

ORIGINAL ARTICLE

Early skin-to-skin contact for healthy full-term infants after vaginal and caesarean delivery: a qualitative study on clinician perspectives

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Aims and objectives. This study aims to provide insight into key factors from a clinician's perspective that influence uninterrupted early skin-to-skin contact after vaginal and caesarean delivery of healthy full-term infants.

Background. Early skin-to-skin contact of healthy full-term infants ideally begins immediately after birth and continues for the first hour or the first breastfeed as recommended by the Baby Friendly Hospital Initiative. However, adoption of early skin-to-skin contact is low in many settings and the barriers that hinder its universal use are not well understood.

Design. An exploratory qualitative research design using semi-structured interviews.

Methods. Eleven clinicians were interviewed, including five registered nurses and one medical doctor from the obstetrics and gynaecology unit as well as four registered nurses and one medical doctor from the neonatal intensive care unit. Core topics that were discussed included perceptions on early skin-to-skin contact and facilitating factors and barriers to early skin-to-skin contact after vaginal and caesarean delivery. Interview sessions were recorded, transcribed and analysed using a thematic analysis approach. A coding framework was developed from which subthemes emerged. The overall themes were adopted from Lee *et al.*'s thematic framework to categorise factors into institutional, familial-level and implementation factors.

Findings. Critical institutional factors included inadequate staffing and education of clinicians on early skin-to-skin contact. On a familial level, parental education and motivation were identified as important factors. Barriers to implementation included the absence of a clinical algorithm and unclear definitions for eligible mothers and infants.

Conclusions. Various facilitating factors and barriers to early skin-to-skin contact of healthy full-term infants born via vaginal and caesarean delivery were identified.

Relevance to clinical practice. Addressing these factors can help to provide a better understanding of clinician perspectives on early skin-to-skin contact and help guide its implementation as standard of care for healthy full-term infants.

What does this paper contribute to the wider global clinical community?

- Skin-to-skin contact (SSC) provides various benefits for the mother and the infant. However, SSC is not routinely practiced for healthy full-term infants and its reasons for suboptimal adoption are not well understood.
- This paper provides insight into the facilitating factors and barriers to early SSC from clinicians' perspectives to create a better understanding of early SSC practice and help guide its implementation.

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Introduction

Early skin-to-skin contact (SSC) has numerous beneficial effects for the infant and the mother (Moore *et al.* 2012). These include a positive effect on physiological stability, breastfeeding duration, brain development and maternal attachment (Schoore 2001, Ferber & Makhoul 2004, Mahmood *et al.* 2011, Moore *et al.* 2012, Suzuki 2013). Infants receiving early SSC show increased blood glucose levels, improved temperature control and cardiorespiratory stability, and decreased crying (Moore *et al.* 2012). Other benefits include higher breastfeeding rates at one to four months postbirth and increased total duration of breastfeeding (Mahmood *et al.* 2011, Moore *et al.* 2012, Suzuki 2013). Additionally, early SSC seems to stimulate neurobehavioural development and organisation of the infant's brain (Ferber & Makhoul 2004). Early SSC is also beneficial to the mother: research indicates that mothers have increased confidence regarding child care and less anxiety three days after birth (Moore *et al.* 2012).

Early SSC of healthy full-term infants, starting immediately after birth and continuing for the first hour or the first breastfeed, is recommended by the Baby Friendly Hospital Initiative (Baby Friendly USA 2010). Early SSC is particularly critical in the first hour as the infant completes a sequence of inborn behavioural patterns that lead to the first breastfeed (Widström *et al.* 2011, Phillips 2013). To facilitate this process, routine hospital procedures should be postponed or carried out while the infant is skin-to-skin with the mother, unless there are medically justifiable reasons for delaying contact (Baby Friendly USA 2010). Early SSC of healthy full-term infants involves participation of a multidisciplinary team including the midwife or obstetrician, obstetric nurse and potentially team members from the paediatrics team. Despite the numerous benefits of early SSC, difficulties in implementation impede its universal use as standard of care (Dalbye *et al.* 2011, Ferrarello & Hatfield 2014, Zwedberg *et al.* 2015).

