

Skin-to-skin contact and breastfeeding: A scoping review



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ABSTRACT

Skin-to-skin contact (SSC) has been identified as a significant factor in the initiation of proper breastfeeding. The early hours of breastfeeding are essential for establishing adequate breastfeeding in the future. Skin-to-skin contact between the mother and the infant creates a mutual bond that enhances optimum milk production. However, certain factors, such as the environment and separating the baby from the mother for vitamin injections and infant evaluation, influence exclusive breastfeeding. A search on electronic databases was conducted to obtain literature on the topic. The search on CINAHL, PsychInfo, and PubMed generated different studies that underwent a screening process. Thirteen studies were selected after conducting a thorough exclusion exercise. Studies revealed that outcomes indicate that skin-to-skin contact improves the rate of breastfeeding. Further studies are needed to overcome factors that may impede the practice of SSC.

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1. Introduction

Skin-to-skin contact (SSC) between a mother and a newborn immediately after birth establishes an optimal environment for the adaptation of the infant to the extrauterine life. The cost-free and simple procedure is essential for improving neonatal care after delivery. The World Health Organization (WHO, 2021) considered SSC as the ultimate tool for preserving heat and facilitating metabolic adjustment. The mother uses the modality to comfort their newborn babies when they cry and enhance pain sensibility capability. The interaction and bonding after delivery influence the preservation of carbohydrate stores. Moreover, the early SSC immediately after reduces the infant's stress in the first hours following birth. While obstetric units have adopted the latest technology to enhance infant care immediately after birth, SSC has maintained its rightful place in modern-day neonatal and postpartum care.

The early initiation of breastfeeding is an essential phase for mothers. The breastfeeding process promotes the survival, health, and brain development of a newborn. Early initiation of

breastfeeding fosters motor development, which has long-life effects on the overall development of the child. Mothers rely on the early breastfeeding process to bond and interact with their newborns. Several factors may influence the practice of breastfeeding (Alghamdi et al., 2017). Obstetricians use breastfeeding efficacy and frequency to pronounce potential risks and integrate relevant interventions. The infant receives essential nutrients that sustain growth in the first six months of their lives besides safeguarding the newborns from pneumonia or long-term conditions of obesity and overweight. The early initiation of breastfeeding prevents illnesses and the potential risks of infant mortality within the first six months. Studies recognize SSC as an important procedure for initiating breastfeeding and overcoming related difficulties in new mothers.

Current studies present varied findings on the effects of SSC on breastfeeding. According to Safari et al. (2018), early SSC had different effects 48% of the 108 healthy women in the intervention group initiated breastfeeding at least 2.41 minutes after birth while 46% of the healthy women took longer to initiate breastfeeding after receiving routine care. The duration of the third stage of labor took at least 6 minutes and 8.02 minutes following SSC and routine care respectively, the findings showed the initiation of breastfeeding through early SSC was more valuable than normal care. In addition, Karimi et al. (2019) conducted a systematic review and meta-analysis of studies with a total of 597 participants. Mother-infant SSC led to success in first

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breastfeeding and first breastfeeding duration. Current findings differ on the time and the overall success rate of the first lactation despite agreeing on the overall beneficial effects of mother-infant SSC on the initiation of breastfeeding.

2. Importance of the review

Nursing healthcare could use the findings from the review to implement SSC as one of the modalities for neonatal care in the early periods after delivery to overcome breastfeeding difficulties. The obstetric units will use the outcomes to trigger breastfeeding so that the infants can maximize the benefits of breastfeeding within the first 6 months of their lives. In addition, the findings indicate the success rate and duration of breastfeeding after initiation of SSC to cement mother-infant interactions. Healthcare providers need the findings to understand their imperative role in providing quality and responsible care for mothers and infants immediately after delivery or birth.

