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Original Research Article

Enhancing Early Initiation of Breastfeeding through Quality Improvement Interventions in Newborns Delivered at a Tertiary Care Centre

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Abstract

Background: Early initiation of breastfeeding (EIBF) and immediate skin-to-skin contact (SSC) are evidence-based practices that significantly reduce neonatal morbidity and mortality. Despite strong recommendations, EIBF remains suboptimal in many institutional delivery settings due to multifactorial barriers. This study aimed to identify barriers to EIBF and evaluate the effectiveness of a structured quality improvement (QI) intervention using Plan–Do–Study–Act (PDSA) cycles in a tertiary care hospital.

Methods: A prospective QI initiative was conducted over 20 months (May 2024–December 2025) in the Departments of Paediatrics and Obstetrics & Gynaecology of a tertiary care hospital. Baseline data were collected for 285 eligible mother–neonate dyads to assess EIBF and SSC practices and identify barriers through root cause analysis. Four sequential PDSA cycles were implemented, focusing on staff role allocation, training, and development of standard operating procedures, maternal counselling, simulation-based learning, and inclusion of caesarean deliveries, followed by a sustenance phase. EIBF and SSC rates were tracked across phases.

Results: At baseline, EIBF and SSC rates were 12.6% and 20%, respectively. Major barriers included lack of awareness, inadequate counselling, absence of standardized protocols, staffing constraints, and procedural separation of mother and newborn. Progressive improvement was observed across PDSA cycles, with EIBF increasing to 24%, 35%, 40.1%, and 72% by the fourth cycle, and SSC rising to 32%, 51.3%, 73.2%, and 82%, respectively. During the sustenance phase, rates declined to 56% for EIBF and 62.1% for SSC, highlighting the importance of continued supervision and institutional support.

Conclusion: A structured, context-specific QI approach using PDSA cycles significantly improved EIBF and SSC rates. Sustained gains require ongoing supervision, clear policies, and integration into routine clinical practice.

Keywords: Early initiation of breastfeeding; Skin-to-skin contact; Quality improvement; PDSA cycle; Neonatal care; Tertiary care hospital.

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Introduction

Breastfeeding is universally acknowledged as one of the most effective interventions for ensuring neonatal survival, optimal growth, and healthy development during infancy. Human breast milk provides complete and balanced nutrition tailored to the physiological needs of newborns and infants. Beyond its nutritional value, breastfeeding confers significant immunological protection, supports neurocognitive development, and contributes to favorable long-term metabolic outcomes [1,2]. For mothers, breastfeeding facilitates postpartum recovery by promoting uterine involution, reducing postpartum hemorrhage, lowering the risk of certain malignancies and chronic diseases, and strengthening the emotional bond between mother and child [3]. Among optimal breastfeeding

practices, early initiation of breastfeeding (EIBF) holds particular importance. EIBF is defined as placing the newborn to the breast within the first hour of birth. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) strongly recommend EIBF as a key component of essential newborn care and as a foundational step toward achieving exclusive breastfeeding for the first six months of life [4,5]. Early initiation serves as an indicator of quality intrapartum and immediate postnatal care and represents a low-cost, high-impact intervention, especially in low- and middle-income countries where neonatal mortality remains a major public health concern.

The benefits of EIBF are mediated through several biological and physiological mechanisms. Colostrum, the first milk secreted in the immediate postnatal period, is rich in immunoglobulins—particularly secretory IgA—as well as leukocytes, cytokines, growth factors, and antimicrobial peptides. These components provide passive immunity, enhance gut mucosal protection, and significantly reduce the risk of neonatal infections such as sepsis, pneumonia, and diarrhoea [6,7]. Early breastfeeding also minimizes the practice of prelacteal feeding, which is often unhygienic and exposes newborns to contaminated substances, thereby increasing susceptibility to infection [7]. In addition, early skin-to-skin contact and suckling facilitate the transfer of beneficial maternal skin microbiota to the neonate, promoting healthy colonization of the infant's skin and gut and offering protection against pathogenic organisms [8]. From a physiological perspective, early initiation of breastfeeding contributes to stabilization of neonatal cardiorespiratory parameters, maintenance of blood glucose levels, and prevention of hypothermia [9]. For mothers, early suckling stimulates oxytocin release, which enhances uterine contractions, reduces postpartum blood loss, and facilitates placental expulsion, thereby reducing maternal morbidity [10]. These combined maternal and neonatal benefits underscore EIBF as a critical, dual-benefit intervention during the immediate postnatal period.

