BEST PRACTICE GUIDELINES FOR SKIN-TO-SKIN CONTACT FOLLOWING BIRTH

By

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Table of Contents

Abstract .......................................................................................................................... 3

Chapter 1- Introduction .................................................................................................. 4

Background on Skin-to-Skin Contact ............................................................................. 4

Statement of Purpose ....................................................................................................... 5

Background and Significance to Nursing ....................................................................... 5

Summary .......................................................................................................................... 7

Chapter 2- Review of Literature ..................................................................................... 8

Skin-to-Skin Contact and Maternal Outcomes ............................................................... 8

Benefits of Skin-to-Skin Contact for Infants ................................................................. 14

Benefits of Skin-to-Skin Contact for Preterm Infants .................................................... 16

The Father’s Role in Skin-to-Skin Contact .................................................................... 19

Health Care Workers Experiences with Skin-to-Skin Contact ....................................... 21

Summary .......................................................................................................................... 23

Chapter 3- Best Practice Guidelines: Benefits of SSC Following Birth ......................... 25

The Importance of Education ......................................................................................... 26

Table 1: Best Practice Guidelines .................................................................................. 28

Summary of Proposed Pamphlet ..................................................................................... 35

Chapter 4- Implementation and Evaluation .................................................................... 36

Implementation ............................................................................................................... 37
Creating an Educational Pamphlet .................................................................37
Diffusion of Innovation .....................................................................................38
   Knowledge .......................................................................................................38
   Persuasion ........................................................................................................39
   Decisions .........................................................................................................41
   Implementation .................................................................................................42
Summary .............................................................................................................42
Evaluation ..........................................................................................................43
   Confirmation ....................................................................................................43
      Confirmation of parents’ knowledge ............................................................44
      Confirmation of nurses’ knowledge ............................................................45
Strengths, Limitations, and Recommendations for Future Research ..............45
   Summary .........................................................................................................47
References .........................................................................................................49
Appendix A .........................................................................................................52
ABSTRACT

The purpose of this thesis was to develop an educational pamphlet with best practice guidelines for expectant parents and nurses about skin-to-skin contact. The research conducted for this thesis focused on the benefits of skin-to-skin contact for mothers, pre-term infants, and term infants following both vaginal and cesarean deliveries. Skin-to-skin contact has been referred to as the optimal form of care for a newborn (Erlandsson, Dsílna, Fagerberg, & Christensson, 2007). When skin-to-skin contact does not occur following birth, the most common reasons are lack of education among parents and lack of collaboration of the healthcare team (Zwedberg, Blomquist, & Sigestad, 2013). Some of the benefits skin-to-skin contact has to offer for mothers is as a reduction in anxiety, depression, and postpartum hemorrhage (Moore, Anderson, & Bergmen, 2009). Some of the benefits of skin-to-skin contact for infants is a reduction in sepsis, infection, and hypothermia. Pre-term infants are also more likely to breastfeed and gain more weight daily if they engage in skin-to-skin contact (Conde-Agudelo & Díaz-Rossello, 2016). Implementing an educational pamphlet within the setting of a childbirth class would provide expecting parents with evidence-based information on the benefits and feasibility of skin-to-skin contact.
CHAPTER 1

Introduction

This thesis will review the benefits of skin-to-skin contact (SSC) for mothers, term infants, and preterm infants in order to develop best practice guidelines for healthcare professionals and expectant parents to implement SSC immediately following both vaginal and cesarean section deliveries. Chapter One will provide the background, significance, and purpose of this thesis.

**Background on Skin-to-Skin Contact**

The first few hours of a newborn’s life have been found to be very important for developing a connection between the mother and child, and therefore, skin-to-skin contact (SSC) has been deemed the optimal method of care following the birth of a newborn (Erlandsson et al., 2007). Skin-to-skin contact (SSC) occurs when a newborn, with or without a diaper, is placed upright on their mother’s bare chest between their breasts in order to improve the wellbeing of both mother and baby (Fredrick, Busen, Engebretson, Hurst, & Schneider, 2015). The World Health Organization’s ‘Baby Friendly Guidelines’ suggest for allowing the “opportunity to practice Kangaroo Mother Care as soon as the infant is considered ready for such contact” (Baby-Friendly USA, 2016). Current practice is to separate the mother and newborn shortly after cesarean delivery (Erlandsson et al., 2007). SSC can be implemented at any time with the newborn. The most important times to have SSC with a newborn are right after delivery and the first few hours after birth. This allows for the newborn and mother to bond together and provides both the mother and newborn many benefits. According to a recent research study, SSC has been researched for over thirty-five years, primarily focusing on SSC following vaginal deliveries, and
clinicians have begun to have more interest in implementing SSC following cesarean births (Frederick et al., 2014).

