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Skin-To-Skin Contact Implementation in Cesarean Deliveries: A Systematic Review

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ABSTRACT

Background: Skin-to-skin contact (SSC) is a proven, cost-effective intervention that enhances neonatal outcomes, maternal-infant bonding, and breastfeeding success. However, its implementation during caesarean deliveries remains inconsistent due to various barriers. This systematic mapping review aimed to identify barriers and facilitators to SSC implementation during caesarean sections, evaluate its impact on maternal and neonatal outcomes, and synthesize global best practices adaptable to local contexts.
Methods: A systematic search was conducted across six major databases, including PubMed, CINAHL, and Scopus, focusing on studies published within the last five years. Fourteen qualitative studies from eight countries met inclusion criteria. Thematic content analysis was used to identify major patterns and findings.
Results: Key barriers included logistical constraints in the operating theatre, healthcare provider attitudes, institutional policies, and sociocultural factors. Facilitators involved supportive hospital policies, staff training, and awareness of SSC benefits. SSC was associated with improved breastfeeding initiation, maternal satisfaction, emotional well-being, and neonatal health outcomes.
Conclusion: Effective SSC implementation during caesarean deliveries requires addressing logistical, institutional, and cultural challenges. Aligning local practices with global recommendations and investing in staff education are essential steps toward optimizing maternal and newborn outcomes.

Keywords: Skin-to-skin contact; Caesarean delivery; Breastfeeding initiation; Maternal-infant bonding; Healthcare provider perspective; Best practices

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INTRODUCTION

Skin-to-skin contact (SSC), or kangaroo mother care, is a cost-effective and widely recognised evidence-based practice that has been shown to increase breastfeeding initiation rates, enhance maternal-infant bonding, and improve neonatal outcomes. Despite these well-documented benefits, SSC remains underutilised in the context of cesarean deliveries due to several logistical, institutional, and sociocultural barriers. The implementation of SSC in cesarean births, particularly in the Malaysian context, is of significant importance as cesarean rates continue to rise. Research indicates that Malaysia faces unique challenges in healthcare delivery, including varying levels of SSC implementation across public and private hospitals, limited training for healthcare providers, and cultural perceptions that may hinder its uptake (1,2). Understanding these challenges is crucial to facilitating SSC adoption and maximising its benefits for both mothers and newborns.

The significance of SSC implementation in Malaysia is especially critical given the country's high cesarean section rates, which have been steadily increasing over the years (3,4). While SSC has been proven to provide a variety of health benefits for both mother and infant, its successful integration into cesarean deliveries in Malaysia could potentially reduce neonatal morbidity and enhance early bonding experiences, ultimately contributing to better long-term maternal and child health outcomes. However, despite growing evidence of its importance, institutional and cultural barriers persist, limiting its widespread adoption.

The specific aims of this review are to 1) systematically map the barriers and facilitators to SSC during cesarean deliveries; and 2) characterize the impact of SSC on maternal and neonatal outcomes. Furthermore, the aim of the study is to synthesise global best practices, so as to offer recommendations on how to fit these- to the local context.

METHODS

This review utilised a systematic mapping approach to identify and analyse the existing literature regarding SSC in cesarean deliveries. Relevant articles were selected through exhaustive searches of academic databases, targeting barriers, facilitators, and SSC-associated outcomes. Thematic content analyses to provide an overall overview and to inform future interventions were grouped and summarised.

Study Selection Process

The initial search yielded a total of 312 articles from six academic databases and Google Scholar. After removing 48 duplicates, 264 records were screened by title and abstract against the predefined inclusion and exclusion criteria **(Table 1)**. At this stage, 197 articles were excluded due to irrelevance, leaving 67 full-text articles assessed for eligibility. Each full-text article was reviewed independently by two researchers to ensure alignment with the study objectives, specifically focusing on SSC implementation in the context of cesarean deliveries. Disagreements were resolved through discussion and consensus.

Ultimately, 14 studies met all inclusion criteria and were included in the final synthesis. These studies were selected based on their empirical data, relevance to SSC during cesarean deliveries, and publication within the last five years in peer-reviewed English-language journals. The selection process was guided by the PRISMA framework to ensure transparency and replicability.

