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Original Article

Neonatology Section

Effect of Antenatal Counselling by Healthcare Professionals in Initiating Precise Early Breastfeeding Practices in Primigravida Mothers: A Quasi-experimental Study

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ABSTRACT

Introduction: Exclusive breastfeeding practices for six months and its continuity, including supplementary foods, is recommended to the child for a particular duration. In addition, antenatal counselling on early breastfeeding practices ensures optimum nutrition for the neonates, thereby reducing mortality.

Aim: To evaluate the positive effects of antenatal counselling on breastfeeding outcomes in primigravida women.

Materials and Methods: This quasi-experimental study was conducted over 18 months on the mothers who attended the Obstetrics Department at Niloufer Hospital in Hyderabad, India. Participants were allocated either to a study group (n=100) (volunteered for antenatal counselling) or a control group (n=100) (did not volunteer for antenatal counselling). The study group received 1-3 breastfeeding counselling sessions during different months of gestation, whereas the control group merely received routine antenatal counselling. A breastfeeding performance checklist was finished, and the outcome of the counselling sessions was observed among the subjects. The procured data was analysed using the Statistical Package for the Social Sciences (SPSS) software version 22.0 for the t-test, odds ratio and Chi-square values, $p<0.05$ was considered statistically significant.

Results: This study monitored the breastfeeding practice of mothers in the first 48 hours and defined corrective timely breastfeeding practice for the following infantile period based on their reflexively formed habits under the impact of counselling improving awareness. Statistically, significant difference was observed in the counselled group concerning duration of breastfeeding, importance, and the benefits of breastfeeding to the mothers and families when compared to the control group ($p<0.0001$**). In addition, the questionnaire and the breastfeeding assessment scores were statistically significant in the counselled group compared to the control group ($p<0.001$** and $p=0.002$*, respectively).

Conclusion: The statistically significant results of the study showed that antenatal counselling during pregnancy increases the frequency and duration of exclusive breastfeeding in mothers. Various aspects of counselling sessions on breastfeeding practices cleared the myths and misconceptions that mothers previously had in this study.

Keywords: Colostrum, Latch, Misconceptions, Neonate

INTRODUCTION

Early initiation of breastfeeding decides the exclusive and optimal breastfeeding practices. The best possible start in life is determined by the initiation of breastfeeding within the first hour of birth [1]. It increases the chances that newborns receive the first milk "colostrum", which is rich in antibodies and nutrients and is vital in protecting the newborn against infections. A study in India in 2017 reported that more than 3/4th of children were not breastfed within 1 hour of birth, which was reported to be highest in Uttar Pradesh and lowest in Kerala [2]. Earlier findings suggest that newborns who were not breastfeed within 1 hour after birth increased the incidence of deaths by nearly threefold in comparison to those neonates who have breastfed within 1 hour of birth. This indicates that early breastfeeding practice could reduce the risk of neonatal deaths to a maximum of 15% [3].

Primigravida women, who are pregnant for the first time, are vulnerable to breastfeeding myths, because of highly misguiding family and peer talk, and deeprooted cultural taboos [4-6]. Hence, there is a need for counselling for these women on the benefits of breastfeeding. Antenatal counselling about ideal breastfeeding practice is most crucial in the first 48 hours of the postnatal period [7]. A few misconceptions might lead to discontinuing early breastfeeding practices [8]. Some of these problems can be overcome if the woman is informed antenatally about breastfeeding benifits and mentally prepared for exclusive breastfeeding [9].

Colostrum is meagrely used despite being highly immunogenic, anti-infective, anticancerous, resulting in grave wastage of nature given potion [10,11]. Monitoring breastfeeding in first 48 hours of postnatal period not only ensures impact of antenatal counselling but also boosts the mother's confidence, reinforces her belief about the given antenatal counselling, and hence ensures success of the breastfeeding for next six months [12,13]. However, an estimated 78 million neonates, i.e. three in five, are not breastfed within their first hour of birth, putting them at higher risk of death and disease and making them less likely to continue breastfeeding, say the United Nations Children's Fund (UNICEF) and the World Health Organisation (WHO) in this new report. Most babies are born in low- and middle-income countries (LMICs) [14].

Most of the health professionals are accustomed with the benefits of breastfeeding. It helps protect against a range of health conditions in infants; this evidence is supported by the American Academy of Paediatrics (AAP) [15]. Though most mothers are practicing breastfeeding methods in developing countries like India, however, there is a gap in knowledge on optimal breastfeeding methods and the benefits it entails in the wellbeing of the mothers and the

neonates [16-18]. To overcome these gaps, the present study was designed to investigate the benefits of antenatal counselling for good breastfeeding practices to anxious mothers, clearing their misconceptions and promoting good social and emotional bonds and maintaining newborn's health.