A substantial body of epidemiological evidence has established a strong association between the timing of breastfeeding initiation and neonatal survival. Large population-based studies and pooled analyses have consistently demonstrated that delayed initiation of breastfeeding is associated with increased neonatal mortality. Studies involving nearly 100,000 newborns from India, Ghana, and Tanzania revealed that infants breastfed between 2–23 hours after birth had a significantly higher risk of neonatal death compared to those breastfed within the first hour, with the risk increasing further when initiation was delayed beyond 24 hours [11]. Population-level interventions improving EIBF practices have resulted in marked reductions in neonatal mortality, with reported declines of approximately 22% in Ghana and 19% in Nepal [12,13]. It has been estimated that more than one million neonatal deaths globally could be prevented annually if all newborns were breastfed within the first hour of life [6]. Despite this compelling evidence, the practice of EIBF remains suboptimal worldwide. Global estimates indicate wide variation in EIBF prevalence, ranging from 17% to 58%, with an average of around 50% in many developing regions [14]. In India, although institutional delivery rates have increased substantially, EIBF rates remain disappointingly low. Data from the National Family Health Survey (NFHS-4 and NFHS-5) indicate that only 41–43% of newborns are breastfed within the first hour of birth [15]. This discrepancy highlights missed opportunities for delivering optimal newborn care within health-care facilities.

Multiple barriers to EIBF have been identified at the maternal, provider, and health-system levels. Maternal factors include post-delivery fatigue, pain, difficulty in positioning, and inadequate knowledge or confidence regarding breastfeeding [16]. However, health-system-related barriers are often more influential in institutional settings and include heavy workloads, staffing shortages, delays in postnatal transfer, lack of standardized protocols, insufficient antenatal and intrapartum counseling, and limited training of health-care providers [17]. In tertiary care centers managing high-risk pregnancies and neonatal complications, clinical priorities may inadvertently overshadow early breastfeeding practices.

Traditional policy-based or training-only approaches have often been insufficient to bridge the gap between evidence and practice. In this context, quality improvement (QI) methodologies provide a structured, data-driven, and context-specific approach to improving health-care processes. QI strategies emphasize identification of local barriers, testing small-scale changes, engaging frontline staff, and continuous monitoring through iterative feedback [16,17]. The Point-of-Care Quality Improvement (POCQI) model, utilizing Plan-Do-Study-Act (PDSA) cycles, is particularly suitable for resource-constrained settings as it promotes locally driven solutions and sustainability.

Recognizing the need for a systematic and sustainable approach, the present study was conducted to improve early initiation of breastfeeding among newborns delivered at a tertiary care center through structured quality improvement interventions using the POCQI framework and PDSA cycles

Materials and Methods

Study Design: The present study was conducted as a quality improvement (QI) initiative using the Plan–Do–Study–Act (PDSA) methodology to improve the rate of early initiation of breastfeeding (EIBF) among eligible newborns. A structured, phased approach was adopted, comprising baseline assessment, root cause analysis, sequential implementation of PDSA cycles, and a sustenance phase to ensure long-term maintenance of the achieved improvements.

Study Duration: The study was carried out over a period of twenty months, from May 2024 to December 2025.

Study Setting: This study was conducted in the Departments of Paediatrics, Obstetrics, and Gynaecology at Santosh Hospital, a tertiary care teaching hospital. Multiple clinical areas were involved at different stages of the QI process, including the labour room, operation theatre, antenatal ward, postnatal ward, neonatal intensive care unit (NICU), and the gynaecology outpatient department.

Study Population

Inclusion Criteria

- Inborn neonates who were clinically stable
- Neonates in whom oral feeding could be initiated
- Birth weight > 1.8 kg
- Gestational age ≥ 35 weeks
- No contraindication to early initiation of breastfeeding
- Availability of informed parental consent

Exclusion Criteria

- Neonates requiring NICU admission
- Neonates with surgical conditions or life-threatening congenital malformations
- Neonates born to mothers who were clinically unstable or required separation from the baby

Sample Size: The minimum required sample size was calculated as 364 neonates per group, based on a 95% confidence interval and a 5% margin of error. Assuming a baseline EIBF rate of 50%, a final sample size of 384 neonates was estimated to adequately assess changes following QI interventions.