Several inclusion and exclusion criteria were used to ensure that the studies retrieved from the search databases contained quality data and manage based on objective as presented in **Table 1**.

The literature search was conducted using both search engines and online academic databases. Search engines such as Google Scholar and academic databases including PubMed, CINAHL, Scopus, Web of Science, and MEDLINE were utilised. Access to these databases was gained via the institutional library portal, which served as a gateway rather than functioning as a search engine or a database itself. Various combined keywords were used to refine search results and ensure comprehensive coverage of relevant literature.as presented in **Table 2**.

Table 1: Selection Criteria of the Studies

Inclusion criteria	Exclusion criteria
1. Studies published in peer-reviewed journals. 2. Research focusing on skin-to-skin contact during cesarean deliveries. 3. Articles SSC in operation theatre. 4. Publications in English or translated into English. 5. Studies conducted within the last 5 years to ensure relevance.	1. Studies focusing solely on vaginal deliveries without reference to cesarean sections. 2. Articles without empirical data (e.g., opinion pieces or editorials). 3. Research lacking a clear focus on SSC outcomes or implementation strategies. 4. Publications in languages other than English without translation available.

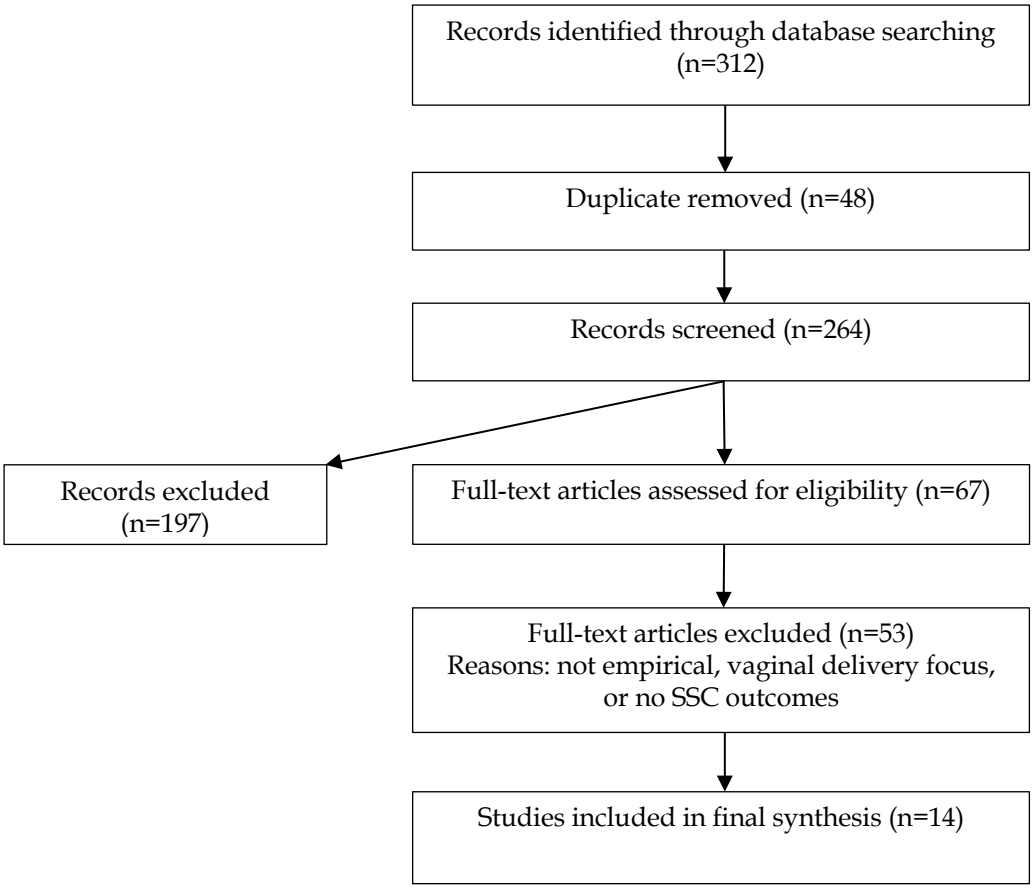
Table 2: Combination of keywords

Keyword	others keyword used by Boolean operator (OR, AND NOT)
Skin-to-skin contact	Kangaroo mother care
cesarean delivery	LSCS
Operation theatre	

PRISMA Flow Summary

A total of 312 records were identified through database searching. After removing 48 duplicates, 264 titles and abstracts were screened. Of these, 197 were excluded for not meeting the inclusion criteria. Sixty-seven full-text articles were assessed for eligibility. After full-text review, 53 studies were excluded due to lack of empirical data, focus on vaginal deliveries, or absence of SSC-related outcomes. Fourteen studies met the inclusion criteria and were included in the final synthesis in **Figure 1**.