The present study aims to understand the beneficial effect of counselling on exclusive and early breastfeeding success rates in primigravida women by demonstrating the proper breastfeeding practices.

MATERIALS AND METHODS

This quasi-experimental study was conducted in the Obstetrics Department at Niloufer Hospital, Hyderabad, India by choosing antenatal primigravida women who attended the Outpatient Department (OPD) for 18 months from November 2019 to June 2021. Approval from the Institutional Ethics Committee with reference number ECR/366/inst/TN/2019/RR-53 was taken.

This study compared the breastfeeding practices of antenatal counselled women in the presence of gynaecologists and staff at the clinic (study group, n=100) with hundred women in postnatal wards who didn't volunteer for antenatal counselling (control group, n=100). All women received antenatal care as per standard hospital protocol. The study group was termed as the precounselled group (before counselling on breastfeeding) and the postcounselled group (after counselling on breastfeeding).

Inclusion criteria: Primigravida postnatal mothers who volunteer for counselling were included in the study group and mothers who did not volunteer for antenatal counselling were grouped as controls.

Exclusion criteria: Multipara mothers, women who were in medical or psychological distress, women who were admitted in Intensive Care Unit (ICU) and women who dropped out in-between the study period were excluded from the current study.

Sample size calculation: The sample size was calculated using the formula: [19]

$N= z^2 \times p\ (1-p)/e^2$

Where, N=population size, z=z score, e=margin of error, and p=population proportion. Here, the sample size has been estimated at a 95% confidence interval for which the z score=1.96, assuming the population proportion to be 0.5 and an error of 7%, using the above formula,

$N= (1.96)^2 \times 0.5\ (1-0.5)/(0.7)^2 = 3.8416 \times 0.25/0.0049 = 0.9604/0.0049 = 196$

So, the sample size was calculated to be 196 and considering the minimum dropout rate rounded up for 200.

Study Procedure

A total of 100 primigravida women were given antenatal counselling with the help of charts, diagrams, and role plays about the scientific benefits of breast milk and scientific methods and benefits of breastfeeding in the antenatal ward. Among the 100 primigravida mothers, 24 women had three antenatal counselling sessions, 40 had two sessions and 36 had a single session during different gestation periods.

The study was conducted based on a questionnaire related to common health conditions regarding breastfeeding prepared by the Head of the Department where the responses were either 'yes' or 'no'. The questionnaire was adapted from A Handbook for Building Skills (WHO) [20]. The questionnaire had 13 variables which had scores ranging from 0 to 13.

Questionnaire

The percentage of mothers who knew about a) proper position of breastfeeding, b) proper latch, c) when to start breastfeeding after delivery, d) ideal duration of each breastfeeding session, e) ideal time interval between two breastfeeding sessions, f) duration of feed on each breast, g) importance of fore milk, h) importance of hind milk, i) benefits of colostrum, j) benefits of breast milk to baby, k) benefits of breastfeeding to themselves, l) benefits of breastfeeding to family, m) benefits of breastfeeding to society.

The effectiveness of counselling was also checked by assessing these variables precounselling and postcounselling, after explaining in their mother tongue (English, Hindi or Telugu) and taking the written informed consent from all the subjects.

Additional data was obtained regarding negative hurdles about breastfeeding mothers like myths and misconceptions, operative delivery, cultural taboos, the influence of older women, lack of confidence, maternal worries, period of breastfeeding post-delivery etc.

The UNICEF breastfeeding observation form for positive signs and assessment of breastfeeding was also used [21]. Authors gave each box as 1 mark for 27 items (6 scales).

STATISTICAL ANALYSIS

Data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) software version 22; statistical significance within the study groups and concerning the control group based on the questionnaire score and counselling assessment scores was calculated using t-test, odds ratio and Chi-square test. Here, $p<0.05$ was considered statistically significant.

RESULTS

Socio-demographic variables: All the study group members (n=100) and the control group (n=100) belonged to the rural population. Eighty members (80%) from the study group and 15 members (15%) from the control group were literate up to 12th class; 20 members (20%) from the study group and 85 members (85%) from the controls were literate till less than 12th standard [Table/Fig-1]. It indicates that the study group was more qualified when compared to the control group.