Operational Definitions

Immediate Skin-to-Skin Contact (SSC): Immediate SSC was defined as placing the naked newborn (except for a diaper and cap) on the mother's bare chest in a prone position immediately after birth. Both mother and baby were covered with a pre-warmed blanket. Essential neonatal adaptive maneuvers, including drying, umbilical cord clamping, and initial neonatal assessment, were performed during SSC. The contact was uninterrupted for a minimum duration of 60 minutes.

Early Initiation of Breastfeeding (EIBF): EIBF was defined as initiation of breastfeeding within the first one hour after birth.

Quality Improvement Framework: The quality improvement process was implemented in two major phases.

Phase 1: Baseline Assessment and Problem Analysis

Baseline Survey: A baseline assessment was conducted from May 2024 to December 2024 to determine the existing rate of early initiation of breastfeeding among eligible newborns. Data were collected from labour room registers, delivery records, postnatal ward documentation, and paediatric case records. Both normal vaginal deliveries and caesarean section deliveries were included if they met eligibility criteria for EIBF.

The baseline survey evaluated prevailing practices related to immediate skin-to-skin contact, timing of breastfeeding initiation, staff availability, counselling practices, and workflow-related challenges across different clinical areas.

Baseline Data Analysis: Baseline data were analysed to calculate the existing EIBF rate. Operational gaps, workflow inefficiencies, and system-level barriers contributing to delayed or missed EIBF were identified. These findings served as the reference point for subsequent interventions.

Root Cause Analysis: A structured root cause analysis was performed in January 2025 using a fishbone (Ishikawa) diagram. Contributing factors were categorised under Policy, People, Procedure, and Place, encompassing manpower, methods, materials, environment, maternal factors, and health-system-related issues. The results informed the design of targeted interventions for the PDSA cycles.

Phase 2: PDSA Cycles and Sustenance Phase

Four sequential PDSA cycles were implemented between February 2025 and September 2025, each lasting two months, followed by a two-month sustenance phase from October 2025 to November 2025. Only the planned interventions are described in this section.

Planned Interventions during PDSA Cycles

1. Staff Allocation and Role Definition

Dedicated teams consisting of paediatric interns, nursing staff, and postgraduate residents were planned for supervision of SSC and EIBF in the

labour room during the initial PDSA cycle. Clear role allocation ensured accountability and continuity of care. Mandatory documentation and end-of-cycle audits were planned.

2. Training and Capacity Building

Structured training sessions were planned for interns, nursing staff, and postgraduate residents, focusing on the importance of EIBF, eligibility criteria, correct positioning and latching, and management of practical challenges. Simulation-based training using mannequins and baby models was planned to enhance skill acquisition. Operation theatre-specific training was incorporated during the final PDSA cycle, while counselling skills were reinforced through fortnightly role-plays from PDSA cycle 3 onwards.

3. Development of SOPs and Checklists

Standard operating procedures (SOPs) and checklists for SSC and EIBF were redesigned to address workflow barriers. These were planned for display in labour rooms, antenatal and postnatal wards, and operation theatres to standardize care practices.

4. Counselling Strategies

Antenatal counselling of mothers and family members, pre-operative counselling for elective caesarean sections, post-operative reinforcement, and structured postnatal counselling were planned during PDSA cycles 3 and 4.

5. Use of Visual and Educational Aids

Educational posters, charts, and audiovisual materials highlighting EIBF benefits and techniques were planned for display in patient-care areas from PDSA cycle 3 onwards.

Sustenance Phase: The sustenance phase aimed to ensure long-term maintenance of achieved improvements. Planned strategies included daily reminder messages via a structured WhatsApp group, continuous data collection, and integration of EIBF and SSC practices into departmental written policies with assigned staff accountability.

Ethical Considerations: As this study was conducted as a quality improvement initiative, no intervention beyond standard recommended care was introduced. Patient confidentiality was strictly maintained throughout the study.