The review emphasizes the value of SSC and subsequent breastfeeding, which should inform the amendment of the current public health policy on mother-infant care after birth. The national health policy should rely on the findings to understand how obstetric units increase milk output, enhance breast consistency, and promote assistance for mother-infant holding, duration of every feed, and activities during breastfeeding. The findings from the trials demonstrate the rightful role of SSC at a time when the national health policy prioritizes technology-based maternal and infant care. Furthermore, the policy will capture the use of SSC to mitigate the

stress levels of mothers and infants in the immediate postnatal period.

2.1. Research question

PICOT (Population, Intervention, Outcome, and Time) framework was used to formulate the primary research question for the inquiry. Table 1 outlines the breaking down of the research question.

Table 1: PICOT research question

PICOT	VARIABLES	RESEARCH QUESTION
P	New mothers	What is the effect of skin-to-skin contact on breastfeeding among new mothers?
I	Skin-to-skin contact	
C	None	
O	Breastfeeding	
T	None	

2.2. Search strategy

The search process used different key search terms derived from the PICOT Research question in Table 1. The different electronic databases suggested different keyword combinations. The search terms included “skin-to-skin contact,” “kangaroo mother care method,” “kangaroo care,” “breastfeeding,” “infant feeding,” “lactation,” “lactating,” and “new mothers.” The combination of the selected search terms necessitated the use of Boolean Operators, “AND” and “OR” to create a focused search in the database and generate the targeted results according to the research question. The operators assisted in generating suitable and appropriate results after the search.

Table 2 outlines the predetermined eligibility criteria for selecting the articles from the many results generated by each electronic database.

Table 2: Inclusion and exclusion criteria

INCLUSION CRITERIA	EXCLUSION CRITERIA
<ul style="list-style-type: none"> • Quantitatively and qualitative study designs with primary data • Publication in peer-reviewed journals • Journal articles with new mothers aged ≥18 years old • Studies that focused on the effect of skin-to-skin contact on the breastfeeding among new mothers • Full-text journals written in the English language and published between 2015 and 2021 	<ul style="list-style-type: none"> • Other research designs such as reviews, editorials, independent commentaries, and case reports with secondary data rather than primary data • Primary research articles published in non-peer-reviewed journals • Studies that did not explore the SSC effect on breastfeeding in new mothers • Journals or abstracts written in foreign languages other than English and published before 2015

The search engines used in the search process were PubMed, CINAHL, and Ovid. Each database assisted in generating the relevant journal articles before screening them against the predetermined inclusion and exclusion criteria. PubMed was a reliable and authoritative source of medicine and health sources with a basic search with key search terms. CINAHL contained authoritative nursing and allied health literature due to quality subject indexing and searchable cited references. The customizability of the search on Ovid enhanced the search process further and mapped the relevant results. Different search limits were applied in each database including the English language, peer-reviewed journals, and publication range of 2015-

2021. Setting the limits in PubMed, CINAHL, and Ovid further refined the search to generate specific and relevant results.

The number of studies initially retrieved was 94, 127, and 26 from PubMed, CINAHL, and Ovid, respectively. The search for the final 247 studies generated from the three electronic databases did not utilize any grey literature. The studies were the products of the varied search guided by the key search terms identified in Table 1. The journal articles underwent comprehensive screening to select the final studies for the qualitative review.

The study selection process used the PRISMA Flow Diagram in Fig 1 to depict the flow information and map out the relevant records and present

reasons for the exclusion of others. Initial screening helped to remove 107 duplicates while the remaining 140 underwent screening. The perusal led to exclusion of 96 records so that the remaining 44 studies underwent screening for full-text eligibility.

The process led to the exclusion of 31 studies for different reasons dictated by the predetermined eligibility criteria in [Table 2](#). The final 13 studies met the eligibility criteria and informed the qualitative synthesis.