Figure 1: PRISMA Flow Diagram Illustrating the Study Selection Process for the Systematic Mapping Review on SSC Implementation During Cesarean Deliveries



FINDINGS

The 14 selected studies were conducted in 8 different countries involved Australia, Brazil, Canada, China, Finland, France, the United Kingdom, and the United States of America. However, the studies that focus on expressing breast milk among mothers of premature infants in Asian are limited. Only one study of expressed breast milk experience among Chinese mothers was selected. All the studies were conducted in government hospitals and teaching hospitals.

Table 3 presents a comprehensive list of the fourteen studies included in the systematic mapping review, which were conducted across eight different countries: Australia, Brazil, Canada, China, Finland, France, the United Kingdom, and the United States of America. These studies were selected for their relevance to skin-to-skin contact (SSC) during cesarean deliveries and their empirical data, published in peer-reviewed journals within the past five years. The studies predominantly use qualitative methods, including descriptive qualitative studies, phenomenology, and grounded theory, allowing for rich, context-specific insights into the implementation of SSC. However, the table also reveals a gap in research from Asian countries, particularly regarding expressed breast milk experiences. The only study from China, which examines Chinese mothers and expressed breast milk, stands as the sole representation from an Asian perspective, highlighting a significant underrepresentation in this region. The variety of countries and methodologies presented in **Table 4** offers a comprehensive overview of how skin-to-skin contact (SSC) is implemented across various healthcare settings, ranging from high-resource nations to those with more limited resources. The findings emphasize that the practice and results of SSC are influenced by geographical, cultural, and institutional factors, underscoring the necessity for region-specific strategies to encourage its broader adoption.

Table 3: Selected Studies

Studies	Country	Study design
Mörelius et al. (2020)	Australia	Descriptive qualitative study
Pereira et al. (2015)	Brazil	Descriptive qualitative study
Bujold et al. (2018)	Canada	Descriptive qualitative study
Yang et al. (2019)	China	Descriptive qualitative study
Ikonen et al. (2016)	Finland	Descriptive qualitative study
Denoual et al. (2016)	France	Not mention
Medina et al. 2019)	United Kingdom	Qualitative study, phenomenology
Bower et al. (2017)	United States of America	Qualitative study, phenomenology
O'Sullivan et al. (2017)	United States of America	Qualitative study, grounded theory
Parker et al. (2018)	United States of America	Qualitative study
Henderson et al. (2015)	United States of America	Mixed method
LoVerde., et al (2018)	United States of America	Descriptive qualitative study
Kair et al. (2015)	United States of America	Grounded theory
Bowen et al. (2017)	United States of America	Case study

Table 4 provides a closer insight into the barriers and facilitators to facilitating SSC through CS and grouped by main themes identified from the fourteen studies. The table give an organized summary of the barriers and foctor facilitating the SSC practice, separating challenges and opportunities.

One of the fundamental obstacles is actually logistical. The sterile surroundings of the OR, necessary for caesarean section makes it impossible to apply SSC immediately. Barriers are compounded by factors including OR layout (with limited space for both surgery and SSC) and staffing (particularly in the case of emergency cesarean) limitations. Additionally, institutional policies can serve as a significant hindrance, with hospitals that do not have Baby-Friendly certifications or standardized protocols being less likely to support SSC. The absence of clear and consistent guidelines often leads to confusion among healthcare providers, resulting in delayed or inconsistent SSC practices.