Background

Early SSC has not yet been adopted as standard of care practice for healthy full-term infants. Reasons for its suboptimal adoption are not well understood. Therefore, a care-

ful examination of the facilitating factors, barriers and perceptions on early SSC is needed. Current literature provides an overview of identified factors from the perspective of parents and clinicians that influence early SSC for hospitalised preterm infants. However, few studies have focused on routine early SSC adoption for healthy full-term infants. To date, literature on early SSC of healthy full-term infants consists of qualitative research on mothers' perspectives and has paid less attention to clinician perspectives.

Factors identified by parents and clinicians which influence early SSC for preterm and healthy full-term infants include: the surroundings' influence, infant-related factors, support of health care providers in practicing early SSC, safety concerns and knowledge and time constraints (Dalbye *et al.* 2011, Blomqvist *et al.* 2013, Mörelius & Anderson 2015, Zwedberg *et al.* 2015). Factors from the surrounding environment that facilitated SSC consist of postnatal care including encouragement from health care providers and partners, family and friends, and sufficient time to start practicing early SSC. Other facilitating factors include the satisfaction and happiness of the infant when receiving early SSC and the feeling of wellbeing which was experienced by the mother when holding the infant against her skin. Barriers from a mother's perspective include discouragement of early SSC by health care staff, partners, family or friends, concerns about the sudden infant death syndrome, and the infant being cold (Dalbye *et al.* 2011).

Current knowledge about clinician perspectives on SSC is based on hospital staff providing care for preterm infants in the neonatal intensive care unit (NICU) setting (Engler *et al.* 2002, Chia *et al.* 2006, Lee *et al.* 2012, Kymre 2014, Mörelius & Anderson 2015). The obstacles to early SSC identified by neonatal nurses include safety concerns, parental factors, knowledge about early SSC and time constraints. Neonatal nurses were afraid of not being able to control the infant's medical conditions. Additionally, the nurses mentioned that the mother could feel tied to the infant and might experience stress if she could not provide continuous SSC (Engler *et al.* 2002, Chia *et al.* 2006, Kymre 2014, Mörelius & Anderson 2015). Other barriers identified were a lack of knowledge on SSC and nurses being uncomfortable with the practice of early SSC (Chia *et al.* 2006, Lee *et al.* 2012). Furthermore, a lack of staff

and time were indicated as obstacles to implementation of early SSC (Chia *et al.* 2006, Lee *et al.* 2012).

This study aims to provide insight into clinician perspectives on uninterrupted early SSC and its facilitating factors and barriers after vaginal and caesarean delivery of healthy full-term infants. By determining these factors, a better understanding of how to implement early SSC as standard of care can be achieved.

Methods

Design

The study employed an exploratory qualitative design following a pragmatic approach with the intent of addressing specific programmatic challenges (Ritchie *et al.* 2003).

Participants

The interviews were conducted at the obstetrics and gynaecology (OB/GYN) unit of a university-affiliated community hospital in the United States and its associated level-IIIb NICU. The OB/GYN unit provides care for an urban population with diverse socioeconomic and ethnic backgrounds. The hospital is not yet designated as a Baby Friendly Hospital and early SSC is not routinely practiced. During the time of conducting the interviews, the OB/GYN unit had started educational sessions for nurses on 'transitioning to mother-baby couplet care'. These two-hour educational sessions taught by a lactation consultant comprised of training on the benefits of early SSC immediately after vaginal or caesarean delivery. The NICU has prior experience with kangaroo mother care for hospitalised preterm infants. In addition, lactation consultants provide education to the

NICU staff members about SSC for hospitalised preterm infants in a NICU setting.

To recruit participants, the researcher (IK) visited the OB/GYN unit and the NICU during weekdays and inquired whether staff members would be willing to participate in a research study on early SSC. All clinicians who agreed to participate were included in the study.

In total, 11 interviews were conducted. The sample consisted of registered nurses (RN) ($n = 5$) from the OB/GYN unit, RN's ($n = 4$) from the NICU and medical doctors (MD) ($n = 2$), one from each unit (Table 1). Participants from the OB/GYN unit on average had 13 years of practice. Participants from the NICU on average had six years of practice. Among the 11 participants, two reported that they had received SSC training. Their SSC training consisted of informal, hands-on learning from lactation consultants or through basic nursing training. Both participants were nurses from the NICU.