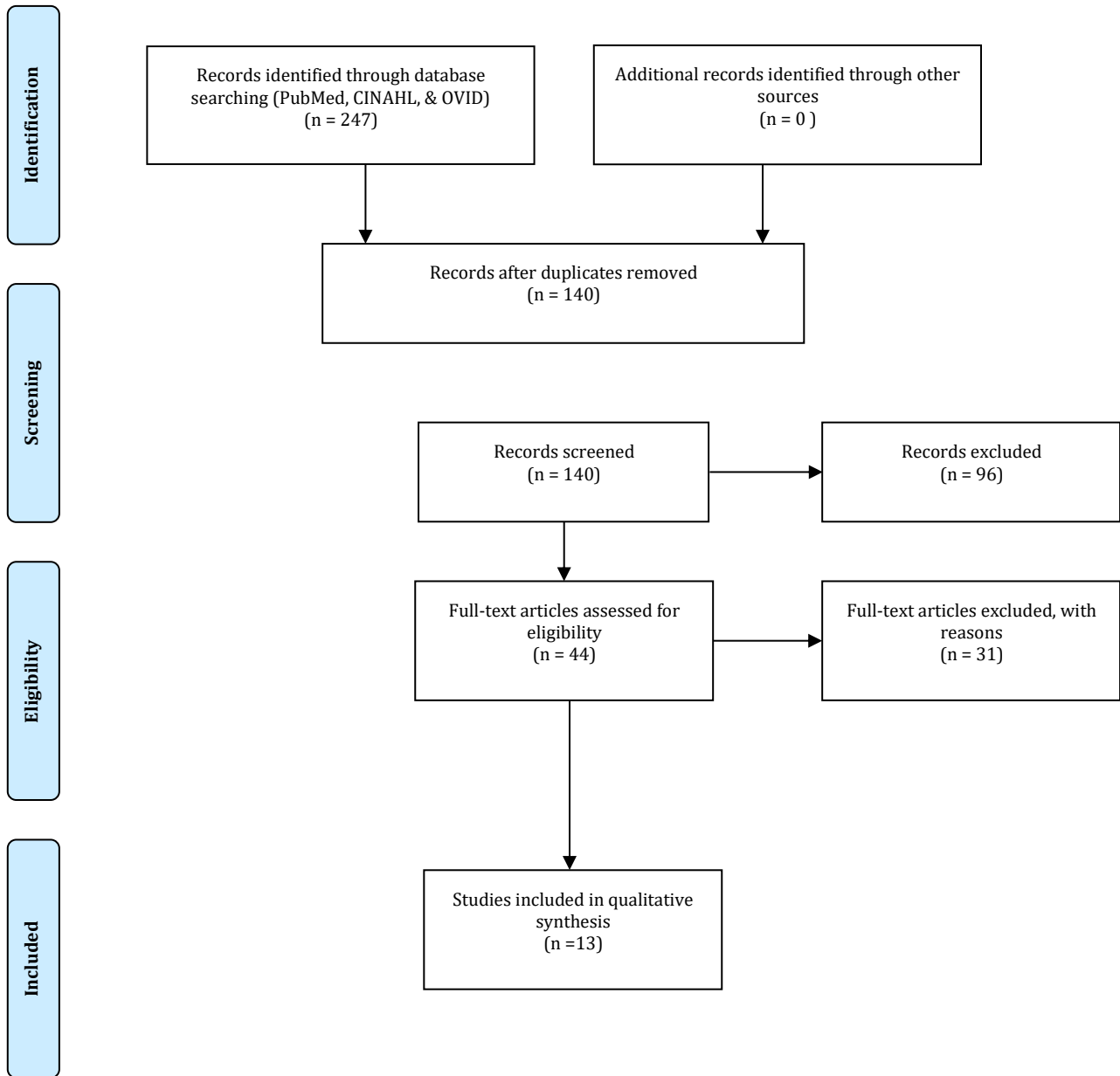


Fig. 1: PRISMA flow diagram

3. Findings/Results

The 13 studies included in the qualitative synthesis comprised different characteristics such as research designs. The research designs included a multi-center randomized controlled trial (RCT) ([Agudelo et al., 2021](#); [Gregson et al., 2016](#); [Sharma, 2016](#)), a quasi-experimental study design ([Dalsgaard et al., 2019](#); [Mansoori and Salmani, 2020](#); [Yilmaz et al., 2020](#)), exploratory cross-sectional design ([Lau et al., 2018](#)), longitudinal study ([Linares et al., 2017](#)), observational study ([Marinelli et al., 2019](#)), prospective longitudinal study ([Oras et al., 2016](#)), prospective, descriptive, and analytical study ([Robiquet et al., 2016](#)), observational retrospective

study ([Vila-Candel et al., 2018](#)), and survey ([Zhang et al., 2020](#)). The authors relied on the research designs to gather different perspectives on how SSC affects breastfeeding in new mothers.

[Appendix A](#) further shows studies conducted in different geographical regions from 2015 to 2021. The countries included China (n=1), Turkey (n=1), Spain (n=1), India (n=1), France (n=1), Sweden (n=1), Italy (n=1), Iran (n=1), USA (n=1), Singapore (n=1), England (n=1), Denmark (n=1), and Colombia (n=1). The distribution of the findings in different countries enhances the representativeness and generalizability to other settings using SSC for breastfeeding activities. The data extraction table outlined in [Appendix A](#) facilitated the development

of the key themes, which defined qualitative synthesis. The key findings include the following: An overview of SSC, the value of breastfeeding, and the effect of SSC on breastfeeding.

3.1. Overview of SSC