Attitudes of healthcare providers were also important for the effective implementation of SSC. Inaccurate belief that medical interventions were more important than early maternal-infant contact, even in the context of cesarean section, was common. In addition, many healthcare

workers reported lack of a proper training in SSC practices to have made it hesitant to make it a priority. This is especially apparent in emergency situations where the medical priority to stabilise mother baby can override the value placed on SSC.

Cultural beliefs and postpartum traditions significantly influence the acceptance of skin-to-skin contact (SSC). In various cultures, such as Malaysia, there is often a strong emphasis on allowing mothers adequate time to rest and recover post-surgery, which may conflict with the practice of immediate SSC. These sociocultural norms and traditional postpartum practices frequently prioritize maternal recovery over the acknowledged benefits of SSC, thereby creating additional obstacles. Consequently, it is essential for healthcare providers to promote SSC with cultural sensitivity, ensuring that local traditions are honored while also advocating for its health advantages.

Conversely, several facilitators can help overcome these barriers and foster the successful implementation of SSC. Supportive policies, such as those in Baby-Friendly Hospitals, have demonstrated a significant increase in SSC adoption rates. These policies typically include structured protocols that advocate for immediate skin-to-skin contact following cesarean deliveries, which can promote family-centered care and enhance maternal-infant bonding. Additionally, professional education and training play a crucial role in enabling SSC. Hospitals that offer training for healthcare providers on the benefits and techniques of SSC are more likely to achieve higher rates of its implementation. Furthermore, the presence of SSC advocates or champions within healthcare environments can inspire consistent practice and help integrate SSC into routine care.

The emotional and psychological benefits of SSC serve as another vital facilitator. Research consistently indicates that SSC lessens maternal stress by lowering cortisol levels and boosting oxytocin, thereby strengthening emotional connections between mothers and infants. These advantages contribute to improved maternal confidence and satisfaction, which can lead to favorable long-term outcomes, including extended breastfeeding and better mental health. By highlighting these emotional benefits, healthcare providers can enhance the appeal of SSC, particularly for mothers recovering from cesarean sections who may encounter additional psychological and physical hurdles.

Table 4 also underscores the positive effects of SSC on maternal-infant bonding and breastfeeding initiation. The practice has been shown to enhance emotional attachment, increase maternal sensitivity, and decrease postnatal anxiety. Additionally, SSC promotes earlier breastfeeding initiation, higher rates of exclusive breastfeeding, and longer breastfeeding durations, all crucial for improving infant health and development. In cases of cesarean births, where breastfeeding might be delayed due to medical protocols, early SSC has been recognized as a critical factor in ensuring infants benefit from breastfeeding within the vital first hour of life.

DISCUSSION

Barriers and Facilitators of Skin-to-Skin Contact in Cesarean Deliveries

Skin-to-skin contact (SSC) following cesarean deliveries has garnered significant attention for its potential benefits for both mothers and newborns. However, various barriers and facilitators influence the implementation of this practice, and understanding these factors is crucial for improving maternal and neonatal health outcomes, particularly within Malaysia's multicultural healthcare system. One significant barrier to SSC after cesarean sections is the physical discomfort experienced by mothers. Studies indicate that women who undergo cesarean deliveries often face pain and complications that can hinder their ability to engage in SSC immediately after birth. For instance, Mothers who delivered via cesarean section reported higher levels of discomfort, which contributed to delayed or reduced opportunities for SSC (5). This discomfort is compounded by the operational environment during cesarean deliveries, where factors such as timing and staffing can significantly affect the likelihood of SSC. However, evidence suggests that when immediate SSC is implemented even in the operating room, it is associated with better breastfeeding outcomes compared to delayed contact (6), highlighting the importance of overcoming these barriers. However, logistical challenges, including the availability of nursing staff and the timing of the procedure, often result in infants being separated from their mothers shortly after birth, which diminishes the opportunity for SSC (7). Furthermore, traditional surgical protocols that prioritise immediate medical assessments of the newborn may inadvertently delay the initiation of SSC. Other authors emphasised that caesarean deliveries are

often governed by rigid surgical routines, which can obstruct early maternal-infant bonding opportunities (3,4,8). These combined factors underscore the importance of revisiting existing surgical practices to facilitate timely SSC, even in operative settings.