Statistical Analysis: Statistical analysis was performed using SPSS version 25. Descriptive statistics were used to summarize baseline characteristics. Categorical variables were expressed as frequencies and percentages. Changes in EIBF and SSC rates across study phases were analysed using the Chi-square test and McNemar's test, while paired t-tests were applied for comparison of continuous variables. A p-value < 0.05 was considered statistically significant.

Results

Baseline data were analysed for 285 eligible mother–neonate dyads to understand existing practices related to early initiation of breastfeeding (EIBF) and immediate skin-to-skin contact (SSC). Nearly half of the neonates (46.7%) had a birth weight between 2.5–3.0 kg, while 28.7% weighed more than 3.0 kg and 24.6% were in the 1.8–2.4 kg range. With respect to gestational age, most neonates were delivered at 37–38 weeks (41.8%), followed by 39–40 weeks (33.3%) and 35–36 weeks (24.9%). Normal vaginal delivery accounted for 64.6% of births, whereas 35.4% were delivered by lower segment caesarean section. The majority of mothers were aged 25–30 years (45.3%), followed by those above 30 years (28.0%) and below 25 years (26.7%). Most mothers belonged to lower (41.1%) and lower-middle (37.9%) socioeconomic strata, and more than half were multiparous (55.1%). At baseline, initiation of breastfeeding was predominantly delayed, with only 37 neonates (13.0%) receiving breast milk within the first hour of birth, while 87.0% initiated breastfeeding after one hour.

Analysis of baseline data identified multiple factors contributing to delayed initiation of breastfeeding. The most frequently reported barrier was lack of awareness among mothers or family members regarding the benefits of EIBF (26.7%). Inadequate antenatal counselling on early breastfeeding was noted in 20.4% of cases. Structural and system-related issues were also prominent, including absence of clear written standard operating procedures for EIBF in the labour room or operation theatre (14.7%), non-adherence to immediate skin-to-skin contact after birth (10.9%), separation of mother and newborn for routine procedures (9.5%), and lack of designated staff responsible for ensuring EIBF (8.4%).

Cultural rituals and social taboos delayed breastfeeding in 12.6% of mothers, while maternal non-cooperation due to pain or effects of anaesthesia following vaginal or caesarean delivery was reported in 11.9%. Other contributing factors included lack of privacy in the labour room or operation theatre (10.2%), non-availability of male staff or attendants to assist mothers (9.1%), and maternal anatomical difficulties such as retracted or small nipples (20.0%). These findings highlighted the multifactorial nature of barriers to timely breastfeeding initiation. Following baseline assessment and root cause analysis, sequential PDSA cycles were implemented to address identified gaps. During PDSA cycle I (February–March 2025), 48 eligible deliveries were included. Introduction of designated teams for supervision of

SSC and early latch-on during selected morning shifts led to an increase in EIBF rates from the baseline level of 12.6% to 24.0%. The rate of immediate SSC also improved from a baseline of 20% to 32% during this cycle. Feedback from staff and mothers indicated that the intervention was feasible and acceptable without disrupting routine obstetric workflows. In PDSA cycle II (April–May 2025), 50 deliveries were included. Structured training sessions, introduction of written SOPs, use of checklists, and display of educational posters resulted in further improvement. The EIBF rate increased from 24.0% to 35.0% over the two-month period, while SSC rates rose to 51.3%. Staff reported improved clarity regarding eligibility criteria and procedures for SSC and EIBF, although the need for clearer role allocation was noted. PDSA cycle III (June–July 2025), involving 62 deliveries, focused on expanding supervised implementation across more days, simulation-based training, and enhanced maternal education through audiovisual aids and interactive sessions. After three PDSA cycles, the EIBF rate increased to 40.1%, while SSC rates showed a marked rise to 73.2%. Increased staff confidence and improved coordination were observed during this phase. During PDSA cycle IV (August–September 2025), another 62 eligible deliveries were included, with specific emphasis on elective caesarean sections. Targeted pre-operative and post-operative counselling and involvement of operation theatre staff in facilitating breastfeeding led to a substantial improvement. The EIBF rate increased from 40.1% to 72.0%, and SSC rates rose further to 82.0%, indicating successful inclusion of caesarean deliveries into the EIBF improvement framework. In the sustenance phase (October–November 2025), 64 eligible deliveries were monitored. Despite continuation of data collection and reminder-based communication through a WhatsApp group, the EIBF rate declined from 72.0% to 56.0%, and SSC rates decreased to 62.1%. This decline coincided with reduced direct supervision of early latch-on and SSC by the paediatric team. In response, a departmental written policy on EIBF and SSC was instituted, and designated staff were assigned responsibility in the labour room and operation theatre to support sustainability of the improvements achieved.