Socio-demographic variables	Parameters	Study group, n (%)	Control group, n (%)
Literacy, n (%)	Studied upto 12th class	80 (80%)	15 (15%)
	Studied less than 12th class	20 (20%)	85 (85%)
Religion, n (%)	Hindu	60 (60%)	80 (80%)
	Muslim	20 (20%)	11 (11%)
	Christian	20 (20%)	9 (9%)
Age group, n (%)	≤20 yrs	15 (15%)	16 (16%)
	21-25 yrs	65 (65%)	73 (73%)
	26-30 yrs	20 (20%)	11 (11%)

[Table/Fig-1]: Socio-demographic variables among the study group and control group (N=100 in each group).

Subjects were classified based on their religion: among the study group, 60% were Hindus, 20% were Muslims, and 20% were Christians. Among the control group, 80 members (80%) were Hindus, 11 (11%) were Muslims, and 9 (9%) were Christians. The age group of women enrolled in the study ranged from 18 to 30 years. Among them, 15-16% were less than 20 years old, 65-73%

were between 21 to 25 years, and 11-20% were between 26 to 30 years [Table/Fig-1].

The negative hurdles in the study were myths (80%), misconceptions (66%), operative delivery (20%), and cultural taboos (90%). In addition, 20 members (20%) of the study group were influenced by elder women of the family.

The variables studied in the mothers of postcounselled group were different from those of the precounselled and the control groups with a statistical significance of p<0.001**. The controls almost had similar acquaintance about the benefits of breastfeeding as the precounselled group [Table/Fig-2]. All the variables had higher odds in comparison between the control group and postcounselling group. All variables had higher odds in postcounselling group than precounselling group. The 10% of the precounselled mothers and 12% of the control group had some knowledge about the proper position of breastfeeding when compared to 95% of the postcounselled women. Primigravida mothers were aware of the proper latch in 10% of the control group, 8% of precounselled group, and 92% of the postcounselled group.

In the control group, 14% of the women knew when to start breastfeeding after delivery, compared to 12% in precounselling group. This number increased to 95% in the study group after counselling. Knowledge about the ideal duration of each breastfeeding session was 8% in the control group, and 9% in precounselling group. This number increased to 86% in postcounselling group. Knowledge about the ideal time interval between two breastfeeding sessions was 13% in the control group, 14% in precounselled group, and increased to 92% in postcounselling group. The percentage of mothers who knew about the duration of feeding on each breast was observed at 8% in the control group, 6% in precounselling group, and increased to 93% after counselling. In the control group, 12% of mothers knew about the benefits of breast milk to the baby, compared to 15% mothers from the precounselling group. But it increased to 96% after counselling. In the control group, 5% of mothers knew about the benefits to the mother from breastfeeding, while in the precounselling group, only 4% of mothers knew about the benefits. The number increased to 94% in the study group after counselling [Table/Fig-2].

Before counselling 7% knew that breastfeeding should be started within one hour of delivery, 20% knew that breastfeeding should be started within 24 hours of delivery, 48% knew that breastfeeding should be started within 48 hours of delivery, while 90% were aware that some of the other act of breastfeeding should be there during the neonatal and infantile period.

Myths and misconceptions: Eighty women (80%) in the study group had deeply rooted myths like colostrum is not good for babies.

Only a few mothers knew about the importance of colostrum in control (4%) and precounselled groups (2%), However, postcounselling, 95% understood the benefits of colostrum [Table/Fig-2]. Neither the control group nor the precounselling group knew the importance of fore milk and hind milk, but postcounselled group understood the importance (90% and 91% respectively) [Table/Fig-2].

Maternal worries: Despite the counselling 10 (10%) women believed that they would lose their family support as the family members were against breastfeeding.

Primigravida women identified the benefits of breastfeeding to the family and to the society after counselling (90% and 86%, respectively) [Table/Fig-2].