Data collection

Data collection occurred during September and October 2014. The semi-structured interviews on early SSC lasted 10–30 minutes and consisted of two parts: the first part focusing on early SSC after vaginal delivery and the second part on early SSC after caesarean delivery. The interviews were conducted in a private room and during work hours, based on prior permission from the unit director. In the beginning of the interview, the researcher asked the participant to complete a questionnaire on the participant's age, gender, race, profession, years of practice and whether he/she had received SSC training. The researcher emphasised that the interview aimed to understand the perceptions on early SSC for healthy full-term infants. Unhealthy infants or

Table 1 Sample characteristics

Participant	Age	Gender	Race	Type of clinician	Years of practice	Skin-to-skin care training?
1	34	Female	Asian Indian	MD, OB/GYN	7	No
2	54	Female	Caucasian	RN, OB/GYN	25	No
3	35	Female	Caucasian	RN, OB/GYN	13	No
4	43	Female	Caucasian	RN, OB/GYN	13	No
5	33	Female	Caucasian	RN, OB/GYN	5	No
6	35	Female	Caucasian	RN, OB/GYN	14	No
7	33	Female	African American	MD, NICU	3	No
8	21	Female	Caucasian	RN, NICU	1	Yes
9	38	Female	Caucasian	RN, NICU	11	No
10	27	Female	Caucasian	RN, NICU	5	Yes
11	30	Female	Caucasian	RN, NICU	8	No

mothers were not the focus of this study, therefore no further questions about medical barriers to early SSC were raised. Subsequently, the following core topics were discussed for early SSC after vaginal as well as caesarean delivery: (1) the current practice of early SSC at the hospital; (2) experience with early SSC; (3) opinion on early SSC; (4) factors that influence the practice of early SSC and (5) early SSC implementation. Regarding topic four, the researcher inquired specifically about facilitating factors and barriers to early SSC. Topic five was directed towards the feasibility of early SSC: whether parents would be interested in early SSC and if a clinical algorithm is necessary to implement early SSC.

Following the first interview some adaptations were made in the interview guide to include questions on the background of the participants and their source of knowledge on SSC.

Data analysis

Thematic analysis was conducted to analyse the data. Any identifying information was omitted. The recorded interviews were transcribed into verbatim data. The coding framework was developed after familiarisation with the data and open coding by the researcher (IK) (Ritchie *et al.* 2003). The framework was revised based on the feedback from JCK and AF. The subthemes presented in this study emerged from the coding framework developed by IK. The overall themes were adopted from the thematic framework provided in the article by Lee *et al.* (2012) on clinician perspectives of SSC for preterm infants. The Lee *et al.* framework divides the coded elements into the following themes: (1) institutional; (2) familial-level and (3) implementation factors. The subthemes emerging from our coding framework included logistics, education of clinicians, and parental education and motivation. This study presents the two most frequently cited barriers for the subthemes logistics, education of clinicians, and parental education and motivation. In addition, the most frequently cited implementation barrier and facilitative factor for each subtheme is included. Quotes illustrative of the subthemes were selected.

The researcher analysed two groups of participants: (1) OB/GYN participants; and (2) NICU participants. Early SSC after vaginal delivery is analysed from the perspective of clinicians from the OB/GYN unit ($N = 6$). The adopted framework for caesarean deliveries will be discussed from the perspective of clinicians from the OB/GYN and from the perspective of NICU clinicians ($N = 11$). Perspectives of NICU clinicians on caesarean deliveries were included since the clinicians from the NICU attend all caesarean deliveries, whereas they do not attend vaginal deliveries of healthy

full-term infants. The interviewing, transcribing and coding of the data was conducted by IK with input and guidance from JCK and AF. To facilitate qualitative analysis, Atlas Ti 7 (Scientific Software Development GmbH, Berlin, Germany) was used.

Ethical considerations

This research study was approved by the Johns Hopkins University School of Medicine Institutional Review Board (IRB).