Table 4: Findings On Implementation of Skin-To-Skin Contact in Caesarean Deliveries

Theme	Sub-theme	Categories
Barriers to SSC	Logistical Challenges	Sterile surgical environment Operating theatre layout Limited staffing during procedures
	Institutional Barriers	Rigid hospital policies Lack of Baby-Friendly certification Inconsistent SSC protocols
	Healthcare Provider Attitudes	Lack of training Misconceptions on medical priority over SSC Hesitancy in emergency cases
	Cultural Beliefs	Traditional postpartum practices Preferences for maternal rest Sociocultural taboos
Facilitators of SSC	Supportive Policies	Baby-Friendly Hospital Initiatives Institutional commitment to family-centred care
	Professional Education & Training	SSC-focused staff workshops Presence of SSC champions Use of simulation in nursing curricula
	Emotional & Psychological Benefits	Reduces maternal stress (↓ cortisol, ↑ oxytocin) Promotes bonding and satisfaction Enhances maternal role confidence
Impact of SSC on Outcomes	Maternal-Infant Bonding	Strengthened emotional attachment Increased maternal sensitivity Reduced postnatal anxiety
	Breastfeeding Initiation & Success	Earlier latching Higher exclusive breastfeeding rates Longer breastfeeding duration
	Maternal Recovery	Improved haemoglobin levels Stimulates uterine contraction
Healthcare Provider Perspectives	Challenges Noted	Perceived increased workload Lack of clarity in guidelines Emergency vs elective caesarean context
	Opportunities Identified	Use of culturally sensitive communication Involvement of companions Advocacy roles for nurses
Global Best Practices	WHO Guidelines	Immediate SSC recommended for all births
	Healthy Children Project SSC Algorithm	Structured protocol for SSC
	Adaptation to Local Contexts	Cultural tailoring of practices Training in resource-limited settings Bridging global-to-local policy gaps

In addressing these barriers, it is essential for healthcare institutions to adopt family-centred SSC policies that respect the cultural variations present in Malaysia. Developing clear protocols that make SSC a routine part of post-cesarean care, while remaining adaptable to the cultural and religious beliefs of diverse patient populations, can promote acceptance and consistency across various healthcare facilities. This shift may require revising traditional surgical routines to prioritise SSC and training additional staff to support SSC in recovery rooms, ultimately addressing logistical challenges and improving adherence to SSC protocols.

Facilitators of SSC include supportive hospital policies and practices that prioritise family-centred care. Implementing protocols that encourage SSC immediately after cesarean delivery can significantly enhance the likelihood of this practice. For example, findings from a study emphasised the importance of parental education and professional support in facilitating SSC, suggesting that when healthcare providers actively promote SSC, mothers are more likely to engage in this practice (9). Additionally, studies have shown that when mothers are informed about the benefits of SSC, such as improved breastfeeding initiation and maternal-infant bonding, they are more likely to advocate for this practice during their care (10). Education at the institutional level is crucial; nurses must be trained to address common physical and emotional barriers, such as maternal discomfort, by offering supportive positioning and pain management options to facilitate SSC safely and comfortably. Furthermore, designating SSC advocates or champions among nursing staff can promote consistent SSC practices and offer mothers the encouragement and assistance they may need, particularly in the immediate post-operative period.

Moreover, the emotional and psychological benefits of SSC have been identified as significant facilitators in its implementation. Evidence suggests that SSC enhances maternal-infant bonding and promotes emotional well-being, particularly critical following the physical and emotional stress of surgical delivery. Previous researcher reported that SSC positively influences breastfeeding success, contributing to improved health outcomes for both mother and infant (11). Furthermore, the release of oxytocin during SSC has been shown to support maternal recovery and optimise lactation, as highlighted by other study (12). Therefore, nursing education should integrate SSC principles into both undergraduate and postgraduate curricula, with a focus on practical training in post-cesarean care. Simulation training that incorporates SSC techniques in various cultural contexts can equip future nurses to navigate diverse patient needs effectively. Additionally, continuing professional development programs can address misconceptions around SSC workload demands, illustrating how efficient SSC practices can actually support smoother patient recoveries and improve mother-infant bonding.

