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Sacred Hours: Mothers' Experiences of Skin-to-Skin Contact with Their Infants Immediately After Preterm Birth

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Abstract

Objective: The aim of the present study was to investigate mothers' own experiences of skin-to-skin contact (SSC) with their newborns immediately following moderately premature birth.

Design: Mixed method, survey and focus groups interviews.

Participants: Thirty-nine mothers giving birth at gestational age 32^0 - 34^6 weeks responded to a quantitative questionnaire. Nine of these mothers participated in focus group interviews.

Method: In order to obtain information about mothers' own experiences of immediate SSC with their moderately preterm newborns after birth, quantitative and qualitative data were collected. Using a mixed method approach, descriptive quantitative data were combined with rich qualitative data from focus group interviews to offer a more comprehensive picture of the mother's own experiences. Key concepts were information about SSC, feeling of safety and mother-infant bonding.

Results: The results from both the quantitative and qualitative part of the study were highly congruent: the mothers perceived that they had been given sufficient information by midwives and nurses about SSC following premature birth. According to questionnaire responses and interviews, the mothers' perception of safety during SSC was enhanced by the continuous presence of a nurse from the Neonatal Intensive Care Unit (NICU). Moreover, the mothers felt that SSC was important during the first hours after birth, both for mother-child bonding and for normalization of the birth experience.

Conclusion: The results of our study demonstrate that SSC is a useful method to normalize the birth experience and enhance mother-child bonding following a moderately premature birth. We argue that midwives, nurses from NICU and physicians should support and promote SSC immediately following premature birth.

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Background

Giving birth is a life-changing event in a woman's life and it is important to facilitate a positive experience. These first hours of life are a special moment when the baby and the parents meet for the first time and a family is formed. Phillips [1] calls it a "sacred" time that should be valued and promoted; it is also the time when the foundation for bonding is strongest [2]. In 1958 Bowlby [3] described that early and close contact between mother and infant after birth was an essential facilitator of secure attachment. This period after birth, also called "the early sensitive period", is characterized by close contact between mother and infant and may exert a long-term positive effect on mother-infant interaction [3]. During this time, infants instinctively try to start breastfeeding and seek skin-to-skin contact.

Skin-to-skin contact (SSC) between mother and the newborn infant immediately after birth implies an experience of physical and social contact with the newborn. SSC is defined as placing the infant in prone position, wearing nothing more than a diaper but covered with a blanket, on the naked chest of its mother, father or a relative [4]. It is a powerful, easy-to-use method to promote health and well-being of both infants born prematurely and full-term [5]. It enables the mother to feel close to the baby and increases the sense of her role as a mother [5]. It may have long-term effects on children's health and reduce maternal anxiety [2,6]. Studies describes that close parental involvement strengthens the bonding between child and parents [6,7]. Childbirth staff should therefore seek opportunities to support SSC immediately after birth [2,8]. SSC is meant to be initiated in the hospital setting and can be continued at home.

WHO defines preterm birth as occurring prior to 37 gestational weeks [9]. Every year, approximately 15 million infants are born prematurely, which corresponds to more than 1 in 10 of the world's newborns [10]. More than 1 million infants die due to prematurity and it is the leading cause of death among newborns [10]. Preterm birth rates are increasing in almost all countries that keep reliable data. It is estimated that improved care for small babies, including SSC, could save 450 000 premature babies each year [10]. A preterm delivery is often unexpected and can be associated with a high level of maternity stress and anxiety [11,12]. In addition preterm birth leads to early physical separation of mother and infant, if the infant is transported to the Neonatal Intensive Care Unit (NICU) for observation [13]. According to Fegran and co-workers [8], infants who are separated from their mothers during their first hours of life, are more likely to develop a weak initial attachment to their mothers. The same authors report that mothers often experience the postnatal period immediately after a premature birth as surreal and strange, and the mother-infant bonding process might be more challenging than after the normal birth of a healthy full-term infant [8].

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For the preterm infant, early SSC is associated with physiological stability (e.g. of heart rate, respiration rate, oxygen saturation and body temperature) [14,15] and lower levels of stress hormones [16]. Practicing early SSC in the delivery room following birth gives a mother immediate access to her newborn infant. This early physical and emotional closeness between mother and infant is believed to be crucial for bonding and the formation of positive attachment relationships [2,17].