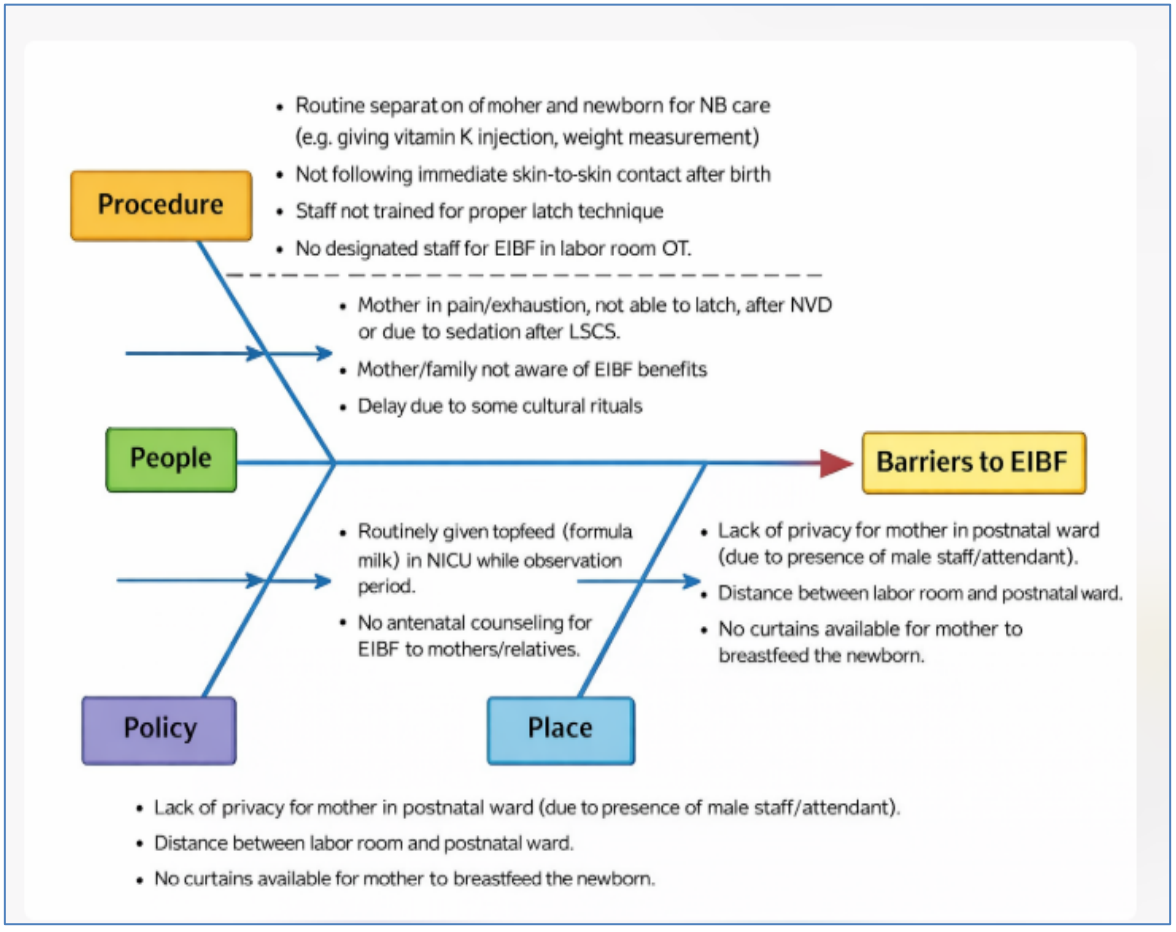

Figure 1: Fishbone diagram of possible reasons for delayed initiation of breastfeeding after baseline data analysis