Results

Perceptions about early SSC and current practice

All participants indicated that early SSC was important and beneficial, although they held different perceptions about the extent to which SSC is currently practiced at the hospital. Although some participants confirmed the practice of early SSC, the description that followed often illustrated that they had a varied and sometimes incorrect understanding of what early SSC entails. Few descriptions of the current practice were consistent with the recommendations of early SSC by the Baby Friendly Hospital Initiative. For instance, the time of early SSC as described by the participants was less than half an hour, whereas the Baby Friendly Hospital Initiative recommends an hour of early SSC. Furthermore, the infant was sometimes first brought to the warmer to complete routine procedures instead of placing the infant directly skin-to-skin and delaying routine procedures. For caesarean deliveries, most participants acknowledged that early SSC was seldom practiced. The results have been summarised in Table 2.

Barriers to SSC after vaginal delivery

Institutional factors

Logistics. Among the most common logistical barriers identified by participants were competing priorities for the attending staff and inadequate staffing. Labour and delivery nurses are consumed with tasks related to the perinatal care of the delivering woman and are often unable to ensure the stability and safety of the baby while lying on the mother's chest:

If the baby is in the warmer then you know that the baby is safe. If baby is on mom and mom is kind of... you know, they are still up in stirrups, you're concerned. Do they have a really good hold on the baby or [what] if the baby is wet and slippery. (Registered nurse OB/GYN, 14 years of experience)

Table 2 Thematic framework

Themes:	Vaginal deliveries:	Caesarean deliveries:	
Type of clinician:	OB/GYN participants	OB/GYN participants	NICU participants
Barriers			
Institutional factors:	<p><i>Logistics</i> Competing priorities and inadequate staffing Intravenous lines and cardiac leads</p> <p><i>Education of clinicians</i> Habitual practice Need for education of clinicians</p>	<p><i>Logistics</i> Competing priorities and inadequate staffing Observation of the mother by an additional person</p> <p><i>Education of clinicians</i> Little to no experience with early SSC Need for education of clinicians</p>	<p><i>Logistics</i> Size of the operating room Weighing of the infant</p> <p><i>Education of clinicians</i> Concerns about the infant's health Need for education of clinicians</p>
Familial-level factors:	<p><i>Parental education and motivation</i> Mothers are not interested in practising early SSC Mothers would like to have their infant cleaned off before practising early SSC</p>	<p><i>Parental education and motivation</i> Mothers would like to have their infant cleaned off before practising early SSC Need for parental education on early SSC</p>	<p><i>Parental education and motivation</i> Mothers do not ask for early SSC Need for parental education on early SSC</p>
Implementation factors	The absence of clear protocols on clinical eligibility of the mother and infant	Mothers are uncomfortable after a caesarean delivery	The absence of clear roles and communication
Facilitating factors			
Institutional factors	<p><i>Logistics</i> Early SSC is discussed during prenatal visits</p> <p><i>Education of clinicians</i> All clinicians agree on practicing early SSC</p>	<p><i>Logistics</i> Early SSC is discussed during prenatal visits</p> <p><i>Education of clinicians</i> All clinicians agree on practicing early SSC</p>	<p><i>Logistics</i> Early SSC is discussed during prenatal visits</p> <p><i>Education of clinicians</i> Education of all staff members</p>
Familial-level factors	<i>Parental education and motivation</i> Early SSC is discussed during prenatal visits	<i>Parental education and motivation</i> Mothers who are motivated to make use of early SSC	<i>Parental education and motivation</i> Parental education on early SSC
Implementation factors	No facilitating factor identified	No facilitating factor identified	Development of a protocol and flowchart

The nurses suggested that it would be helpful for a designated staff member, for example an additional nurse, to help engage in early SSC immediately after birth to ensure the clinical stability of the infant and the mother. Another barrier included the intravenous lines and cardiac leads on the mother's chest. One of the nurses suggested that changing the location of these cardiac leads might simplify early SSC. Participants agreed that discussing early SSC with the patient beforehand, preferably during prenatal consultation, could be a facilitating factor as it allows logistical planning and preparation in advance.

Education of clinicians. A second institutional constraint identified by participants was the difficulty to change existing practices. Several participants responded that the habitual following of daily practice routines hinders adaptation of new practices:

I think naturally, a lot of times the baby just goes to the warmer unless somebody mentions it because it's just what we are used to. Yeah, maybe if the patient requests it [early SSC] or if the nurse, you know, mentions it. There is nothing against it. I think people are just used to doing something a certain way. (Registered nurse OB/GYN, 5 years of experience)

In addition to habitual practice, participants identified the need for education and emphasis on the benefits of early SSC as crucial. Participants considered having the entire team on board with the practice of early SSC as a facilitating factor.

