowledge of breastfeeding among the study samples.

Vaginal delivery had a significant positive correlation to early initiation of breast feeding similar to findings by Nair A et al and other authors.<sup>10</sup> Nair A et al noted that early initiation of breast feeding in vaginal delivery and caesarean section were 70.3% and 27.3% respectively. Successful establishment of breast feeding on D3 was higher in vaginal delivery, compared to caesarean section. Those who initiated breast feeding within 1hr of delivery, all of them established comfortable breast feeding by D3, whereas those who did not breastfeed within 1hr only 32.4% established comfortable breast feeding pattern by day 3.

On review of literature, Bhati R et al stated that C-sections are linked to higher breastfeeding challenges, greater resource usage, and shorter nursing duration.<sup>[11]</sup>

Our study did not find any difference in early initiation based on region of residence, religion, mother's educational status, socioeconomic status and duration of labour. As stated by Nair et al, Upper

middle SES class, previous lactation history of more than 6 months, booked case, normal duration of labour (5-9 hours) and presence of female attender were positively correlated to early initiation of breast feeding and established breast feeding on day 3, which differs from this study.<sup>[10]</sup>

In our study, we found that duration of each feed was significantly associated with early initiation and day 3 establishment. It was seen that those who initiated breastfeeding within 1 hour and those mothers who had established breastfeeding by day 3, tend to feed the baby for longer duration.

Similarly, Hoang Nguyen PT et al, stated that mothers who underwent caesarean section were more likely to give pre-lacteal feeds to their infants and as a result have lower rates of early initiation of breastfeeding. Having a caesarean section reduced the likelihood of breastfeeding from discharge to 6 months postpartum.<sup>[12]</sup> Seed G et al, in their study, concluded that lactation problems were significantly more prevalent among women who underwent caesarean deliveries. The problems recorded were most commonly being post- delivery pain, improper latching, inadequate milk production and flat nipple were significantly more in women undergoing caesarean section, which was similar to our study.<sup>[13]</sup>

Also, in our study, majority of the mothers were aware of exclusive breastfeeding, demand feeding and nutritional benefits of breastmilk. This could be

due to counselling done regarding breastfeeding during postnatal period.

## CONCLUSION

This study concludes that there is significant difference in initiation of breastfeeding and duration of each feed among those who delivered via caesarean section and vaginal delivery. Also, it was noted that the most common problem is post-delivery pain and inadequate secretions. Focusing on adequate pain relief and emphasizing the significance of early breastfeeding initiation to women who intend to have caesarean deliveries starting in the antenatal period through counselling is crucial.

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