Recent years have seen a trend towards a gentler initial approach to managing preterm infants immediately after birth, and numerous hospitals have changed their procedure in that direction. However, while many studies on the benefits of SSC for moderately preterm and full-term newborns have been published, studies reporting the mother's own experiences of SSC in connection to preterm births are scarce.

Therefore, the aim of the present study was to investigate mothers' own experiences of SSC with their newborns immediately following moderately premature birth. Key concepts of the study were issues related to information, feeling of safety and bonding.

Method

Design and procedure

In order to obtain information about mothers' own experiences of immediate SSC with their newborns after premature birth, quantitative and qualitative data were collected. Using a mixed method approach [18], descriptive quantitative data were combined with qualitative data from focus group interviews, to establish a more comprehensive picture of this practice from the participating mothers' points of view. The qualitative part of the study was intended to enrich and explain the results obtained from the quantitative data. A focus group interview is a technique used to gain deeper knowledge by stimulating dynamic and interactive discussions that will clarify the informants' perceptions and experiences [19]. In this study with an explanatory design [18], the interview guide was based on the main concepts from the quantitative study (information, feeling of safety and mother-infant bonding).

Quantative Study

The quantitative study was part of a larger study by Kristoffersen and co-workers [20,21] where one of the aims was to determine if early SSC in the delivery room after vaginal births of moderately preterm infants was safe and feasible with extant personnel resources [20]. The present study was conducted from April 2010 to May 2013 at St. Olav's University Hospital, Trondheim, Norway. The University Hospital has approximately 4000 births annually and about 6% of these are premature [22]. The inclusion criteria were all mothers with a vaginal delivery at gestational age 32^0 - 34^6 weeks. The infant had to be in a medically stable condition and the mothers had to have Norwegian as their native language. All the women that met the inclusion criteria during this period were invited to participate in a quantitative study. The mothers were identified and informed about the study by nurses at NICU. The mothers completed the questionnaire while they were hospitalized. The questionnaire sought to explore mother's experience of whether she received adequate information, her feeling of safety when having the preterm infant in skin-to-skin position after birth in the delivery room, and early bonding with the infant during the first hours after birth.

Forty-two mothers met the inclusion criterion and received the questionnaire; 39 mothers completed it. Two mothers were excluded due to incomplete responses; thus a total of 37 mothers, aged from 21 to 42 (mean=28) completed the questionnaire (N=88%). The participation process is described in Figure 1.

Questionnaire

At study start, no validated questionnaire reflecting mothers' experiences of the time immediately following a premature birth was available. In cooperation with the Norwegian Knowledge Centre for Health Services, a questionnaire based on literature and clinical experience was therefore developed. The questionnaire was divided into 4 subscales: 5 questions to collect demographic data and 13 questions about the key concepts (information, feeling of safety and mother-child bonding) scored on a 5-point Likert-type scale. Testing of the questionnaire's internal consistency showed an acceptable overall Cronbach's alpha (α) of 0.739. Internal consistency was also tested for the constructs. "Information" had good internal consistency (α 0.805), while that of "feeling of safety" (α 0.617) and "mother-infant bonding" (α 0.690) was questionable. The latter two consisted, however, of a very few items [23]. The questionnaire had an acceptable level of missing data (< 10%) and no floor and ceiling effect [24,25].

Qualitative study

The qualitative part of the study involved focus group interviews with some of the mothers from the quantitative group. Focus group interviews were conducted approximately 7 to 12 months after delivery (April 2012 - November 2013) as the mothers became available after their deliveries. Eligible mothers were already included in the quantitative study, and fulfilled the inclusion criteria. In addition, they had to reside no more than one hour from the hospital. A letter of invitation was sent to mothers who matched all the inclusion criteria (N=22) and eleven accepted the invitation. Two of the mothers did not attend the interview. Consequently, nine mothers, aged from 22 to 43 years (mean=30), participated at one interview each (Figure 1). Six were first-time mothers, and one of them had twins. All but one of them were employed or studying. A majority of the participants had a college or university level education and had a professional connection to the health or social services. Every interview had a duration of approximately 1.5 hours.

The semi structured interview guide was based on literature review and clinical experiences. The questions were related to the concepts of the quantitative part of study: information, feeling of safety and mother-child bonding.

