Original Article

Evaluation of Lactation Support Education among Primiparous Post-Cesarean Mothers

Nasreen Asghar, Madiha Mukhtar and Sarfraz Masih

ABSTRACT

Objective: To evaluate the effects of Lactation Support education on mother's knowledge regarding breastfeeding and breast engorgement in primiparous post cesarean women.

Study Design: Quasi-experimental study

Place and Duration of Study: This study was conducted at the Sharif Medical Hospital Lahore from 1st July 2025 to 30th November 2025.

Methods: This study was conducted among 90 primiparous mothers. A questionnaire regarding breastfeeding knowledge and Hill & Humenick six-point breast engorgement scale was used to collect the data. The participants' baseline breastfeeding knowledge scores was initially obtained through pre-assessment. The intervention group took part in prenatal lactation support education two weeks earlier to their planned cesarean section. The intervention group received lactation support education. After intervention the knowledge and breast engorgement was assessed to see the effect of the intervention.

Results: The intervention group showed a noticeable improvement following the intervention. Their mean rank knowledge score increased significantly to 66.59±2.256 from the control group's mean of 24.41±1.876 (z= –7.724, p=0.000). Similarly there was a statistically significant difference in breast engorgement outcomes between the control and intervention groups, where the control group had a substantially higher mean rank 56.37±1.252 as compare to the intervention group 34.63±0.919, indicating less engorgement symptoms (p-value of 0.000)

Conclusion: The lactation support education improved breastfeeding knowledge and reduced breast engorgement among primiparous mothers. Following the instructional session, mothers in the intervention group shown a notable improvement in their breastfeeding knowledge from poor to good, but the control group showed little change.

Key Words: Lactation education, Breast feeding support, Breast feeding knowledge, Breast engorgement

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INTRODUCTION

Breastfeeding is vital for the health and development of both mother and child, providing essential nutrition and strengthening maternal-infant bonding.[1] Lactation changes in the mammary glands brought about by pregnancy and delivery are essential for successful breastfeeding, which is vital to the survival of the newborn.[2,3] However, breastfeeding issues like engorgement, low milk supply, and delayed lactation can make exclusive breastfeeding difficult, especially for first-time mothers C-sections are becoming more common worldwide, with more than 1.8 million being performed every year, and rates that are even higher than the WHO recommendation of 10-15%.[4]

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The rapidly increasing population of Pakistan and lack of adequate health care facilities also contribute to maternal and neonatal health issues.[5]

Post-cesarean mothers experience extra complications such as pain, delayed lactation and challenges to self-care during recovery that may have a negative effect on breastfeeding.[6] The discomfort, pain and decreased milk production caused by breast engorgement are among the main obstacles to exclusive breastfeeding[7] and are the result of hormonal feedback mechanisms.[8] Early lactation is especially vulnerable[9] owing to delayed responses of prolactin and oxytocin, and incomplete ductal emptying.[10] Other factors such as misconceptions, work-related constraints and environment also cause mothers to supplement with formula or water, reducing exclusive breastfeeding rates.[11] Breastfeeding interventions, such as lactation empowerment programs, are needed to enhance breastfeeding outcomes.[12] These programs, delivered by trained nurses, focus on educating mothers about breastfeeding techniques[13], managing engorgement, and promoting adequate milk supply.[14] Addressing gaps in knowledge and support can enhance lactation initiation, reduce breast engorgement, and promote exclusive breastfeeding[15], ultimately improving maternal and

infant health and reducing long-term economic and cognitive losses at the national level.[16]

METHODS

This two groups cases and control quasi experimental study was conducted at Department of Gynecology & Obstetrics, Sharif Medical City Hospital Lahore, Pakistan from 1st July 2025 to 30th November 2025 vide letter No. UOL/IREB/25/09/0016 dated 30th June 2025. The study population consisted of primiparous prenatal women. A purposive sample of 90 participants was recruited based on the inclusion criteria. Sample size was calculated while using Openepi version 3 with 95% confidence interval, 5% margin of error by using formula. Only first-time mothers with no prior breastfeeding experience, participants had an elective caesarean section, mothers ages of 18 and older-the typical range for new mothers accepted and women are eligible if they do not have any medical illnesses that prevent them from nursing, such as active breast infections etc were included. Mothers with prior pregnancies and breastfeeding experiences, unable to participate in breastfeeding or postnatal care due to severe postpartum mental health issues and serious pre-existing diseases, such as uncontrolled diabetes, severe cardiovascular disease were excluded.