Table 1:

PDSA Cycle	Plan	Do	Study	Act
PDSA – I (Feb – March '25) n= 48	- Assign a designated team of 2 interns for immediate SSC to all eligible NVD. - Assign LR nurses / 2 pediatric PGs for supervising early latch-on in LR / postnatal ward. - Routine newborn care delayed in all stable newborns for 1 hour or after SSC / EIBF.	- Immediate SSC to all eligible NVD in morning shift only on 3 days per week (Tue, Wed, Thursday). - Make a roster to assign interns and LR staff in morning shift on these 3 days.	- A new practice was introduced in LR without interference in the work of gynae / OBS dept. - Some mothers found the experience good. - Rate of EIBF increased from 12.6% to 24.0% and baseline rate of ssc 20% and icreased to 32%.	- Establishing SSC in LR improved BF initiation rate. - Can be implemented efficiently after following proper roster for given days.
PDSA – II (April – May '25) n= 50	- Training sessions for LR nursing staff / interns to use the checklist every week for 2 months. - Make clear written SOPs for EIBF benefits and display them in LR / antenatal ward.	- Sessions on technique of latching and benefits of EIBF held in LR in the 1st week. - In the 2nd week, sessions held in antenatal / postnatal ward with the help of PGs / interns. - Posters and written SOPs displayed and pasted in antenatal, LR, and postnatal wards.	- Rate of EIBF improved from 24% to 35% and rate of ssc icreased to 51.3% over 2 months. - Displayed posters enhanced and motivated the staff and mothers for EIBF.	- New SOPs and eligibility criteria for SSC & EIBF need to be clarified and circulated in a proper manner. - Role allocation needs to be specified.
PDSA – III (June – July '25) n = 62	- Increase the number of days for supervised SSC & EIBF with an assigned team. - Conduct simulation-based training using dummy & baby models for staff / interns / PGs for proper latching. - Use nukkad natak / educational videos for benefits of EIBF in antenatal ward, postnatal ward, OT & gynae OPD.	- Mothers enrolled every week from Monday to Friday. - Simulation-based training was implemented in the skill lab. - Training sessions / nukkad natak held in antenatal and postnatal wards, including gynae OPD.	- Rate of EIBF increased from 12.6% to 40.1% and rate of ssc icreased to 73.2% after 3 PDSA cycles. - More training sessions prepared the staff / PGs to work efficiently.	- This change idea needs to be implemented on a continuous basis. - Include OT staff for training sessions.
PDSA – IV (Aug – Sept '25) n = 62	- Improvement of deliveries including elective caesarean in morning shift only. - Counseling of mothers before OT and post-OT, with extra caution for EIBF.	- Counseling was done by OT PGs for eligible elective caesarean mothers. - OT nursing staff waited for suturing to be completed, and then assisted the mother in breastfeeding the baby in OT.	- EIBF rate increased from 40% to 72% and ssc rate icreased to 82% during the 4th PDSA cycle, including caesarean deliveries.	- Data collection continues. - Personalized WhatsApp reminders and group messages made for NVD / elective caesarean eligible deliveries.

Sustenance Phase (Oct – Nov '25) n = 64	- Make a WhatsApp group of pediatric JRs / NICU staff / OT staff / interns to facilitate communication. - Daily 1 reminder message to be posted on the group for eligible deliveries.	- Data collection continued over the WhatsApp group and maternal records. - Schedule followed every week for 2 months.	- Rate of EIBF declined from 72% to 56% and ssc rate also declined to62.1% as there was no supervision of early latch-on / SSC by pediatric team.	- Departmental written policy was made and a designated staff in LR / OT for EIBF was assigned. - This helped in maintaining the sustainability of achieved results.