Familial-level factors

Parental education and motivation. A frequently stated issue when asking for factors influencing early SSC was the perception among participants that some mothers are not

interested in early SSC. Another barrier to practising early SSC includes mothers who want their infants cleaned off first before holding them:

There are some patients that we take care of that, culturally maybe... I'm not sure but they just typically don't like that sort of thing to happen. They have this concept of: if the baby is not cleaned off, I don't want it on me. That is a pretty common thing. There is population of people that feel that way. They don't want to breastfeed. The whole concept of it is gross to them: "The baby just came out of my stomach and I first want it cleaned off". (Registered nurse OB/GYN, 13 years of experience)

Participants acknowledged the importance of parental education to address these barriers and suggested that a facilitating factor could be to discuss the benefits during prenatal care visits.

Implementation factors

Although the emphasis of the interviews was on healthy full-term infants and healthy mothers, many participants considered medical complications for either the infant or the mother as a major barrier to early SSC. Participants suggested that a clinical algorithm should be established to explicitly define medical conditions of the infant or the mother that contraindicate SSC in order to exclude any mother–baby dyads at potential risk from early SSC.

Barriers to SSC after caesarean delivery

Institutional factors

Logistics. From the perspectives of the OB/GYN participants competing tasks and inadequate staffing were seen as key barriers to early SSC after a caesarean delivery, more so than in a vaginal delivery:

Because when you are in the operating room, you are in the circulator and that is a lot of work. I mean, it's not like you have 10, 15, or 20 minutes to go stand with the mom at the head of the bed. You are the one getting the suture, you are the one opening up an extra bandage, and you are doing a lot of work. So there isn't time to devote to that [early SSC]. So unless we figure out a way to have a separate nurse, to spend the entire skin-to-skin time with the mom and baby. That is the big barrier. (Registered nurse OB/GYN, 25 years of experience)

Participants believed that mothers should be observed while practicing early SSC in the operating room and suggested that a husband or a family member, if capable, could watch the baby:

You can leave it up to a significant other, if there is somebody in the operating room. But if not, you can't do it with the mom

alone. I don't think it's safe. (Medical doctor OB/GYN, 7 years of experience)

However, others had the opinion that you should not put the responsibility for supervising early SSC on untrained caretakers:

I think if it's mom because she is lying flat on the table, you need somebody who is holding the baby with her, basically and I don't think you can ask that that person be dad because if something happens then I think that's a big liability. (Registered nurse OB/GYN, 14 years of experience)

From the perspectives of the NICU participants, the size of the operating room was considered a barrier. One of the participants advocated that clinicians who are not needed right after the delivery would leave the operating room, thereby creating more space in the operating room:

With a C-section our biggest thing is having enough room. Once the baby is born, only having the people that you need in there. There are so many people for a C-section and I think a lot of us get overwhelmed and we feel like we are a burden being in there. I think the NICU staff could leave, uuhm, and then the labor and delivery nurse could make sure that mom is doing skin-to-skin and then the doctors will finish up the rest of surgery obviously. (Registered nurse NICU, 1 year of experience)

Another issue raised by the NICU participants concerned the possibility that SSC would interfere with their established workflow, particularly the weighing of the infant right after birth:

We have to weigh the baby before we can put it in the system and when babies are born we really want to get them in the system so we can chart, we can figure out their plan and we can do this. So when mom holds we can't weigh and we can't put him in the system. (Registered nurse NICU, 1 year of experience)

Also, the OB/GYN and the NICU participants agreed that logistical planning would be facilitated if early SSC after caesarean delivery is discussed during prenatal care visits.

Education of clinicians. Having little to no experience, together with the need for education, were reported by the OB/GYN participants as barriers to implementing early SSC after caesarean delivery. As a facilitating factor, the OB/GYN participants considered having the team on board with the practice of early SSC as most important. According to the OB/GYN participants, in addition to nurses, obstetrician-gynecologists and pediatricians, anaesthesiologists also need to agree with practising early SSC. Early SSC takes places in the work field of an anaesthesiologist,

and it might require some modification of the set-up to assure safe monitoring of the mother's condition.