Intervention group took part in prenatal lactation support education two weeks earlier to their planned cesarean section. A group comprising of 5-6 individuals received lactation support education, where a researcher delivered a detail education on the anatomy and physiology of the breast, the importance of breastfeeding methods, strategies for appropriate breastfeeding and challenges in post cesarean women. various breastfeeding positions were discussed like sitting & standing positions, football hold, cross-over hold, and side-lying position. Additional topics were covered the role of breastfeeding in breast engorgement prevention. While control group received only routine care no additional knowledge provided to them. The data was entered and analyzed through SPSS-25.

RESULTS

The demographic characteristics of participants were similar in both control and intervention groups. Most were aged 26–30 years (40% control, 42.2% intervention) and married (95.6%), with the majority being housewives (93.3% control, 86.7% intervention). The control group had more urban residents (57.8%), while the intervention group had a higher proportion with university education (37.8%) and rural residency (48.9%). Most participants belonged to extended families, and around two-thirds in both groups reported insufficient household income (Table 1).

The intervention significantly enhanced participants' knowledge. Before the intervention, 73.3% had poor knowledge, 26.7% had fair knowledge, and none had good knowledge. After the intervention, 64.4% achieved good knowledge, 35.6% fair knowledge, and no participants remained in the poor knowledge category, demonstrating a marked shift from low to high knowledge levels (Table 2).

Table No. 1: Demographic findings of the participants (n=90)

Variable	Control Group	Intervention Group
Age (years)		
<20	2 (4.4%)	5 (11.1%)
21-25	12(26.7%)	11(24.4%)
26-30	18(40%)	19(42.2%)
31- 35	13(28.9%)	10(22.2%)
Residence		
Rural	19 (42.2%)	22 (48.9%)
Urban	26(57.8%)	23(51.1%)
Education Level		
Basic	16 (35.6%)	8 (17.8%)
Secondary	19 (42.2%)	20 (44.4%)
University and above	10 (22.2%)	17 (37.8%)
Occupation		
Working Women	3 (6.7%)	6 (13.3%)
Housewife	42 (93.3%)	39 (86.7%)
Type of family		
Housewife	42 (93.3%)	39 (86.7%)
Nuclear	18(40%)	17(37.8%)
Extended	27(60%)	28(62.2%)
Monthly Income		
Enough	15(33.3%)	17(37.8%)
Not enough	30(66.7%)	28(62.2%)
Enough and saving	-	-
Marital Status		
Married	43(95.6%)	43(95.6%)
Divorced	2(4.4%)	2(4.4%)
Widow	-	-

Table No. 2: Knowledge of breast feeding among primi-parous women intervention group (n=45)

Knowledge Level	Pre-Intervention	Post Intervention
Poor Knowledge	33 (73.3%)	-
Fair Knowledge	12 (26.7%)	16 (35.6%)
Good Knowledge	-	29 (64.4%)

The intervention significantly reduced breast engorgement. In the intervention group, 73.3% reported no engorgement compared to 17.8% in the control group. Mild, moderate, and severe engorgement was higher in the control group (33.4%, 13.6%, 17.8%) than in the intervention group (8.9%, 8.9%, 4.4%). These results show the intervention effectively lowered both the frequency and severity of breast engorgement (Fig. 1).

At baseline, there was no significant difference in breastfeeding knowledge between the control (44.26±2.003) and intervention groups (46.74±1.694; p=0.640). After the intervention, the intervention group showed a significant improvement (66.59±2.256) compared to the control group (24.41±1.876; z = –7.724, p=0.000), demonstrating the effectiveness of the educational program (Table 3). Post-intervention, the intervention group showed significantly lower breast engorgement (34.63±0.919) than the control group (56.37±1.252), with the difference being statistically significant (Z = –4.260, p=0.000, p<0.05) [Table 4].