Early or immediate SSC is a valuable procedure for the obstetric units aiming to optimize maternal and neonatal outcomes. A recent study has established that SSC is essential within the first two hours after to minimize risks facing newborns (Agudelo et al., 2021). The procedure involves continuous interactions between mothers and their infants to initiate breastfeeding. Comparatively, Dalsgaard et al. (2019) associated the general effectiveness of SSC in limiting risks among infants with its non-pharmacological nature, particularly in cases of neonatal hypoglycemia. The author agreed with Agudelo et al. (2021) on SSC being the foundation for breastfeeding within the first two hours of birth. New mothers and obstetric teams cannot risk low blood glucose levels within the first two hours and the ensuing period after six months. Other studies have associated SSC with better breastfeeding outcomes rather than general health of the infants and new mothers after either cesarean section (CS) or vaginal delivery (Gregson et al., 2016; Lau et al., 2018; Linares et al., 2017). Infants and new mothers manifest different outcomes following the early or immediate introduction of SSC after birth.

Several studies consider SSC or Kangaroo Mother Care (KMC) as a source of the complementary interaction needed between mothers and infants. According to Mansoori and Salmani (2020), mothers at the neonatal intensive care unit (NICU) relied on KMC or SSC to interact with their premature newborns. The procedure reflected a critical non-pharmacological process of preventing preterm deaths. Furthermore, Marinelli et al. (2019) considered SSC or KMC as a baby-friendly initiative recognized by the World Health Organization (WHO, 2021) as means of promoting, protecting, and supporting breastfeeding at a global level. SSC is a part of the Baby-Friendly Hospital Initiative (BFHI) through which hospitals develop a clear framework for breastfeeding promotion between pregnancy and hospital discharge after childbirth. Oras et al. (2016) assertions are congruent with the views of Mansoori and Salmani (2020) on SSC being the primary tool for overcoming risks associated with preterm and low birth weight. Consequently, the initiative fosters infant growth and attachment besides defining breastfeeding patterns after CS or vaginal delivery.