Finally, nursing research can explore the cultural perceptions and attitudes of Malaysian mothers and healthcare providers toward SSC. Research can focus on understanding cultural nuances and how these affect the willingness and ability of healthcare providers to implement SSC, especially after cesarean births. Furthermore, examining the specific effects of SSC on breastfeeding rates, maternal-infant bonding, and maternal recovery among Malaysian mothers can contribute valuable data to advocate for policy support. Local studies on SSC's impact on nursing workload in Malaysian settings may help dispel workload-related concerns, encouraging more nurses and institutions to embrace this beneficial practice.

In conclusion, while there are significant barriers to the implementation of skin-to-skin contact following cesarean deliveries, including maternal discomfort and operational challenges, there are also strong facilitators such as supportive policies and the psychological benefits of SSC. Addressing these barriers through education, policy changes, and a focus on family-centred care can enhance the practice of SSC and ultimately improve outcomes for mothers and their newborns. A holistic approach encompassing policy development, enhanced nursing practice, culturally sensitive education, and context-specific research can foster widespread SSC implementation in Malaysia, allowing more mothers and newborns to benefit from the profound emotional, physiological, and breastfeeding-related advantages of this practice.

Impact of Skin-to-Skin Contact After Cesarean Section on Mother-Infant Bonding and Breastfeeding Initiation

Skin-to-skin contact (SSC) after cesarean section is increasingly recognised for its significant impact on mother-infant bonding and breastfeeding initiation. The practice involves placing the newborn directly on the mother's chest immediately after birth, fostering an emotional connection and facilitating breastfeeding. Research indicates that SSC can enhance maternal bonding and improve breastfeeding outcomes, particularly in the context of cesarean deliveries. One of the primary benefits of SSC is its role in promoting early breastfeeding initiation, with studies demonstrating that immediate implementation of SSC after cesarean delivery significantly increases rates of exclusive breastfeeding. For instance, a study reported that maternal care favouring SSC and minimising separation between mother and infant leads to better breastfeeding outcomes, emphasising the importance of professional support and parental education in this context (9). Similarly, another study found that clinics implementing SSC saw a doubling in initial exclusive breastfeeding rates,

highlighting the direct correlation between SSC and breastfeeding success (13). This early initiation is crucial, as it not only supports the infant's nutritional needs but also enhances the mother's confidence and ability to breastfeed.

Moreover, the physiological benefits of SSC extend beyond immediate breastfeeding initiation. Other researchers emphasised that uninterrupted skin-to-skin contact during the first hour after birth is essential for establishing breastfeeding, as it allows the infant to suckle and promotes hormonal responses that facilitate lactation (14). The authors noted that interruptions during this critical period can significantly reduce the likelihood of successful breastfeeding. Additionally, SSC not only aids in breastfeeding initiation but also contributes to maternal recovery by promoting uterine contractions and improving maternal blood haemoglobin levels, which are vital after a cesarean delivery (15). The emotional and psychological aspects of SSC also play a crucial role in enhancing mother-infant bonding. Research indicates that physical contact through SSC helps organise the newborn's behaviour and physiology, fostering a deeper emotional connection between mother and child. Few study noted that early mother-infant interactions facilitated by SSC lead to increased maternal sensitivity and responsiveness to the infant's needs, which are critical for developing a secure attachment (15–18). Furthermore, studies have shown that SSC can alleviate stress in both mothers and infants, promoting a calmer environment conducive to bonding (16,17,19–24).

Despite the benefits, barriers to implementing SSC after cesarean deliveries persist. Factors such as maternal discomfort, surgical protocols, and hospital policies can hinder the practice. For example, mothers who experience pain or complications post-surgery may find it challenging to engage in SSC, as highlighted by several authors, who noted that cesarean deliveries often result in greater discomfort, making it harder for mothers to maintain close contact with their infants (25–27). Additionally, health facility procedures that require immediate separation of mother and infant can prevent SSC and early breastfeeding, as discussed (14,15). Addressing these barriers through supportive hospital policies and practices is crucial for maximising the benefits of SSC. To effectively implement SSC in Malaysia's multicultural healthcare system, developing standardised SSC policies that align with diverse cultural and religious contexts can help normalise the practice in recovery rooms and post-operative care. Hospitals could adopt flexible SSC protocols that accommodate variations in cultural preferences, thereby allowing mothers to experience SSC in ways that respect their beliefs and values. Furthermore, policies aimed at minimising the separation of mother and infant after cesarean sections and encouraging family involvement can support mothers in engaging in SSC, even when they face initial physical discomfort.