Table No. 3: Knowledge of breast feeding control versus intervention (n=90)

Breast Engorgement	Control (Mean Rank±SD)	Interventional (Mean Rank±SD)	Z test	P-value
Pre Intervention	44.26±2.003	46.74±1.694	-.468	0.640
Post Intervention	24.41±1.876	66.59±2.256	-7.724	0.000

Mann Whitney U test with p<.05 value as significant

Table No. 4: Effect of intervention on breast engorgement

Breast Engorgement	Control (Mean Rank±SD)	Interventional (Mean Rank±SD)	Z test	P-value
Post-Intervention	56.37±1.252	34.63±.919	-4.260	0.000

Mann Whitney U test with p<.05 value as significant

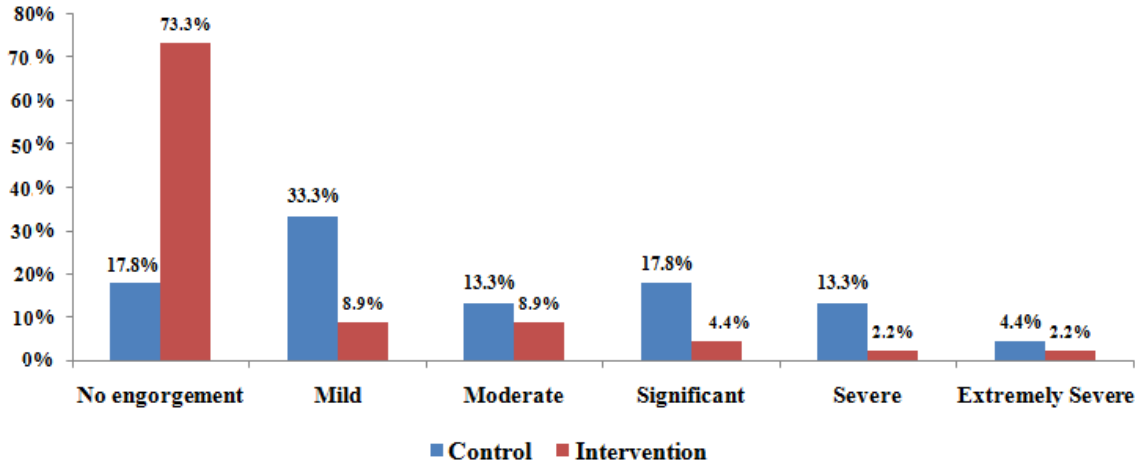

Figure No. 1: Breast engorgement levels among control and intervention groups

DISCUSSION

The demographic data found in this study was relatively similar between the intervention and control group, suggesting homogeneity and encouraging the internal validity for the intervention provided. In terms of age distribution, the majority of mothers in both groups were between the ages of 26 and 30 (40% in the control group and 42.2% in the intervention group), followed by those between the ages of 31 and 35. There were fewer women under the age of twenty in both groups, indicating that the study population did not adequately represent teenage pregnancies. The majority of moms had inadequate monthly income (66.7% control, 62.2% intervention), lived in extended families (60% control, 62.2% intervention), and were housewives (93.3% control, 86.7% intervention). The control group had a somewhat larger percentage of urban residents (57.8%) than the intervention group (51.1%). In terms of education, the majority of women had completed secondary school, while the intervention group had a greater percentage of moms with a university degree (37.8% vs. 22.2%). 95.6% of them were married. These results are in strong agreement with Awad et al[17] in Egypt, the average mother's age was 26.3 years, that 78% of moms were housewives, and that almost 40% had a university degree. Similar to the prenatal profile of the current study, another comparable study carried out in Egypt found that the majority of participants were primigravida (80%) with a mean gestational age of 32 weeks.[18] In similar way, another study from Egypt found supporting findings to this current study where 75% of the participants were married, living in rural areas, having low incomes.[19] Furthermore another such research conducted in India found similar findings, where a large number of mothers were living in joint families and more that 50% of the mothers were having secondary education, suggesting very similar pattern of home and residential pattern to the current study.[20]

Inconsistent to the findings of this current study, some differences in demographics were observed in a

previous study conducted by Velioğlu and Demirci2[1], the experimental and the control group had varied demographics especially in term of education status, employment and gestational age among mothers. Such differences in the groups may be because of the regional variations and differences in healthcare services. Amin et al[19] also observed a largely working maternal population, demonstrating diversity in female labor involvement across cultural and national contexts, whereas the majority of participants in the current study were housewives. Such differences may influence breastfeeding continuity and maternal exposure to health education.