Other studies identify SSC as a form of KMC that has diverse effects on the breastfeeding patterns of mothers. Robiquet et al. (2016) studied a small sample of 30 women who consented to the observation of their babies' lives after two hours following birth. The initiation of SSC in the immediate postpartum phase prevented interruptions and increased the chances of breastfeeding. The findings reflect the views of

Sharma (2016) on SSC being the modality for placing infants on the mother's bare chest after birth in line with the BFHI. The placement builds the optimum environment for infants' adaptation to the extra-uterine life. Moreover, SSC is a critical element of postpartum care because it optimizes maternal benefits of weight stabilization, reduced depression risks, and low lifetime risks of ovarian and breast cancer (Vila-Candel et al., 2018; Yilmaz et al., 2020; Zhang et al., 2020). The ultimate effects of SSC on maternal and infant outcomes depend on the execution and sustenance in the early postpartum phase.

3.2. Value of breastfeeding

The studies cited different benefits of early initiation of breastfeeding. Zhang et al. (2020) noted that mothers who engaged in exclusive breastfeeding after birth in March 2018-March 2019 increased protection against risks of preterm birth. The mothers indicated the willingness to maintain breastfeeding in the first 6 months to enhance neonatal health. Another analysis by Yilmaz et al. (2020) established that the reduction of health problems and self-efficacy of mothers were critical after delivery of infants with 2500-4000g north weight. Agreeably, Vila-Candel et al. (2018) understood the essence of breastfeeding in maximizing their physical and psychological benefits as mothers and infants interact immediately after birth. While Sharma (2016) associated breastfeeding with the survival of infants after birth, Robiquet et al. (2016) and Oras et al. (2016) concurred on being the primary trigger of the brain and cognitive development alongside orienting infants to the extra-uterine life.

Four studies demonstrate that breastfeeding sustains the life and capabilities of neonates immediately after birth as well as after 6 months of exclusive suckling. Another study by Agudelo et al. (2021) argued that breastfeeding reduced the risks for the full-term newborns observed within the first 60 minutes of life. Dalsgaard et al. (2019) studied breastfeeding in women with gestational diabetes and noted its value in reducing the overall risks of neonatal hypoglycemia. Concurrently, another study by Gregson et al. (2016) noted that breastfeeding after CS shaped the interactions and continued care to reduce cognitive and physical deformities. Two studies focused on building a relationship between mothers and infants alongside improving neonatal outcomes in either CS or vaginal birth (Lau et al., 2018; Linares et al., 2017). Overall, the initiation of breastfeeding benefits the mother and infants while promoting healthy postpartum outcomes irrespective of the mode of birth.

Three studies emphasize the value of breastfeeding in mitigating significant risks for the infants further. According to Marinelli et al. (2019), BFHIs support breastfeeding to reduce infants from cognitive and physical developmental risks while protecting new mothers from breast and ovarian

cancer risks. Furthermore, [Mansoori and Salmani \(2020\)](#) found that sufficient breastfeeding was critical in safeguarding the health of the preterm neonates and the subsequent developmental complications. Agreeably, [Oras et al. \(2016\)](#) argued that breastfeeding assisted mothers and hospitals in reducing susceptibility to infections, particularly for preterm and low-birth-weight infants. Overall, the studies demonstrate that the initiation of SSC influences breastfeeding patterns in different ways.

3.3. Effect of SSC on breastfeeding

The initiation of SSC immediately after birth triggers early breastfeeding. It has been found, by new mothers in 10 different hospitals in Italy, that SSC increased the rate of breastfeeding from 44.3% to 89.3% ([Marinelli et al., 2019](#)). The BFHI initiative reduced the child latching problems in Campania and Piedmont groups after neonatal classes simplified the breastfeeding experience. While the study observed the mothers for 24-72 hours, it revealed the importance of SSC in increasing breastfeeding support and frequency of infant feeding in line with the international guidelines of UNICEF and WHO. The outcomes were similar to the observations made by [Zhang et al. \(2020\)](#) in China when the group that practiced KMC increased exclusive breast milk feeding before hospital discharge by 54.6%. The patterns increased to 57.3% after follow-up irrespective of the sociodemographic characteristics of the mothers. The identifiable breastfeeding patterns include feeding on the breasts as opposed to the bottle or cup feeding and the behavior increased after discharge. Therefore, KMC or SSC is responsible for maintaining breastfeeding behavior to protect infants from developmental risks immediately or before the end of 6 months of exclusive or supplemented breastfeeding.