Two authors of the present study, a midwife (RD) and a public health nurse (KG) facilitated the focus group interviews. Both were unknown to the participants. They took turns being the moderator and the observer. The moderator kept the discussion on track, ensured that everyone took part and balanced the participants' contributions. The observer's responsibility was to assure that the topics in the semi-structured interview guide were discussed. The interviews were tape recorded and transcribed verbatim.

Data analyses

The quantitative data were analyzed with the Statistical Package for the Social Sciences (SPSS) version 22. Descriptive statistics and reliability testing were used.

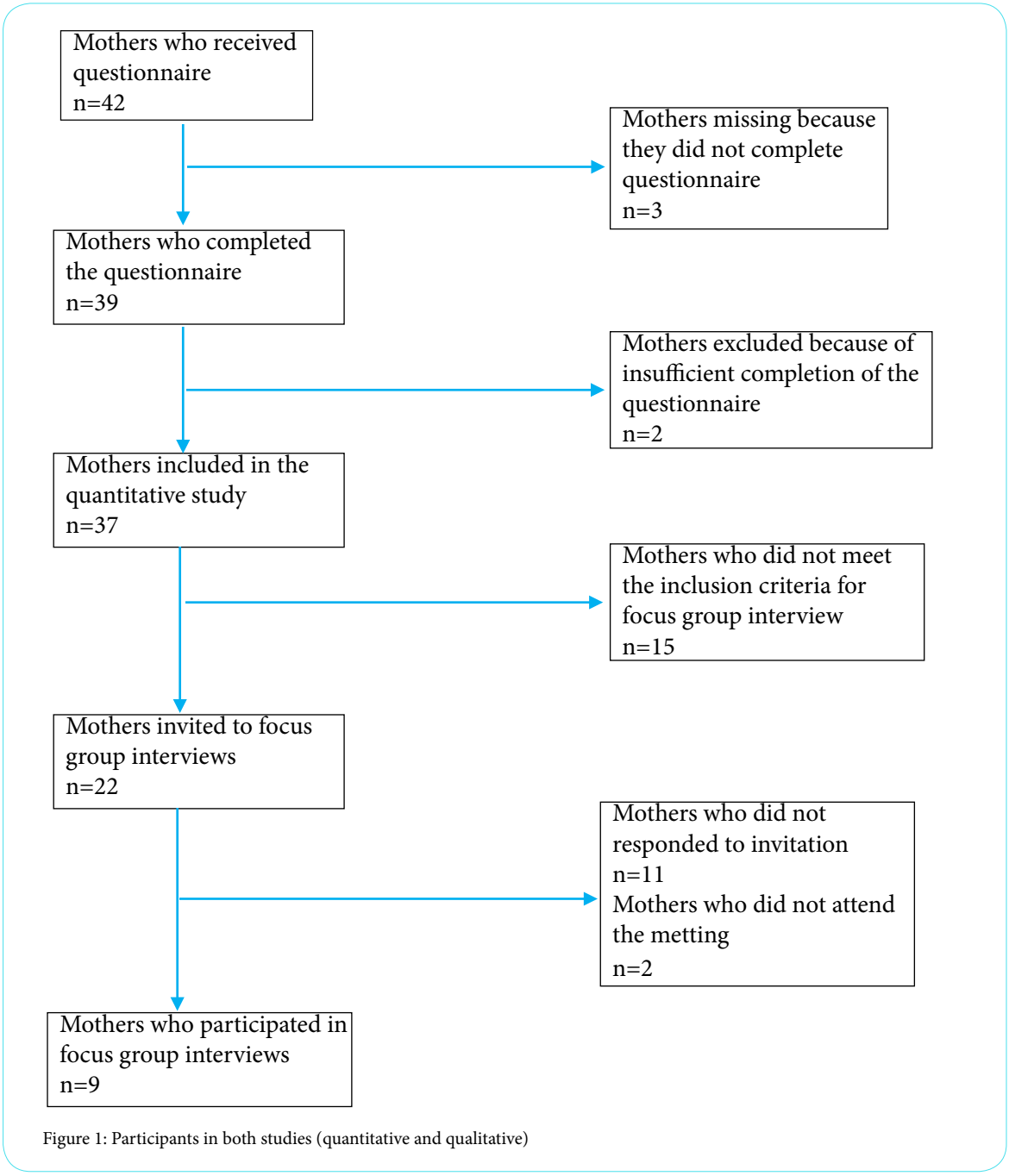

Figure 1: Participants in both studies (quantitative and qualitative)