Embedding SSC into the standard care routine following cesarean sections is essential for optimising its implementation. Nurses play a pivotal role in initiating SSC and can offer guidance and reassurance to mothers, particularly those who may be physically uncomfortable or unfamiliar with the benefits of SSC. Training nurses to use culturally sensitive language while advocating for SSC can further help overcome any cultural resistance. Assigning SSC-trained staff or designated SSC 'champions' in each maternity unit can encourage consistent practice and provide direct support to new mothers, particularly during the first critical hour after birth when SSC is most beneficial. Nursing education should incorporate SSC training within the core curriculum, focusing on the practice's physical, emotional, and cultural dimensions. Simulation-based learning that includes SSC techniques for post-cesarean care can prepare nursing students for real-life scenarios, building their skills and confidence in facilitating SSC under different clinical conditions. Continuing education programs for current nurses can address potential misconceptions about SSC's impact on workload and reinforce evidence-based practices, fostering a supportive SSC environment in Malaysia's maternity wards. Research exploring the cultural beliefs and attitudes of Malaysian healthcare providers and mothers toward SSC can offer valuable insights into how SSC practices are received and adapted across Malaysia's multicultural landscape. Evaluating the benefits of SSC specifically in terms of breastfeeding initiation rates, maternal-infant bonding, and maternal recovery can contribute to a stronger evidence base and drive policy development aligned with the unique needs of Malaysian mothers and infants.

In conclusion, promoting SSC after cesarean sections in Malaysia requires an approach that respects cultural diversity, equips nursing staff with practical SSC skills, and supports SSC through both policy and research. Addressing barriers such as maternal discomfort and hospital protocols, while fostering a supportive environment through nursing education and

training, is essential for maximising the emotional and physiological advantages of SSC. Such efforts can ensure that mothers and infants benefit from enhanced early bonding and breastfeeding success across Malaysia's healthcare settings, aligning with existing research that underscores the vital role of SSC in maternal and infant health.

Healthcare Provider Perspectives on Skin-to-Skin Contact Implementation in Cesarean Sections

To enhance the implementation of skin-to-skin contact (SSC) during cesarean sections within Malaysia's multicultural healthcare system, several targeted strategies can be adopted across institutional policies, nursing practice, education, and research. At the institutional level, developing culturally inclusive SSC protocols is essential to accommodate Malaysia's diverse cultural and religious practices while still promoting SSC. Policies should be adapted to respect preferences related to postpartum care while clearly outlining SSC as a standard part of recovery care. To reduce concerns about workload, institutional policies could also allocate specific resources, such as SSC-trained support aides during busy shifts, and ensure uniform SSC standards across all hospitals. This consistency would avoid variations in SSC practices between facilities and promote widespread adoption.

In nursing practice, SSC can be further integrated as a routine part of care by having nurses actively guide and encourage mothers immediately post-cesarean. This approach includes using culturally sensitive language that acknowledges and respects beliefs surrounding mother-infant bonding and physical contact. Role modeling is another powerful tool; designated SSC 'champions' within each maternity unit can mentor new staff, provide support, and showcase best SSC practices, encouraging colleagues to adopt SSC seamlessly.

Incorporating SSC into nursing education is equally important. Nursing curricula should include SSC modules that cover practical skills, workload management, and cultural competence, allowing future nurses to enter the workforce with a solid foundation. Simulation-based learning can further enhance nursing students' comfort with SSC practices, especially with post-cesarean mothers, before they encounter real cases in clinical settings. Additionally, in-service SSC workshops for current nurses can be an effective way to update knowledge, address misconceptions about workload, and reinforce best practices in SSC.

Research on SSC within Malaysia's multicultural context can provide valuable insights and evidence to support these practices. Qualitative studies examining healthcare providers' cultural beliefs can shed light on how these attitudes impact SSC implementation, as attitudes toward SSC are often influenced by personal backgrounds and cultural values. Moreover, evaluating SSC's effects in a multicultural setting can highlight its influence on breastfeeding rates and maternal satisfaction, especially when SSC is performed in a manner that respects cultural preferences. Researching the actual workload impact of SSC can also address whether healthcare providers' concerns align with real experiences and what institutional supports might further ease their integration into practice.