The early introduction of SSC increases the duration of exclusive breastfeeding after the first 2 hours of life. A study revealed that from the 50.2% initiation of SSC within 60min of life that 270 newborns led to immediate breastfeeding ([Agudelo et al., 2021](#)). The process was significant for newborns with low birth weight. The mothers needed knowledge of SSC to understand the value of neonate breastfeeding immediately after birth and within the first 6 months. The duration of breastfeeding was higher for mothers who initiated SSC than the mothers who lacked the foundational knowledge of KMC. Another study associated the duration of exclusive breastfeeding to the KMC and better activities for 30 Turkish mothers in 2016-2017 ([Yilmaz et al., 2020](#)). The RCT involved routine care and KMC in the experimental group, which registered an increased breastfeeding self-efficacy mean score and sufficient milk supply. Furthermore, the KMC group created positive breastfeeding perceptions, which are responsible for initiating breastfeeding within the first 60minutes of life and beyond the first 6 months.

Studies agree on SSC supports breastfeeding initiation and continuation immediately after birth and within the first three months after hospital discharge. [Vila-Candel et al. \(2018\)](#) noted from 1071 new mothers that their participation in SSC cases increased the frequency of infant feeding. The 69.5% of the mothers who performed SSC were responsible for the 68.6% of the immediate breastfeeding and 46.7% of feeding by 3 months postpartum. However, there were notable cases of breastfeeding discontinuation following 19.8% of the Hypogalactia cases. The breastfeeding patterns were susceptible to change in social and economic circumstances of the new mothers after performing SSC. Correspondingly, another study found that the intervention group for SSC increased the rate of exclusive breastfeeding within the first six weeks than the control group ([Sharma, 2016](#)). Furthermore, the mothers contained the pain from episiotomy repair through the SSC initiative while continuing breastfeeding at 6weeks of their postnatal age. While the studies differ on the duration of exclusive breastfeeding, they emphasized the importance of SSC for the health of term neonates and pain reduction for their mothers.

The actual time it takes for SSC to trigger breastfeeding varies with the characteristics of new mothers. [Robiquet et al. \(2016\)](#) studied 30women who performed SSC within the first two hours of life after birth. The average duration of 90.4 minutes within the first two hours led to continuous breastfeeding. However, the interruptions of the 60% of the cases to receive neonatal care reduced the SSC time to 44.6 minutes so 23.3% of the infants did not breastfeed within the first two hours. Issues such as lower umbilical arterial pH after birth, early interruptions, and nulliparity discouraged SSC and continuous or early breastfeeding. Another study revealed that 53 infants attained full breastfeeding after their mothers performed SSC ([Oras et al., 2016](#)). The process informed the infant growth of postmenstrual mothers. The stay at NICU did not change feeding strategy outside the exclusive breastfeeding suggested by the staff and parents. therefore, SSC may or might not influence the attainment, duration, and growth patterns of infants due to breastfeeding. The patterns change with the knowledge and demonstrated value of SSC.

The efficacy of breastfeeding increases after performing KMC due to the increased rate of milk volume. A recent study examined 40 mothers with premature neonates after assigning them to intervention and control groups ([Mansoori and Salmani, 2020](#)). The intervention with KMC led to more expression and duration of breastfeeding than the control group, which underwent a normal ward routine within the first three days. It was evident that breastfeeding for mothers with premature newborns was dependent on the routine adopted by the neonatal care staff at the Saudi hospitals. The interactions between mothers and infants overcome the expression problem and increased positive perceptions towards breastfeeding. Another study

found similar patterns despite using a cohort of Hispanic immigrant women as opposed to Saudi women (Linares et al., 2017). The performance of early SSC influenced the Hispanic women to adopt exclusive breastfeeding at discharge and after one month postpartum. Therefore, the early initiation of KMC or SSC in a vulnerable population of women supports breastfeeding immediately after birth and the postpartum phase.