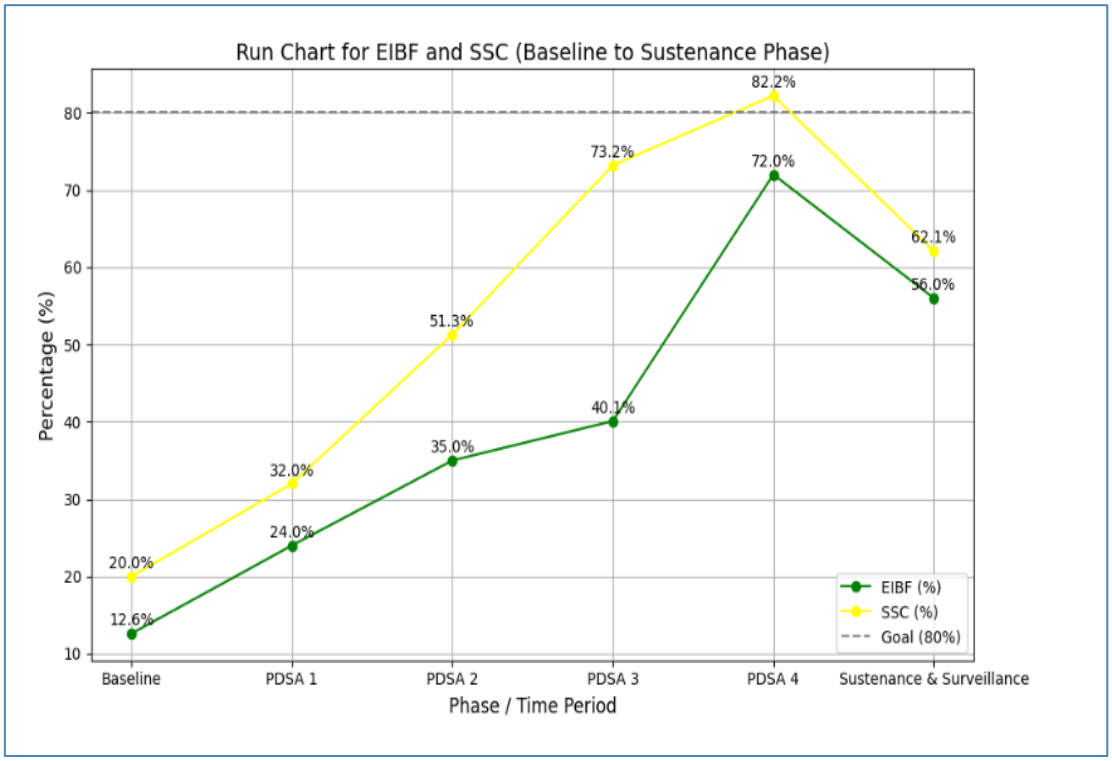

Figure 2: Run Chart showing improvement of EIBF and SSC rates from baseline to all 4 pdsa cycle and during the sustainability phase

Discussion

The present study demonstrated that a structured Quality Improvement (QI) approach using iterative Plan–Do–Study–Act (PDSA) cycles was effective in substantially improving early initiation of breastfeeding (EIBF) and immediate skin-to-skin contact (SSC) in a tertiary care hospital. At baseline, EIBF (12.6%) and SSC (20%) rates were markedly lower than national targets and World Health Organization recommendations, highlighting a significant gap between evidence-based newborn care practices and routine clinical implementation. The baseline fishbone (Ishikawa) analysis revealed multifactorial barriers, including inadequate health system organization, lack of clearly defined staff roles, insufficient training and supervision in labour room and operation theatre settings, and limited maternal awareness. These findings are consistent with observations by Sharma et al. [18] and Rahmawati et al. [19], who identified health system, provider-related, and socio-cultural factors as major determinants of delayed breastfeeding initiation in South Asian and other low- and middle-income country settings. During the first PDSA cycle, the introduction of designated interns for supervising SSC and paediatric postgraduate oversight for early latch-on resulted in a doubling of the EIBF rate from 12.6% to 24% and an increase in SSC from 20% to 32%.

This early improvement demonstrated that even modest system-level changes, such as task delegation and accountability, can produce meaningful gains without additional infrastructure or financial input. Similar results were reported by Patyal et al. [20], who achieved a dramatic rise in EIBF by restructuring staff responsibilities, and by Sisodia et al. [21], who showed that focused role allocation within PDSA cycles could raise EIBF rates from 10% to over 70%. These findings emphasize that ensuring the presence of responsible personnel during the immediate postnatal period is critical for timely breastfeeding initiation. The

second PDSA cycle focused on strengthening provider knowledge and standardizing practices through regular training sessions, development of written standard operating procedures, and use of visual educational materials. This led to further improvement in EIBF to 35% and SSC to 51.3%. These gains align with the findings of Surabhi et al. [22], who demonstrated that structured education using visual aids and demonstrations significantly enhanced breastfeeding practices. Unlike studies that focused primarily on maternal education, our intervention targeted both healthcare providers and mothers, reinforcing consistent messaging across antenatal, intrapartum, and postnatal care and thereby improving continuity of care.