**Statement of Purpose**

In order to understand the benefits of SSC for mothers and newborns following both cesarean section and vaginal births, the author conducted a literature review of recent studies published in both nursing and medical journals. The effects of SSC after cesarean section and vaginal births were explored. The outcomes reviewed were the benefits of SSC for both the mother and baby, and the parental satisfaction of experiencing SSC. The timeframe researched for the SSC was immediately following birth, and some studies researched SSC after discharge from the hospital. The purpose in conducting a literature review was to develop best practice guidelines for SSC immediately following both vaginal and cesarean births and to explore what the most common benefits of SSC contact are for mothers and preterm and terms babies, and if having SSC directly after cesarean sections is as beneficial as it is when it is implemented after vaginal births. This literature review will combine findings from different studies in order to provide nurses with best-practice recommendations pertaining to when it is most important to provide SSC, how long SSC should be provided, and what benefits can be expected for both the mother and baby. This project will provide nurses with information in order to educate the families of the importance of providing SSC after birth. This review of literature will also investigate the importance of fathers getting involved in providing SSC, in order for them to feel involved in the process.

**Background and Significance to Nursing**

When infants are born, the maintenance of their temperature becomes an important goal. Infants are initially at risk for problems with regulating body temperature, and this can lead to a
rapid decline in their temperature leading to hypothermia (Beiranvand, Valizadeh, Hosseinabadi, & Pournia, 2014). When the infant is placed in SSC, the infant can adapt to extrauterine life more efficiently through better control of their central nervous system, reduction in stress, and conservation of their energy expenditure by decreasing crying levels (Frederick et al., 2014).

Providing skin-to-skin contact for the mother and baby helps to promote positive outcomes for both the mother and baby. Mothers who provided skin-to-skin contact had decreased occurrence of post-partum hemorrhage (Saxton, Fahy, Rolfe, Skinner, & Hastie, 2015). In addition, SSC helps to decrease post-partum depression (Bigelow, Power, Maclellan-Peters, Alex, & McDonald, 2012). Research suggests that SSC right after birth helps the baby to latch on the nipple and increases the outcome of successful breastfeeding (Fredrick et al., 2014). SSC improves thermoregulation for infants and helps to facilitate a close bonding relationship between the mother and her infant (Beiranvand et al., 2014). Mothers also feel more satisfaction and confidence when providing care to their newborn in the operating room after providing SSC (Fredrick et al., 2014). Following a cesarean section, it is common for the nurses to care for the baby, and perform different tests while the mother is still on the operating table. One study researched the effects of fathers providing SSC in the operating room and found that infants cried significantly less and were able to form pre-feeding behaviors faster than when they were placed in a bassinette next to the father in the operating room (Erlandsson et al., 2007).

While SSC has many benefits, it is important for both the nurse and parents to be aware of potential risk factors. Sudden unexpected postnatal collapse (SUPC) is a rare event when a full- or near-term infant suddenly crashes (Ferrarello & Carmichael, 2016). While SUPC is a rare event, it is most likely to occur in the first hours after birth, “while the newborn is skin to skin, lying prone on the woman, often during the first breastfeeding” (Ferrarello & Carmichael, 2016).
Possible risk factors for SUPC that parents and nurses need to be aware of are mothers in the supine position during skin-to-skin contact, lack of surveillance by health care staff, parental distraction, maternal opiate analgesia, and maternal and newborn fatigue (Ferrarello & Carmichael, 2016). Nurses need to educate parents on the importance of watching their newborn during this period as well as teach the parents on the importance of watching their newborn during skin-to-skin contact, making sure their newborn is pink and breathing, and educating on the proper position for both mothers and newborns during skin-to-skin contact.