SSC is responsible for the early initiation of early breastfeeding following either CS or vaginal delivery. A study found that the early breastfeeding initiation occurred after the new mothers performed SSC in 30 minutes (Lau et al., 2018). The study demonstrated breastfeeding after different modes of birth and further the importance of prioritizing KMC or SSC to increase milk supply. The results align with the outcomes of Gregson et al. (2016) who noted that 366 women who underwent CS continued breastfeeding after 48 hours following the performance of SSC. The simple intervention increased the breastfeeding rate at two days and within the first 6 weeks following CS. The length of time of SSC initiates the commitment of the new mothers to continued breastfeeding, which safeguards the infants against risks of low birth weight and premature. Furthermore, the findings of Dalsgaard et al. (2019) affirmed the effectiveness of the non-pharmacological intervention of SSC in reducing risks of neonatal hypoglycemia in women with gestational diabetes. The intervention led to seven hours of breastfeeding from six hours

following birth. The mothers improved their health through frequent breastfeeding and SSC.

4. Summary/Conclusion

The qualitative synthesis of different studies affirms the performance of SSC among new mothers in neonatal units. The interactions between mothers and infants after birth is critical to neonatal and maternal health. The initiation within the first two hours after CS or vaginal delivery leads to higher rates of breastfeeding. The synthesis further answers the research question by illustrating that SSC leads to an increasing breastfeeding rate, prolonged after two hours of birth within the first six weeks or six months, and continued breastfeeding. The studies further agree on SSC shapes the breastfeeding perceptions of the new mothers. The rate of exclusive breastfeeding further increases after the performance of KMC. The rates are prone to change due to sociodemographic factors of the women delivering through CS or vaginal means. However, further studies are needed to close the following gaps: what factors may impede the practice of SSC and how to overcome these factors, and how the duration of SSC affects the breastfeeding rate for CS delivery versus vaginal delivery. Future studies should ascertain the value of SSC in triggering the expression of breast milk for infants.