The main priority of the NICU clinicians is to ensure the health and stability of the infant. When asked about early SSC, participants agreed that the practice of early SSC made them feel nervous and concerned for the health of the infant:

I guess just from my perspective, it just makes me nervous to think about the baby and the baby needing some type of assistance. (Medical doctor NICU, 3 years of experience)

Besides the concerns about the infant's health, the NICU participants identified limited knowledge of early SSC as a barrier. NICU participants did not have experience with early SSC after caesarean delivery and they agreed that education of all staff members could facilitate early SSC.

Familial-level factors

Parental education and motivation. As with vaginal deliveries, OB/GYN participants cited that after a caesarean delivery mothers often want their infants cleaned off before holding them against their skin. NICU participants regarded 'mothers not asking for early SSC' as a reason why early SSC is not practiced. To facilitate early SSC, participants from the NICU agreed that education for parents, preferably during prenatal visits, is needed to familiarise them with the benefits of early SSC. According to the NICU participants, parents are not aware of the benefits of early SSC and therefore less inclined to make use of early SSC. The OB/GYN staff members agreed that the practice of early SSC is facilitated when patients themselves are motivated and eager to make use of early SSC:

People who are committed with the birth plan and really want early skin-to-skin. We have gotten extra people to be able to go into the OR [operating room] to help. (Registered nurse NICU, 25 years of experience)

Implementation factors

Implementation of early SSC after a caesarean delivery was considered to be more difficult than after a vaginal delivery, primarily because participants expected to encounter more barriers. As with a vaginal delivery, participants from both units considered the clinical stability of mother and infant to be an important barrier to implementing early SSC. According to the participants from the OB/GYN unit, not only the condition of the mother but also the mother's comfort was perceived as a potential barrier:

You're lying there, you know your belly is open. You have got all these strange people walking around. You hear and feel intense things going on. You have no control and now they want to put a baby on your chest and you can't move your arms. (Registered nurse OB/GYN, 25 years of experience)

NICU participants stressed the importance of clear roles and communication in the operating room:

The ones who decide if the baby is coming with us or if the baby is staying, maybe if that person had the role to say: "baby is fine" and then also say, you know, "he can go lay on mom now". Something that would then sort of bring that topic up. (Registered nurse NICU, 11 years of experience)

The NICU participants recommended that it would be easier if a protocol plan and flowchart were in place to define the structure for this practice.

Discussion

This study identified multiple factors that are likely to influence implementation of early SSC from the perspectives of nurses and medical doctors in the OB/GYN unit and NICU of a university-affiliated hospital. For vaginal deliveries, institutional factors such as logistical barriers including competing priorities for the attending staffing and inadequate staffing as well as intravenous lines and cardiac leads on the mother's chest were seen as important factors in the successful adoption of early SSC. In addition, participants regard clinical education of clinicians and habitual practice as factors that hinder early SSC. The results on inadequate staffing and education of clinicians are supported by previous literature: clinicians believed that it was difficult to facilitate early SSC in a NICU setting due to 'increased workload and low levels of staffing' (Engler *et al.* 2002, Chia *et al.* 2006, p. 4). Furthermore, clinicians indicated that a lack of knowledge on the effects of early SSC and its technique could potentially hinder its use as a standard care of practice (Engler *et al.* 2002, Chia *et al.* 2006).

An important familial factor, which was considered to be an obstacle to early SSC, included mothers who did not show interest in the practice of early SSC. As noted by Lee *et al.* (2012), parental opinions and cultural differences can provide challenges to establishing SSC. Lee *et al.* (2012) described that Hispanic or Asian mothers were sometimes doubtful to practice early SSC as they were afraid the infant might get cold.

In our interviews participants identified the absence of a clinical algorithm for when to apply early SSC as another major barrier to implementation. This is similar to the

results from previous qualitative research in a NICU setting, which shows that a lack of a clear definition on clinical eligibility accounts for reluctance among nurses to practice early SSC (Engler *et al.* 2002, Chia *et al.* 2006, Lee *et al.* 2012, Kymre 2014, Mörelius & Anderson 2015).