In the qualitative study, both moderators participated in transcription, coding and analysis of the collected data. For the analysis, an adapted version of qualitative content analysis was performed [26]. The interview transcripts were carefully reviewed several times to obtain a sense of the meaning; this was followed by a stepwise analysis. Coding of the main themes was based on the three main topics: information, feeling of safety and mother-infant bonding. The results were analyzed based on this understanding. Therefore, this study has an explanatory design where the development of the qualitative part was based on the quantitative study [18]. The statements from the mothers were categorized to meaning units and sub-themes, and ultimately to the main themes: information, feeling of safety and mother-infant bonding. The moderators analyzed the data separately, and the findings were not compared until the interpretation stage. Although inferences were drawn after each phase (quantitative and qualitative), a meta-inference was drawn at the end of the interpretation phase, when the inferences from both designs were compared.

Ethics statement

The Regional Committee for Medical Research Ethics (REC Central Norway) approved the study (2010/2747). Written informed consent was obtained from all the participants.

Results

The results from both the quantitative and the qualitative phases of the study are presented based on the three main topics:

1. information about SSC
2. feeling of safety
3. mother-infant bonding

Information to mothers about the skin-to-skin contact

The results of the quantitative study showed that nearly 50% of the participants had never heard about SSC before admission to the maternity ward. Seventy percent received information about SSC before the birth, and most of the mothers experienced that the information given was understandable (Table 1).

Mothers underlined that information about SSC, and its possible effects, was important in allowing them to increase their own knowledge. They also valued receiving information from the professionals during the various procedures, as well as the professional observations of the medical status of the baby in the first hours following the birth:

She [the nurse from NICU]) gave information about all tasks and observations; I think it was very OK, really. She was talking to me all the time, explained: Now we do this and then we do that…

Even though the mothers appreciated the information regarding the skin-to-skin contact, some of them also expressed feeling that too much information was a challenge:

And we received some written information, but I never read it, there were other things… and I thought…you know… it is OK not to know too much sometimes, and I ignored it. And then, I read more later.

I don't think I was very receptive to information, I don't remember. She [the nurse] was talking and explaining. Information was probably OK.

More than half of the mothers in the qualitative study were first-time mothers. This made them especially vulnerable and unprepared for the birth, which was reflected in the commentaries:

I had no idea about the birth… I wish that somebody could sit down and talk about birth in general…. Maybe just half an hour.

So, we knew very little what question to ask, we were not ready for birth at all, it was frightening.

Feeling of safety when using the skin-to-skin contact

The quantitative study showed that nearly all mothers (97%) experienced a feeling of safety when using SSC (Table 2). They also felt that the care of the infant was in competent hands. Sixty-five percent experienced that the information given before, during and after the birth contributed to this feeling of safety.

The nurse from NICU was present in the delivery room with mothers/parents during the first hours. She/he was responsible for the infant and a midwife took care of the mother. Having the newborn infant placed in skin-to-skin position was an important signal to the mothers, indicating that the baby was in good health.

After a normal birth, we know that we are supposed to get the baby on the chest -so after a premature birth, it felt very good, it wasn't so dramatic

The presence of the nurse who observed the baby also contributed to the mothers' sense of safety.

It was crucial that a nurse was present all the time yes … I think, without her it would be different

Several mothers commented on the importance of the staff's "calm attitude".

Yes, it might have been very dramatic, but everybody was so calm… therefore, I was not stressed at all… Safe and fine! Everything was very lovely, just positive. I have such positive feelings about this!

It is standard procedure for many professionals to be present in the delivery room at a preterm birth (midwives, nurses, physicians), and mothers experienced this as frightening but also reassuring.

It felt reassuring with all the people in the delivery room, they were ready to help. I know that people are there for safety.

Hadyou heard about SSC before hospitalization	18 (48.6)	12 (32.4)	2 (5.4)	3 (8.1)	2 (5.4)
Did you receive information about SSC before birth	4 (10.8)	3 (8.1)	12 (32.4)	14 (37.8)	4 (10.8)
Was the information about SSC understandable	1 (2.7)	2 (5.4)	7 (18.9)	19(51.4)	8 (21.6)

Table 1: Information about SSC.