Appendix A. Data extraction

Table A1: Data extraction table

Reference	Study design	Total sample	Types of participants	Intervention group	Control/placebo/comparison group	Duration of intervention	Follow up	Outcome measures	Main findings	Additional comments
Agudelo et al. (2021)	Multicentre parallel RCT	297	Newborns	148 in immediate SSC	149 in the early SSC group	November 2018 and January 2020	Monthly follow up until 6 months of age	Onset time of SSC Duration of breastfeeding for full-term newborns	a	The study is replicable and highly generalizable
Dalsgaard et al. (2019)	Quasi-experimental design	533	Infants born to mothers with diet-treated GM	401 neonatal group breastfed within the first 6 hours in CS	132 historical control group	January 2009 - May 2009	-	Breastfeeding and SSC in preventing neonatal hypoglycemia	b	Transferable and replicable methods
Gregson et al. (2016)	RCT	366	Women in CS at term	182 women engaged in breastfeeding	187 in control performed standard care of SSC following operation	February 2013 - October 2014	-	SSC after CS Breastfeeding rates	c	Applicable and transferable to CS mothers
Lau et al. (2018)	Exploratory cross-sectional design	915	Mother-infant dyads	-	-	-	-	Intrapartum factors Neonatal features SSC Early breastfeeding initiation	d	Applicable and generalizable to the population
Linares et al. (2017)	Longitudinal study	97	Full-term infants of Hispanic immigrant women	-	-	-	-	Influence of early SSC Exclusive breastfeeding	e	Small sample affects representativeness of the outcomes
Mansoori and Salmani (2020)	Quasi-experimental design	40	40 mothers with premature newborns	20 mothers on KMC	20 mothers in standard care	2019	-	Milk expression during KMC Milk volume	f	Small sample affects representativeness of the outcomes
Marinelli et al. (2019)	Cross-sectional survey	760	Women 580 in Campania 206 in Piedmont	-	-	-	-	Breastfeeding WHO/UNICEF BFHI	g	Transferable, replicable methods, and applicable findings
Oras et al. (2016)	Prospective longitudinal study	104	Infants with gestational age of 28 weeks to 33 weeks	-	-	-	Follow-up questionnaires with 83 mothers and 80 fathers	SSC Earlier breastfeeding attainment for preterm infants	h	Randomization would have enhanced outcomes
Robiquet et al. (2016)	Prospective, descriptive, and analytical study	30	Women	-	-	-	-	Successful breastfeeding SSC application	i	Small sample affects representativeness of the outcomes
(Sharma, 2016)	Open-label RCT	200	Term neonates	100 SCC after birth	100 radiant warmer	May 1, 2008 - September 2009	Exclusive breastfeeding at 6 weeks of age	SSC Exclusive breastfeeding rate	j	Applicable outcomes with representative sample
Vila-Candel et al. (2018)	Observational retrospective study	1071	Pregnant women in vaginal and CS birth modes	-	-	January 2013 - December 2015	3 months postpartum	SSC Maintenance of the exclusive breastfeeding	k	Generalizable outcomes and replicable methods
Yilmaz et al. (2020)	Quasi-experimental design	60	Mothers and their infants	30 mothers in KMC	30 mothers in normal standard care	December 2016 - June 2017	-	KMC effects Early breastfeeding Self-efficacy in breastfeeding Sufficiency of milk	l	Small sample size affects the representativeness and generalizability of the results

Zhang et al. (2020)	Survey	844	Mothers of preterm infants	-	42days after discharge	supply KMC Breastfeeding practice for later preterm infants	m	Generalizable and transferable to KMC mothers
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a: The duration of exclusive breastfeeding in both groups in 5 months Immediate SSC led to sustained exclusive breastfeeding more than early SSC at 6 months
b: The mean glucose levels reduced within the first two hour of the intervention group The hypoglycemic cases reduced by 22.7% after SSC and breastfeeding in the first two hours
c: 5% increase in breastfeeding rates at 48 hours and 7% at 6weeks SSC continuation led to continued breastfeeding after 48 hours
d: Immediate SSC initiated breastfeeding early at different modes of birth The neonates improve outcomes following breastfeeding
e: Early SSC led to increased rate of exclusive breastfeeding
f: KMC led to increase milk volume in the intervention more than in the mothers who underwent standard care
g: The BFHI initiative of SSC led to increase breastfeeding rates in both regions The SSC led to an 89.3% rate of breastfeeding and fewer child latching problems than regions with normal routine care
h: SSC influenced the attainment of breastfeeding SSC duration did not affect NICU duration Exclusive, partial or no breastfeeding did not affect preterm infants
i: SSC improved breastfeeding in the first 2 hours for the 30 newborns Early interruptions discouraged breastfeeding
j: SSC led to a higher proportion of exclusive breastfeeding at 6weeks of age than in neonates who were placed under radiant warmer
k: Breastfeeding improved immediately after SSC contact, at discharge, at 1,2, and 3 months postpartum Breastfeeding discontinuation due to Hypogalactia
l: KMC led to increased milk supply and early breastfeeding in the experimental group besides positive breastfeeding perceptions Standard care led to lower breastfeeding efficacy and low self-efficacy perception levels
m: Intermittent KMC led to increased exclusive breastfeeding rate within 24 hours for 74.3% of the mothers Continued breastfeeding after 42days of hospital discharge

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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