S. No.	Study questionnaire	Control group n (%)	Precounselled group n (%)	Postcounselled group n (%)	Postcounselled group vs control group Odds ratio	Precounselled group vs postcounselled group Odds ratio
1.	Mothers who know about proper position of breastfeeding	12 (12%)	10 (10%)	95 (95%)	139.3 (47.2-411.4) p<0.001	171 (56.2-510.6) p<0.001
2.	Mothers who know about proper latch	10 (10%)	8 (8%)	92 (92%)	103.5 (39.1-274.1) p<0.001	132.2 (47.6-367.4) p<0.001
3.	Mothers who know when to start breastfeeding after delivery	14 (14%)	12 (12%)	95 (95%)	116.7 (40.4-337.5) p<0.001	139.3 (47.2-411.4) p<0.001
4.	Mothers who know about ideal duration of each breastfeed session	8 (8%)	9 (9%)	86 (86%)	70.6 (28.3-176.7) p<0.001	62.1 (25.7-150.9) p<0.001
5.	Mothers who know about ideal time interval between two breastfeeding sessions	13 (13%)	14 (14%)	92 (92%)	76.9 (30.4-194.7) p<0.001	70.6 (28.2-176.7) p<0.001
6.	Mothers who know about duration of feed on each breast	8 (8%)	6 (6%)	93 (93%)	152.8 (53.2-438.6) p<0.001	208.1 (67.4-642.7) p<0.001
7.	Mothers who know about benefits of breast milk to baby	12 (12%)	15 (15%)	96 (96%)	176 (54.7-585.9) p<0.001	136 (43.4-425.6) p<0.001
8.	Mothers who know about benefits of breastfeeding to themselves	5 (5%)	4 (4%)	94 (94%)	297.7 (87.8-1008.8) p<0.001	376 (102.8-1375.1) p<0.001
9.	Mothers who know about benefits of colostrum	4 (4%)	2 (2%)	95 (95%)	456 (117.8-1750) p<0.001	931.0 (176.3-4915) p<0.001
10.	Mothers who know about importance of fore milk	1 (1%)	1 (1%)	90 (90%)	891 (17.028-21.179) p<0.0001	891 (17.028-21.179) p<0.0001
11.	Mothers who know about importance of hind milk	1 (1%)	1 (1%)	91 (91%)	1001 (18.009-22.18) p<0.0001	1001 (18.009-22.18) p<0.0001
12.	Mothers who know about benefits of breastfeeding to family	1 (1%)	1 (1%)	90 (90%)	891 (17.028-21.179) p<0.0001	891 (17.028-21.179) p<0.0001
13.	Mothers who know about benefits of breastfeeding to society	1 (1%)	1 (1%)	86 (86%)	608.14 (14.134-18.233) p<0.0001	608.14 (14.134-18.233) p<0.0001

[Table/Fig-2]: Comparison of study groups with the control group based on the 13 variables from the study questionnaire (N=100 in each group). p<0.05* is statistically significant

Lack of confidence: Ten (10%) women believed that flat nipples could not be helped, and bottle feeding was the only solution for flat nipples. Ten percent of the women thought that they were too unhealthy, recurrently ill, and not physically well built to breastfeed. Fifty (50%) women underwent caesarean section; among them, 20% found it difficult to follow the complete schedule of breastfeeding. The authors noted that 10 (10%) women were worried that breastfeeding does sag down their mammary glands.

The questionnaire score in the control group was 4.23±0.94 and in the study group was 11.29±0.93. Breastfeeding assessment score in the control group was 17.2±1.85 and in the study group was 17.85±1.76. Both scores were more in the interventional group, and the difference was statistically significant (p<0.001** and p=0.002*, respectively) [Table/Fig-3].

Scores	Groups	Mean±SD	Std. error mean	p-value (t-test)
Questionnaire score	Control group	4.23±0.94	0.094	<0.001
	Postcounselling study group	11.29±0.93	0.093	
Breastfeeding assessment score [20]	Control group	17.2±1.85	0.185	0.002
	Postcounselling study group	17.85±1.76	0.176	

[Table/Fig-3]: Questionnaire score and breastfeeding assessment score unpaired t-test (N=100 in each group).
p<0.05* is statistically significant

DISCUSSION

The present study emphasises the importance of antenatal counselling in the proper establishment of breastfeeding, thereby decreasing neonatal mortality.

The study observed that more than 80% (80) were educated up to 12th grade compared to the control group, which was 15% [15]. More literate people came forward to participate in the study and were willing to abate taboos. A study was conducted in Bihar, which stated that literacy helped to evade cultural taboos [5]. The current study observed that the subjects had witnessed the different impacts on breastfeeding practices and myths. A similar study was conducted in 2012, in 20 random cities in the US, which found a huge religious effect on breastfeeding patterns [22].

The authors observed that 20 (20%) of study group mothers were influenced by their elders. A study was conducted in Sao Paulo, which found that 60% of grandmothers influenced breastfeeding patterns [23]. Among the study group, greater the age of the mother, the higher was her response to counselling. A study conducted in the United States in 2010 reported that 92.5% received antenatal counselling in <20 years old population and 80% in the population older than 25 years [24].

Most of the women in the present study had the misconception that the first two days' milk production isn't sufficient for the baby, at the same time pain during breastfeeding is inevitable, and breastfeeding affects her further fertility. A similar study by UNICEF highlights the 14 common myths in breastfeeding practice [25]. A study conducted in Tigray, Ethiopia, in 2017 considers a lower number of antenatal visits, lack of maternal education about colostrum's benefits, and lack of postnatal medical supervision as a cause of colostrum avoidance by mothers [11]. A study conducted in north-eastern Ethiopia found that 13.5% of women avoid colostrum [10].

