

Original Article

The Effect of Very Early Skin-to-Skin Contact on Success of Breastfeeding

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Abstract

Objective: To compare the success of breastfeeding at six weeks of life in neonates with and without early skin to skin contact (SSC)

Methods: The comparative case control study was conducted at Department of Obstetrics & Gynecology, DHQ Teaching Hospital, Gujranwala from 1st November 2024 to 31st March 2025. Non-probability consecutive sampling technique was used. After obtaining ethical committee permission 270 women were selected after fulfilling required selection criteria. Women were divided in two equal groups. In group A, the skin-to-skin contact (SSC) was applied while in group B, the routine care was provided. At the end of 6 weeks, the success of breastfeeding was assessed. Data was analyzed by SPSS 25. A p-value of ≤ 0.05 was considered as statistically significant.

Results: The mean age was 28.87 ± 6.53 years. The mean gestational age was 39.49 ± 1.69 weeks. Out of 270 babies born, 128 (47.4%) were males. The success of breastfeeding was 85 (63.0%) in group-A and 57 (42.2%) in group-B (p-value 0.001).

Conclusion: The preliminary outcomes of the skin to skin contact demonstrate a notable enhancement in the incidence of successful breastfeeding relative to standard care practices. Validation of the data through studies with larger sample sizes would yield a more comprehensive understanding of the issue.

Keywords: Breastfeeding, Early Skin-To-Skin Contact, Exclusive Breastfeeding Infant, Kangaroo-Mother Care

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Introduction

Breastfeeding is a vital bond between mother and infant, rooted in ancient tradition and crucial for infant health. Recent declines in breastfeeding rates have led to serious health issues, emphasizing the need for urgent action.¹ Early breastfeeding benefits both mother and child, reducing neonatal mortality rates globally. Promoting breastfeeding is key for improving long-term health outcomes. Healthcare professionals, policymakers, and society should advocate for initiatives supporting breastfeeding.^{2,3}

Skin-to-skin contact (SSC) after birth, known as kangaroo mother care, is crucial for both newborns and mothers, fostering their well-being during this sensitive period of life.⁴ Research shows that SSC has numerous benefits, such as reducing postpartum issues and hypothermia, and supporting successful breastfeeding.⁵ Despite its

advantages, global adoption of SSC lags behind, calling for increased awareness and education among healthcare providers. Bridging this gap is essential to ensure that the perks of SSC are universally embraced in perinatal care.^{5,6}

Sharma et al. evaluated the role of early SSC on exclusive breastfeeding in neonates and found that exclusive breastfeeding was in significantly higher proportion in neonates of SSC group as compared to controls at six weeks of age (72% vs. 57.6%, $p=0.04$).⁷ Another study in 2018 showed that based on the LATCH scores, mothers who received SSC versus routine care had 48% versus 46% successful breastfeeding ($p>0.05$).²

Recent data from Pakistan's health survey highlights high neonatal and under-five mortality rates. Preventable deaths can be reduced through proper training, early breastfeeding initiation, and promoting skin-to-skin

contact. Research shows that encouraging early skin-to-skin contact can improve breastfeeding outcomes and reduce neonatal mortality. These findings could lead to policy changes enhancing neonatal care, boosting newborn health and survival rates, addressing a critical public health issue.

Methods

This comparative case control study was conducted at Department of Obstetrics & Gynecology, DHQ Teaching Hospital, Gujranwala from 1st November 2024 to 31st March 2025. Non-probability consecutive sampling technique was used. After obtaining ethical committee permission, 270 women were selected after fulfilling required selection criteria. A sample size of 270 (135 in each group) was calculated by using power of test as 80%, level of significance as 5% and taking proportion of exclusive breastfeeding success in SSC group as 72% and in control group as 57.6%.⁷

The inclusion criteria were individuals with a singleton pregnancy at term (37-42 weeks) calculated from the last menstrual period, individuals who had undergone spontaneous vaginal delivery and ages of 18 to 40 years. The exclusion criteria were neonates presenting with congenital malformations, Individuals diagnosed with gestational hypertension, diabetes mellitus, chronic obstructive pulmonary disease, or bronchial asthma, neonates who exhibited deteriorating health during the study duration necessitating supplementary enteral or parenteral nutrition and individuals unwilling to provide informed consent.

The study categorized participants into two equal groups using a computer algorithm. Group A received Skin-to-Skin Contact intervention, while Group B received standard care with a radiant warmer post-delivery. Perinatal care followed established protocols, and discharge adhered to hospital guidelines. Patients were monitored for six weeks post-partum. Breastfeeding practices were assessed at the end of this period to contribute findings on breastfeeding success rates. The study aims to improve support for new mothers by identifying factors influencing breastfeeding success, informing future health policies.