	Not at all	To a small extent	To some extent	To a great extent	To a very great extent
	N (%)	N (%)	N (%)	N (%)	N (%)
Did you feel that the use of SSC in the delivery room was safe	0	0	1 (2.7)	6 (16.2)	30 (81.1)
Did you feel that the newborn was under adequate observation in the delivery room	0	0	0	8 (21.6.)	29 (78.4)
To what extent did the information [about SSC] contribute to the feeling of safety after the delivery	3 (8.1.)	2 (5.4)	7 (18.9)	16 (43.2)	8 (21.6)

Table 2: Mother's feeling of safety.

If the birth is uncomplicated and the baby is healthy, most of the staff leaves the delivery room quite soon after the birth. Some of the mothers reflected over this practice, and pointed out that this also contributed to a feeling of safety:

It was reassuring to see them leave without the baby… it was very nice to be able to keep him close to me, yes! It was so good! I understood that everything was all right because they didn't take him out of the room. He was on my chest all the time, while they placed a feeding tube and monitored the baby … He was with me all the time and stayed for three hours before they took him … it was very nice, Three hours felt like five minutes.

Mother-infant bonding when using the skin-to-skin contact

Mothers emphasized the importance of having their newborn placed skin-to-skin following birth (Table 3). Ninety-three percent of the mothers considered this contact very important for the bonding.

Bonding was also elaborated on in the qualitative study. SSC immediately following an unexpected premature birth appeared to normalize a potentially traumatic experience. The mothers described their vulnerability as follows:

…it was a fantastic moment, it felt so fantastic and magical, it was so delicate and beautiful. Everything was so fantastic. If they had removed the baby, I would have missed this new, enchanted, unique….

…I think it [SSC] was helpful for coping. The whole experience was a little bit traumatic, it is a painful memory… the birth was not what I had expected. It was not a disappointment, but a little painful to think about, but I can't explain why. Nevertheless, I felt a kind of normality by having him skin-to-skin. This was helpful. Because I got some time with him… it felt more normal….

It was a little shocking when the baby was born preterm. Therefore, it was very nice to have her on my chest so I really could feel: she was here!

One of these mothers summarized the use of SSC like this:

…so, for me it was a very normal part of it, and … I have no doubt that this [SSC] is the right thing to do, not just for premature infants but also for sick infants, that they can be close to their parents and be skin-to-skin…We don't need to be so scientific, we don't need evidence, I think. This is not a wrong thing to do!

Discussion

Results from this study, obtained using both quantitative and qualitative methods, showed that receiving information about the implications of SSC before birth was of great value for mothers. This helped them expand their knowledge, thereby increasing their feeling of safety regarding the wellbeing of their infant. Our results also showed that SSC immediately following birth was important for the bonding process between the mother and her premature infant. It was also of importance in normalizing an unexpected and dramatic situation such as a premature birth.

Information about skin-to-skin contact

Mothers who were primiparous wished they had received more information about birth in general. This because giving birth was in itself a new situation to them. In Norway, pregnant women usually receive information about birth in connection with antenatal health care during the last weeks of the pregnancy. However, if mothers give birth prematurely, they might not have received this information yet. Even if the focus of this study was information about SSC following birth, it is important to remember that pregnant woman also needs information regarding birth in general, in order to contribute to their feeling of safety.

It can be challenging to provide information in an unexpected and dramatic situation, such as a premature birth. The women are extremely vulnerable and therefore poorly receptive to new information. The participating mothers also highlighted this in our study. A useful strategy, suggested by the mothers in the study, was to provide information during practical procedures. The mothers experienced this as effective. Our results also indicated that midwives, nurses and physicians, should adapt their information to the individual mother, to ensure that it contributes to the mother's perception of safety.

Mother's feeling of safety

Until recently it was standard procedure that a premature infant delivered before gestational age 35 weeks was transferred to the NICU in an incubator after birth. Mothers have normally accepted this because there were no other choices, and it was essential for the newborn infant's safety. In our study, the newborns were given only a quick examination by the pediatrician on the resuscitation table before they were placed on their mothers' chest. In this situation, it is important that the mother feel confident regarding the professional assessment of the infant's condition. The quantitative data confirmed the mothers' feeling of confidence. One of the main factors that contributed to this was the presence of the nurse from the NICU as also shown in the study of Johnson [27]. She/he took care of the newborn and all the technical equipment but apart from that the nurse gave the new family an opportunity to be undisturbed. There was not necessarily a lot of verbal communication between the mother/parents and the nurse, but the mothers emphasized that the nurse's presence was essential. It was also reassuring for the mothers that most of the staff left the delivery room quite soon after the birth. The mothers felt that this indicated that everything was normal and there was no need for further action. The calm attitude of the personnel also contributed to the feeling of safety.