Although participants in this study identified many similar barriers for vaginal and caesarean deliveries, they also indicated that early SSC was more challenging in the operating room setting. Additional barriers include the absolute need for extra staff, the size of the operating room, the need for weighing the infant and the potential discomfort of the mother. These findings are in concordance with the results of Zwedberg *et al.* (2015): midwives believed that a lack of staff and time and space in the operating room could interfere with the practice of early SSC. Zwedberg *et al.* (2015) describe that a mother's condition after a caesarean section sometimes impeded early SSC due to a decreased mobility and postsurgical pain.

Literature from quality improvement projects including those that address education of staff and parents (Haxton *et al.* 2012, Vasquez & Berg 2012, Brady *et al.* 2014, Brown *et al.* 2014, Stone *et al.* 2014) can provide successful implementation frameworks, resulting in an increase in SSC practice and the number of exclusively breastfed infants (Haxton *et al.* 2012, Brady *et al.* 2014, Brown *et al.* 2014). Education of staff members can be addressed by providing educational sessions, either via digital channels or face-to-face classes (Haxton *et al.* 2012, Vasquez & Berg 2012, Brady *et al.* 2014, Brown *et al.* 2014, Stone *et al.* 2014). The Baby Friendly USA Inc. has developed a standardised educational programme, which can be used for the education of nursing staff (Baby Friendly USA 2010).

Two studies by Haxton *et al.* (2012) and Brady *et al.* (2014) provide several possible solutions for providing parental education during the prenatal period that include informing parents on the benefits of early SSC with brochures, during childbirth education class, breastfeeding classes and during visits with the certified nurse midwife.

Another barrier reported in this study is the absence of a clinical protocol on early SSC. Stone *et al.* (2014) used simulation to develop a clinical protocol for SSC in the operating room while Sundin and Mazac (2015) adopted a protocol from Hung and Berg (2011) to guide SSC practice.

Logistical issues, such as set protocols for weighing the infant immediately following birth hindered early SSC practice according to our participants. Haxton *et al.* (2012) suggests that routine procedures such as weighing the infant are delayed until one to two hours after birth. However, this requires adjustments in the documentation system such as including a box to report early SSC in the patient's records (Haxton *et al.* 2012).

Finally, our study identified staffing as an important barrier to early SSC, especially with caesarean delivery. A quality improvement project at a labor and delivery unit in a Midwestern academic medical centre addressed this barrier by organising discussion sessions, allowing all staff members to share their opinion. Eventually, they reached consensus on the following practice: a second nurse was excused during vaginal deliveries as soon as the infant's condition was considered stable (Haxton *et al.* 2012). For caesarean deliveries, Brady *et al.* (2014) designated a transition nurse to care for the infant during early SSC. The responsibilities of the transition nurse were discussed extensively before implementation took place.

Several limitations to this study must be noted. The sample size is small since it was challenging to recruit participants working at a busy OB/GYN unit or NICU. Nevertheless, we believe that this study provides novel and important preliminary data on clinician perspectives which can be used in directing future follow-up studies. The constraints associated with interviewing busy clinicians limited the length of interviews. In addition, this study focuses on perspectives of clinicians. Careful interpretation of barriers from a parent's perspective is therefore necessary. Interviews were conducted early in the process of introducing SSC when early SSC was still seldom practiced. It would therefore be of interest to conduct a follow-up study later in the process of implementing early SSC.

Conclusions

Suboptimal adoption of early SSC for healthy full-term infants continues to exist because of institutional, familial-level and implementation barriers. Nurses and medical doctors believe that education of clinicians and parents on the benefits of early SSC and establishing a clear protocol for early SSC can play an important role in promoting early SSC. Following a caesarean delivery, early SSC was considered to be more challenging in the operating room due to competing tasks for the attending staff and inadequate staffing. Influential factors identified by nurses and medical doctors should be taken into consideration before implementation of early SSC occurs.

Relevance to clinical practice

Understanding the facilitating factors and barriers on uninterrupted early SSC from a clinician's perspective provides a better insight into the practice of early SSC. These factors should be considered and addressed before successful implementation of early SSC can be established.

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Contributions

Study design: IK, JCK, CA, AF; data collection: IK; data analysis: IK, JCK, AF; manuscript preparation: IK, JCK, OA, CA, AF.

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Conflict of interest

The authors declare that they have no competing interest.

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