Early skin to skin contact (SSC) was defined as placement of newborn baby naked in a prone position for 1 hour on bare chest of mother immediately (within 30 minutes) after delivery. The baby was covered with blanket and wearing dry head cap and nappy. The success of breastfeeding was labelled when there was exclusive breastfeeding (no additional formula feeds) during the first 6 weeks of life. The information was obtained via mother’s direct interview. Failure of breastfeeding was defined as total absence of milk flow or secretion of just a few drops of breast milk following

sucking for at least 7 days.

Data were systematically entered and analyzed using SPSS version 25. The quantitative variables, including age, gestational age, and BMI, were represented as means alongside standard deviations. Conversely, qualitative variables such as fetal gender and breast-feeding success were delineated through frequencies and percentages. A comparative analysis of both groups regarding breast-feeding success was conducted utilizing the Chi-square test. Potential confounding variables, including age, gestational age, BMI, and fetal gender, were accounted for through stratification. Following this stratification, the Chi-square test was employed once more. A P-value of ≤ 0.05 was deemed statistically significant.

Results

The mean maternal age was 28.87 ± 6.53 years. The mean gestational age was 39.49 ± 1.69 weeks. The mean BMI was 24.96 ± 1.99 kg/m². Out of 270 babies born, 128(47.4%) were males. Collectively success of breastfeeding was documented in 142 (52.6%) participants. The success of breastfeeding was 85(63.0%) in group-A and 57(42.2%) in group-B ($p=0.001$). The data was stratified according to the age, gestational age, BMI, and fetal gender. The results showed that the difference between was groups was significantly different among all subgroups ($p<0.05$) except gestational age >39 weeks ($p=0.200$).

Table 1: Comparison of Distribution of Different Variables Between Groups

Variables		Groups	
		Group-A	Group-B
Gender of newborn	Male	65(48.1%)	64(47.4%)
	Female	70(51.9%)	71(52.6%)
Maternal age	≤ 30 years	80(59.2%)	77(57.1%)
	>30 years	55(40.8%)	58(42.9%)
BMI	≤ 25 kg/m ²	73(54.1%)	82(60.7%)
	>25 kg/m ²	62(45.9%)	53(39.3%)
Gestational age	≤ 39 weeks	72(53.3%)	78(57.7%)
	>39 weeks	63(46.7%)	57(42.3%)

Table 2: Comparison of Breastfeeding Success Distribution Between Groups

Breast-feeding success	Groups		Total	P-value
	Group-A	Group-B		
Yes	85(63.0%)	57(42.2%)	142(52.6%)	0.001
No	50(37.0%)	78(57.8%)	128(47.4%)	
Total	135(100.0%)	135(100.0%)	270(100.0%)	

Table 3: Stratification of Breastfeeding Success Between Groups With Respect To Different Variables

Variables	Breast-feeding success	Group-A	Group-B	p-value
		n=135	n=135	
Maternal Age	≤30 years	Yes 52(65.0%)	33(42.9%)	0.005
		No 28(35.0%)	44(57.1%)	
	>30 years	Yes 33(60.0%)	24(41.4%)	0.048
		No 22(40.0%)	34(58.6%)	
BMI	≤25 kg/m ²	Yes 45(61.6%)	37(45.1%)	0.040
		No 28(38.4%)	45(54.9%)	
	>25 kg/m ²	Yes 40(64.5%)	20(37.7%)	0.004
		No 22(35.5%)	33(62.3%)	
Gestational Age	≤39 weeks	Yes 46(63.9%)	23(33.8%)	0.001
		No 26(36.1%)	45(66.2%)	
	>39 weeks	Yes 39(61.9%)	34(50.7%)	0.200
		No 24(38.1%)	33(49.3%)	
Gender of Newborn	Male	Yes 41(63.1%)	25(39.1%)	0.006
		No 24(36.9%)	39(60.9%)	
	Female	Yes 44(62.9%)	32(45.1%)	0.034
		No 26(37.1%)	39(54.9%)	

Discussion

Breastfeeding holds significant importance in public health, infant survival rates, maternal well-being, and political discourse in the current era. The crucial moments after birth provide an ideal opportunity to start effective breastfeeding to benefit both mother and child. However, a concerning trend of separating newborns from mothers has emerged due to societal and medical practices. Hospital policies and caregiving routines, like placing infants in warmers, often lead to unfortunate separations when bonding is crucial. Research shows that immediate mother-infant separation post-birth can harm their interaction quality, impact the mother's self-esteem, and affect breastfeeding success. Health practitioners and policymakers should reassess current practices to prioritize mother-infant bonding for better health outcomes.⁴⁵