By aligning SSC protocols and training with Malaysia's diverse cultural landscape, healthcare providers can overcome perceived barriers and create a supportive environment for SSC. This approach ultimately benefits mothers and infants by fostering early bonding and facilitating breastfeeding initiation for cesarean-delivered babies.

Global Best Practices and Protocols for Skin-to-Skin Contact During Cesarean Deliveries

Skin-to-skin contact (SSC) during cesarean deliveries has garnered significant attention as a best practice that can enhance maternal and neonatal outcomes. The World Health Organization (WHO) recommends immediate SSC for all newborns, regardless of the mode of delivery, as it is associated with numerous benefits, including improved breastfeeding initiation and maternal-infant bonding (6,28). However, the implementation of SSC in cesarean sections often faces challenges due to various medical and institutional barriers.

Research indicates that SSC can promote uterine contractions and improve maternal recovery, including hemoglobin levels post-surgery (15). A randomized clinical trial demonstrated that immediate SSC following cesarean delivery benefits maternal health and enhances the likelihood of breastfeeding initiation within the first hour of life (15). Furthermore, studies have shown that cesarean deliveries are associated with lower rates of early breastfeeding and SSC compared to vaginal deliveries, highlighting the need for improved protocols to facilitate these practices (29,30).

The Healthy Children Project's Skin-to-Skin Algorithm (HCP-S2S-IA) has been proposed as a structured approach to implement SSC during cesarean births effectively. This algorithm categorizes practices into best practices, those needing review, and those that hinder SSC, thereby guiding healthcare providers in optimizing care during cesarean deliveries (31). Additionally, qualitative studies emphasize that mothers who experience SSC report higher satisfaction with their surgical experience and are more likely to initiate breastfeeding successfully (6,32). Despite the evidence supporting SSC, barriers remain prevalent, particularly in emergency cesarean situations where immediate medical needs may delay contact. Moreover, socio-demographic factors such as maternal age and education level can influence the likelihood of SSC being practiced (1). Addressing these disparities is crucial for ensuring that all mothers have the opportunity to engage in SSC, which is vital for both maternal and neonatal health.

In conclusion, global best practices and protocols for SSC during cesarean deliveries emphasize the importance of immediate and uninterrupted contact between mother and child. The integration of structured guidelines, such as the HCP-S2S-IA, along with ongoing education for healthcare providers, can help overcome barriers and promote the adoption of SSC, ultimately improving breastfeeding outcomes and maternal satisfaction.

CONCLUSION

This systematic mapping review highlights the need for skin-to-skin contact (SSC) to be implemented as a priority intervention during cesarean deliveries. Control of padlock is emphasized: Logistical, institutional, cultural, and attitudinal aspects of SSC practices. The results demonstrate that SSC practices are influenced by logistical, institutional, cultural, and attitudinal aspects. By overcoming these barriers through targeted strategies that include the training of healthcare providers, the alignment of policy and culturally appropriate approaches, the global implementation of SSC can be improved. Moreover, leveraging global best practices with local context-based interventions can help bridge the gaps that exist in practice and standardize SSC practices in disparate healthcare settings. Such examples can include improved initiation of breastfeeding, improved maternal-infant bonding, and improved satisfaction with the birthing experience.

LIMITATIONS

Although this review summarizes influencing factors of SSC during cesarean deliveries, some limitations exist. First, this study was based on existing data which may not be without risk of publication bias or by excluding the most recent evidence. Moreover differences in healthcare systems, cultural contexts, and research methodologies across studies may limit generalisability. Longitudinal and interventional studies are needed to validate and expand on these insights, ensuring SSC practices are optimised across the various clinical and cultural contexts in which they are deployed.

CONFLICT OF INTEREST

The authors declare no conflict of interest in relation to this study.

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AUTHOR CONTRIBUTIONS

HM: Data collection and analysis.
SAZB: Manuscript editing.
SMM: Verification of trustworthiness.
ZAZ: Data analysis.

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