	Not at all	To a small extent	To some extent	To a great extent	To a very great extent
	N (%)	N (%)	N (%)	N (%)	N (%)
How important was it for you to practice SSC with the newborn immediately after birth in the delivery room	0	0	0	6 (16.2)	31 (83.8)
Do you feel that early SSC is important for bonding	0	0	1 (2.7)	9 (24.3)	27 (73)

Table 3: Mother-infant bonding.

Bonding between the mother and her infant

In the present study, we did not explain the concept of bonding to the participating mothers. The mothers stated their own understanding of bonding, and how bonding was expressed by their own interaction with their newborn. Other studies showed that early SSC strengthens the woman's role as a mother and reduces her anxiety [2,6,28,29]. Our study confirms these results, and demonstrates that SSC immediately following birth contributed to a normalization of an unexpected and potentially traumatic situation, which could be particularly important when the infant is premature. Hence, it also gives the mother a possibility to enter her new role as a mother immediately after giving birth. The results of the present study seem to indicate that SSC immediately after birth may counteract feelings of surrealism and strangeness [8] which the mother might have after a premature birth.

Many researchers have focused on maternal infant bonding as the primary goal after birth. Research has indicated that the first hours of life provide the strongest foundation for bonding [3,29]. Premature infants are at high risk of a delay in bonding because of separation [2]. Early, prolonged and close contact between the mother and the preterm infant during the first hours after the birth seems to be of great importance for the mother: the process of bonding gets off to a positive start. In our study, mothers also felt that they would have missed the first magical moments with the infant if separated immediately. It is important to protect the first hours [1], as the mothers in our study also expressed.

A study by dos Santos Monteiro and co-workers [5] showed that SSC is a method that is easy to use and promotes a positive experience of the birth of full-term infants. Results from Kristoffersen and co-workers [20] also confirm that SSC is safe and feasible for moderately preterm infants. All the participating mothers in the present study were satisfied with SSC immediately following the birth of their preterm infant. Despite an unexpected and chaotic situation, having the infant in skin-to-skin position was meaningful and contributed to a sense of normality.

Strengths and Limitations

The strength of this study is that it is based on mothers' own experiences of giving birth prematurely. In order to establish a more comprehensive picture of SSC immediately after the birth of preterm infants from the participating mothers' point of view we used both quantitative and qualitative data [18]. The qualitative study, designed on the basis of the quantitative data, gave depth and elaborated upon the quantitative data. This triangulation method has been helpful in exposing factors specific to premature birth, as well as the mothers' experiences about SSC immediately after the birth. Triangulation contributes also by increasing the validity, strength, and interpretative potential of a study, decreasing investigator biases, and providing multiple perspectives [30]. On the other hand, the fact that we examined predetermined topics in our study may have excluded other themes, which could be of importance.

The internal consistency of the questionnaire used in this study varied from questionable to good. However, the small number of items in the scale [31] influences Cronbach's alpha negatively; we had only 2-3 items in the scales. In addition, the questionnaire had good face validity regarding missing data and floor and ceiling effect.

However, this study is limited by its rather small sample size and the results should therefore be interpreted with caution. Another limitation is the homogenous group of participants, since the majority was first-time mothers, educated at a college or university level, and more than half of them were employed in the health- or social sector, which might be a confounding factor. The study is also limited because of some participants did not attend the interviews. Nevertheless, the interviews were conducted as planned, in respect of the participants that did attend the interviews.

Conclusion

This study gives us valuable knowledge about mothers' own experiences of SSC with their premature infants. The results showed that SSC after moderately preterm birth is perceived as important and is highly valued by mothers, and contributes to their sense of normality. Moreover, the results showed that both midwives, pediatricians and neonatal nurses should promote this early contact between the premature newborn and the mother/parents and protect these "sacred hours".

For future research, it is important to assess if premature infants with lower gestational age, or newborns that are ill should also be given the possibility of early SSC.

Competing Interests

The authors declare that they have no competing interests.

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