Most women who had denied breastfeeding earlier agreed after counselling in the present study. In a study from Odisha, 64% intended to exclusively breastfeed without counselling [26]. A study from Ranchi, India, in 2017 reported that 91.3% were aware of the initiation of breastfeeding [27]. Another study conducted in Ghana in 2018 reported that 63.4% women started breastfeeding within one hour of delivery [28].

In the current study, 10 (10%) women had maternal worries and were afraid of losing support from their families who were against breastfeeding. A study conducted in Nigeria in 2018 found that mothers expressed concerns that they may not win their family's support if their views opposed theirs [29]. A Bangalore study stated that 40.2% of the mothers opined that breastfeeding can affect the beauty of the feeding mothers and 56.6% indicated that breastfeeding should be stopped when they start weaning the baby [30]. A study conducted in Sri Lanka in 2016 found that poor maternal attitudes toward breastfeeding was an impacting factor for the continuation of breastfeeding [31].

A meagre 10 (10%) of women in the current study considered themselves unfit to breastfeed due to the flat nipples. A study in Australia during 2014 reported maternal inferiority complex statements like feelings of guilt, failure, and being judged as barriers to breastfeeding. A study in 2013 in Kinshasa listed no confidence in the ability to breastfeed, no plan on the duration of breastfeeding, breastfeeding problems during the first week, and a low level of breastfeeding knowledge [32]. A study conducted in Norway in 2018 reported the following barriers to breastfeeding: abdominal pain during or after breastfeeding, fear of the evil eye, and burping giving rise to pain in the breast [33]. A study conducted in Gujarat established that operative delivery accounts for 30% of the contributory factors for the failure to breastfeed [34].

This study evaluated the effectiveness of antenatal counselling about breastfeeding by scrutinising knowledge and practice of 100 counselled study group before and after counselling and comparing it against 100 non counselled control group. This study thus observed that such motivation to antenatal women would produce successful breastfeeding rates of up to 90%. A similar study was conducted in Pondicherry with a success rate of 87% [35], in Turkey with 96% [12], in Iran with 75% [36], in middle India with 65.5% [37] and in Uttar Pradesh with 73.4% success rates [7].

The Iranian study attributed the pivotal role of health care professionals in breastfeeding success [36]. A randomised controlled trial conducted in a tertiary hospital in Singapore revealed that antenatal breastfeeding education and postnatal lactation support significantly improved rates of exclusive breastfeeding up to six months after delivery [38]. A quasi-experimental study done in Turkey measured the effectiveness of the counselling in both groups using the latch breastfeeding assessment tool, and the Breastfeeding Self Efficacy Scale-Short Form (BSES-SF). Both scores were significantly higher in the intervention group [39]. A study by Mizrak B et al., also showed good breastfeeding self efficacy and success in antenatally educated groups. In this study, they followed mothers upto eight weeks. They used BSES-SF and latch score to know the awareness and breast feeding success, respectively. Both scores were statistically significant at eight weeks with a p-value <0.001 [40]. This study focused on primigravida women as they are more vulnerable to every physiological, psychological, and pathological change during pregnancy and postpregnancy, affecting their confidence about breastfeeding and disturbing their mental serenity, which would further hinder galactogenesis. A similar study was conducted in Bihar, focusing on primigravida women

with a statistical significant p-value <0.001 [5]. A study conducted on primigravida women in Tunisia in the eastern Mediterranean, in 2010 showed that 41.5% of the women breastfed exclusively while 58.5% bottle fed only or did so with breastfeeding; those who breastfed, 43.0% did not do so soon after giving birth [41]. The current study emphasised the importance of implementation of the given counselling in the first 48 hours of the postnatal period, making them witness the seriousness of the healthcare system to achieve this multifactorial dream.

Limitation(s)

The present study had certain limitations. Antenatal counselling for all women was not conducted at the same stage of the maternity period; hence differential memory states for different women could have biased the results. In addition, validity and reliability of the questionnaire were not assessed, and lack of randomisation were the significant limitations of the present study.

CONCLUSION(S)

This study indicates that antenatal counselling motivates the primigravida women to initiate breastfeeding immediately and continue for the first six months, thereby increasing the frequency and duration of breastfeeding and imparting breast milk's nutritional benefits to the baby. Thus, strategies under the national programmes to improve the quality of antenatal counselling should be strengthened. Furthermore, this research helps to dispel darkness in the minds of primigravida women by enlightening them knowledgeably about the preciousness of breast milk and breastfeeding.

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