When this procedure is done, it can cause negative effects in the newborn, such as increased stress, more crying, lower energy levels, difficulties in getting nutrition, and shorter breastfeeding time. Providing support during birth and avoiding separation of the mother and baby right after birth can greatly improve breastfeeding. One important support method is skin-to-skin contact, where the baby is placed on the mother's chest after birth.^{1,8}

In 1978, Rey and Martinez initiated a significant medical intervention at the Institute of Maternity and Childhood

in Bogotá, Colombia. Research highlights the vital importance of the first two hours after birth in establishing successful breastfeeding, noting newborns' heightened sensitivity to sensory cues like touch, warmth, and smell from the mother, as well as key feeding behaviors such as rooting and sucking.⁵

Infants can autonomously start breastfeeding, suggesting using their natural behaviors to help begin breastfeeding effectively. Implementing skin-to-skin care aids in this process by allowing infants to latch onto the mother's nipples instinctively, promoting a successful breastfeeding experience and fostering emotional bonding. These interactions improve the health and well-being of both mother and child, emphasizing the significance of integrating such approaches in modern maternal and child health practices.⁸

Sharma, A. (2016) showed that in SSC group, a significantly higher proportion of newborns were exclusively breastfed at 6 weeks of age than in the control group (72% vs. 57.6%, p=0.04).⁷

Through empirical investigation, data revealed significant differences in breastfeeding success between groups A and B. Group A showed a 63.0% success rate (85 individuals) compared to 42.2% in Group B (57 individuals, p=0.001). Skin-to-skin contact with the mother was associated with higher exclusive breastfeeding rates at discharge, maintaining statistical significance at three and six months post-delivery, particularly in cesarean deliveries.¹

Giang HTN and colleagues found that 88.7% of mothers had skin-to-skin contact (SSC) with their newborns right after birth, mostly seen in county hospitals. Some newborns (18.8%) had SSC for over 90 minutes without starting breastfeeding during that time. Exclusive breastfeeding rates in hospitals stood at 46.7%. The study revealed a strong link between longer SSC and higher exclusive breastfeeding rates. Infants with SSC for 15-90 minutes were more likely to exclusively breastfeed. Skin-to-skin contact benefits bonding and boosts breastfeeding success, highlighting the need for SSC protocols in hospitals. Future research should explore the lasting effects on maternal and infant health. This study offers valuable insights on the impact of early physical contact on newborn breastfeeding outcomes in clinical settings.⁹

A contemporary research investigation has reached the significant conclusion that engaging in skin-to-skin contact, often referred to as kangaroo care, has demonstrated considerable relevance and critical importance in promoting and sustaining exclusive breastfeeding practices at the time of hospital discharge for preterm infants who were born weighing between 1,125 grams and 1,655 grams, particularly emphasizing those infants

who exhibit lower severity scores in their clinical evaluations.¹⁰

In Mexico, promoting immediate skin-to-skin contact between newborns and mothers is crucial for improving health outcomes. Supporting mothers in this practice and encouraging early breastfeeding initiation within the first hour of life by trained healthcare professionals is essential. Future research should focus on evaluating strategies to enhance skin contact post-delivery and provide training for healthcare workers to support early breastfeeding effectively. These efforts aim to improve maternity services and overall well-being for mothers and newborns in Mexico, fostering healthier communities in the long term.^{11,12}

Extensive research shows minimal skin-to-skin contact in places like Nigeria and Bangladesh, despite its vital benefits for newborns. Promoting skin-to-skin care could stabilize babies' health and lower mortality rates. Healthcare providers need training to implement this practice effectively, while community education is crucial for empowering women and families. Tailored outreach efforts are necessary to ensure equal access to essential information. The collective effort aims to boost the well-being of newborns and families worldwide.^{13,4}

Numerous studies have explored how skin-to-skin contact between a mother and her infant impacts initial breastfeeding rates and duration. However, conflicting results highlight the need for a comprehensive meta-analysis to consolidate findings. Such an analysis can provide clarity on the relationship between skin-to-skin contact and breastfeeding outcomes, aiding policymakers and researchers. Notably, there is a lack of dedicated meta-analyses on the immediate effects of skin-to-skin contact after birth on first breastfeeding success, indicating a research gap.^{5,15}

Immediate skin-to-skin contact at birth boosts breastfeeding success and duration, influenced by multiple factors. Theoretical ethology explains how innate behaviors, crucial for survival, emerge effortlessly during a sensitive developmental period. This phase enables the organism to acquire essential skills for adaptation. The interplay of instincts and environment during this period is key to fostering strong maternal-infant bonds and successful breastfeeding. Understanding these mechanisms can enhance health outcomes for mothers and children.¹⁶