Furthermore, the current study's control and intervention groups' similar demographics support causal inference by guaranteeing that post-intervention gains in knowledge and breast engorgement were mainly attributable to the educational intervention rather than demographic confounders. According to health literacy theory, the intervention group's increased percentage of educated moms may have improved information retention and implementation. According to the current study, no moms attained good knowledge after the intervention, and only a slight improvement in knowledge was seen in the control group, with poor knowledge declining from 68.9% to 53.3% and fair knowledge risings from 31.1% to 46.7%. On the other hand, the intervention group showed a significant improvement, with fair knowledge reaching 35.6%, good knowledge rising from 0% to 64.4%, and poor knowledge falling from 73.3% to 0%. This demonstrates the lactation support educational intervention's high efficacy. These results are consistent with a prior study that found that strong knowledge rose to 83% ($p<0.001$) while poor knowledge decreased from 41% to 17%.[17] More consistently, during a past study the good knowledge score among the mothers raised from 14.3% during the pre-intervention phase to 80% during the post-intervention period.[18] In another study conducted by Amin et al[19] was found that during post intervention period, good knowledge score among the participants increased to 85% and on the other hand the poor knowledge score decreased from 95% at pre intervention to 16% during the post intervention assessment. According to Tak and Chaturvedi[20], mean knowledge rose from 11.0±2.77 to 20.96±1.24 ($p=0.001$).

Breastfeeding Knowledge scores among mothers at baseline assessment in this present study were very similar between the control and intervention group ($p = 0.640$), showing homogeneity between the groups. Following the intervention, there was a highly significant difference ($Z=-7.724$, $p=0.000$), with the intervention group's mean rank being 66.59 as opposed to the control group's 24.41. Prior to study consistently showed that following the implementation of the supportive educational intervention, primiparous women's understanding of breastfeeding and breast engorgement greatly improved, with a highly significant difference at ($P<0.01\%$) (18). In a similar way, Amin et al[19] found a positive correlation between knowledge and less breast problems, as well as notable gains in mother self-care habits and knowledge. Tak and Chaturvedi[20] found that among primiparous moms participating in a structured educational program, mean post-test knowledge levels were significantly higher than pre-test values. The report claims that the significant increase in breastfeeding knowledge seen in this study is consistent with results from a number of recent investigations.

Furthermore, Devasia et al[22] found that educational interventions resulted not a significant improvement in participants' knowledge, where mothers were still found having inadequate knowledge regarding breastfeeding. The need and significance of a well-integrated multimodal and interactive therapy for primiparous mothers is highlighted to bring the difference.

This current study revealed that 73.3% participants from the intervention group had no breast engorgement, while in the control group only17.8% participants had no breast engorgement. Moreover 18% participants in the control group developed severe breast engorgement. These findings suggest that the education intervention decreased the incidence of breast engorgement among the participants in the intervention group.

CONCLUSION

The structured lactation support intervention is likely to be effective in enhancing knowledge about breastfeeding and decreasing breast engorgement in primiparous mothers. There were significant improvements in knowledge for the mothers in the intervention group, and in the incidence and severity of engorgement, compared with the control group. The results indicate that breastfeeders who received skill-based breastfeeding counseling in a targeted manner were more comfortable, had better feeding outcomes, and were more successful in breastfeeding, thus emphasizing the need to incorporate targeted, skill-based breastfeeding education into routine postpartum care.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Nasreen Asghar, Madiha Mukhtar
Drafting or Revising Critically:	Nasreen Asghar, Sarfraz Masih
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

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