In PDSA cycle III, simulation-based training using dummies and baby models, along with community-oriented educational approaches such as nukkad natak and audiovisual sessions, resulted in further increases in EIBF (40.1%) and SSC (73.2%). Simulation-based learning enhanced staff confidence and practical skills in assisting with latching, a finding supported by Yadav et al. [23], who reported sustained improvements in EIBF following hands-on team-based training. The gradual upward trend observed in our run chart mirrored the improvement trajectory described by Kaur et al. [24], highlighting the importance of staff engagement and repeated reinforcement in challenging clinical environments.

The fourth PDSA cycle represented a pivotal expansion of the intervention by incorporating elective caesarean deliveries into the EIBF pathway. Through coordinated counselling and active involvement of operation theatre staff, EIBF rates increased to 72% and SSC to 82%. These findings are consistent with studies by Kalita et al. [25] and Stany et al. [26], which demonstrated that caesarean delivery is not an inherent barrier to EIBF when multidisciplinary collaboration and structured workflows are implemented. The high EIBF rates achieved post-caesarean in our study also align with the benchmark set by Dudeja et al. [27], who reported EIBF rates exceeding 90% following targeted QI interventions. Our cumulative improvements across four PDSA cycles reflect broader evidence from regional and global literature. A meta-analysis by Rifat et al. [28] highlighted health system strengthening as the most effective intervention for improving EIBF across South Asia, while Habte et al. [29] reported that Baby-Friendly Hospital Initiative–aligned strategies significantly improved early and exclusive breastfeeding. Although our institution did not formally adopt BFHI accreditation, the core components of our intervention—SSC, delay of routine newborn procedures, staff training, and maternal counselling—closely mirrored BFHI principles and produced comparable outcomes. The sustenance phase revealed a decline in EIBF and SSC rates when active paediatric supervision was reduced, despite reminder-based communication strategies. This finding reinforces observations by Kaur et al. [24], who emphasized that continuous supervision and leadership support are essential for sustaining QI gains. Additional barriers identified in our baseline analysis, such as lack of privacy, non-adherence to SSC, mother–newborn separation, staffing constraints, and anatomical challenges like retracted nipples, were also reported by Sisodia et al. [21], Patyal et al. [20], Kalita et al. [25], and Dudeja et al. [27]. Addressing these factors through environmental modification, staffing optimization, and targeted lactation support remains crucial.

Conclusion

The present study demonstrated that early initiation of breastfeeding and immediate skin-to-skin contact can be substantially improved through a structured quality improvement approach using iterative PDSA cycles. Baseline assessment revealed significant delays in breastfeeding initiation, largely attributable to gaps in awareness, counselling, staffing, and system-level practices. Sequential, low-cost interventions focusing on staff role allocation, training, standardized protocols, maternal counselling, and inclusion of caesarean deliveries led to a marked increase in EIBF from 12.6% to 72% and SSC from 20% to 82%. The partial decline observed during the sustenance phase highlighted the critical role of continuous supervision and institutional support in maintaining gains. Overall, the findings underscore that context-specific, multidisciplinary QI strategies can effectively bridge the gap between evidence and routine newborn care practices in tertiary care settings.

Limitations of the Study

This study was conducted at a single tertiary care centre, which may limit the generalizability of findings to peripheral or resource-limited settings. The quality improvement design may not have fully captured the impact of staff turnover and variability in adherence across shifts. Cultural and socio-economic factors influencing breastfeeding practices could not be comprehensively addressed through hospital-based interventions alone. Postoperative pain and recovery after caesarean section remained intrinsic challenges to early breastfeeding despite targeted efforts. Additionally, long-term sustainability and post-discharge breastfeeding outcomes were not assessed, warranting further follow-up studies.

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