The first hour after birth is crucial for the bonding and adaptation of both the baby and the mother. Practical recommendations based on newborn behavior can help improve care and strengthen the mother-infant connection. It is essential to protect this time using evidence-based protocols to ensure the health and well-being of

both. Creating a supportive environment during this hour can meet the newborn's needs and build a strong emotional bond for future development.⁶ Mikiel-Kostyra, K., and colleagues found that direct contact between mothers and infants right after birth significantly influences the initiation and duration of exclusive breastfeeding. They emphasized the need to support bonding in the postnatal period as a key factor for successful breastfeeding. These findings highlight the importance for healthcare providers to encourage immediate mother-infant interaction to improve breastfeeding rates.¹⁵

Various researchers suggest that feeding practices in infants show characteristics of innate behaviors. Ethology offers a biological explanation for how a mother's interaction and physical contact with her infant impact breastfeeding success and duration. This theoretical framework helps understand infants' inherent behaviors, like searching for the breast and sucking motions. Separation from the mother can disrupt these instinctual behaviors during a critical developmental phase, as neonates transition from the womb to the external world. Infants must quickly adapt to survive and thrive, emphasizing the crucial link between innate behaviors and maternal interaction in early development.¹⁷ Ethologists emphasize the crucial importance of initiating feeding behaviors, like searching for and sucking, in newborns within hours after birth. This early period, when babies are highly responsive to touch, warmth, and their mother's smell, is vital for successful breastfeeding and bonding. Immediate separation post-birth can hinder these natural actions necessary for establishing breastfeeding and the mother-child bond. Conversely, skin-to-skin contact at birth allows infants to exhibit instinctive behaviors essential for nurturing and feeding, showcasing their innate abilities and highlighting the role of maternal closeness in fostering breastfeeding and overall well-being during this crucial development stage.^{16,18}

Mother-infant skin-to-skin contact enhances verbal and tactile interactions, boosting the infant's responsiveness to the mother's stimulation. This fosters crucial breastfeeding behaviors for nourishment and growth, enabling successful latching and nurturing skills vital for early development. Establishing a secure attachment through physical closeness and communication influences the infant's emotional and physiological well-being during their transition into the world.^{17,19} Skin-to-skin contact and suckling trigger hormonal reactions crucial for milk production and bonding post-birth, including oxytocin and prolactin release in mothers. These sensory cues stimulate the vagus nerve, intensifying oxytocin production and enhancing maternal-infant bonding while supporting successful breastfeeding. This intricate interaction highlights the importance of early maternal

behaviors and the complex neuroendocrine processes driving lactation for maternal and infant well-being postpartum.¹⁸

Following birth, catecholamine levels peak, enhancing the newborn's olfactory sensitivity. This surge aids in locating the mother's nipple. However, after the first two hours, catecholamines drop, inducing prolonged newborn sleep. Skin-to-skin contact post-delivery boosts breastfeeding success. These insights benefit healthcare practitioners in improving breastfeeding rates for new mothers and newborns, guiding evidence-based clinical decisions. It is crucial for providers to incorporate this knowledge into practice for optimal infant feeding and improved health outcomes.^{3,19}

Implementing targeted interventions to promote breastfeeding can significantly enhance breastfeeding rates at the three-month mark post-childbirth, showing a positive link to maternal nutritional behaviors. When creating these programs, consider various social and economic factors influencing breastfeeding initiation and continuation among new mothers. Understanding these variables is crucial for effective interventions. To ensure long-term success and sustainability of breastfeeding promotion initiatives, take a comprehensive approach that considers the diverse socioeconomic contexts new mothers face, creating a conducive environment for healthy infant feeding practices.^{18,20}

Conclusion

The initial results of implementing early skin-to-skin contact show a marked improvement in breastfeeding rates compared to traditional care practices. Further research with larger sample sizes can provide deeper insights into effective breastfeeding strategies. It is clear that more studies are necessary to understand how early skin-to-skin contact benefits breastfeeding, which can inform guidelines and improve maternal and infant health.

Ethical Approval: The IRB/EC approved this study via letter no. IRB.89.GMC dated October 29, 2024.

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Authors' Contribution

AM: Conception.

AI, HJ: Design of the work.

SH, MN, AI: Data acquisition, analysis, or interpretation.

AI, HJ, SH, MN: Draft the work.

AM, AI: Review critically for important intellectual content.

All authors approve the version to be published.

All authors agree to be accountable for all aspects of the work.

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