**Summary**

In order to increase the rate of SSC occurring in hospitals, nurses would need to become educated on teaching parents about SSC and the benefits it provides. If nurses are able to inform parents prior to labor about the benefits of SSC, more parents may be inclined to provide SSC. Nurses also need to become more familiar with the benefits of providing SSC as soon as possible following both kinds of deliveries so that they are able to assist mothers post-delivery in positioning the baby on the mother’s chest correctly.

This review of literature explains the benefits of SSC for both the mother and baby. The studies are organized by the benefits for mothers, the benefits for babies, the involvement of the father, and SSC following cesarean sections. The findings from the studies will inform best practices for nurses. The goal of the best practices is to assist the nurses in educating families on SSC and implementing SSC following both vaginal and cesarean birthing processes.
CHAPTER 2

Review of Literature

The search engines used to identify research on SSC were CINAHL and Pubmed. The key terms used to find articles were “benefits skin-to-skin contact” and “kangaroo care” with subheadings of “mothers,” “infants,” “fathers,” “cesarean section,” and “vaginal.” The search focused primarily on articles that were published within the past five years, 2012-2017, though two articles were included from 2007. The literature review included on retrospective cohort study, on secondary analysis, five randomized control trials, one longitudinal quasi-experiment, one observational study, two systematic reviews, one ethnographic study, one quality improvement project and two qualitative studies. The results of this literature review will be detailed in Chapter 2 and used to propose best practice guidelines later in the thesis.

Skin-to-Skin Contact and Maternal Outcomes

In a retrospective cohort study the effect of SSC and breast feeding was examined within 30 minutes after the mother had given birth by assessing the rate of primary postpartum hemorrhage (PPH). The sample consisted of 7,548 women who gave birth between 2009 and 2010 in the Tertiary Hospital, the Regional Hospital, and the freestanding Birth Centre in New South Wales, Australia (Saxton et al., 2015). The data were collected by ObsteriX, an electronic database for public sector birth in NSW, Australia. The researchers did not include 3,671 women who did not have the opportunity to breast feed or have SSC with their neonate. The women in this study gave birth to a term baby who had an APGAR (Appearance, Pulse, Grimace, Activity, and Respiration) score of seven or more after five minutes of age (Saxton et al., 2015). The women also had different risks for PPH, and the sample included women who gave birth via a cesarean section.
Saxton et al. (2015) discovered that women who breastfeed their neonate and had SSC shortly after birth had several benefits: the incidence of PPH was 9.8% for mothers who had SSC and breastfed their neonate, and those who not have SSC nor breastfed had a PPH rate of 29.5%. If women were at a low risk for PPH and only had SSC, they decreased their risk of PPH by half. A threefold decrease in the chances of developing PPH was found in the women who were at high risk for PPH before they gave birth and then breastfeed their neonate and had skin-to-skin contact (Saxton et al., 2015).

A study by Redshaw, Hennegan, and Kruske (2014) investigated the impact of early SSC on breastfeeding and maternal health and well-being. The researchers also wanted to describe the timing, type, and duration of SSC and the clinical factors associated with it (Redshaw et al., 2014). The study used a secondary analysis of research conducted in Queensland, Australia with a sample of women who had given birth between October 2011 and January 2012. The participants in this study included 5,840 women who filled out a survey about their infants, the women’s pregnancy and labor, postnatal care, and the demographic characteristics of the women in the sample (Redshaw et al., 2014).

Women who had an unassisted vaginal birth received SSC with their infant within one minute of birth. Women who gave birth in private facilities either did not get any SSC or it took five minutes to reach SSC and lasted less than 20 minutes. Redshaw et al. (2014) also found that women who had SSC with their infant within five minutes felt better within the first few days after birth and were also more confident when they were discharged from the hospital. The same women were also less likely to feel depressed or anxious months after their birthing process (Redshaw et al., 2014). Adjusting the comparison for length of first hold and breastfeeding, the women who held their baby for more than 60 minutes had higher odds of breastfeeding at three
months compared to the women who held their infant for 11-20 minutes. This finding was significant at $p = 0.012$ (Redshaw et al., 2014). The researchers were able to gather an extensive amount of data due to their sample size, which strengthens the generalizability of their findings to other communities.

Neu, Hazel, Robinson, Schmiege and Laudenslager (2014) conducted a randomized control trial to determine if holding a healthy preterm infant over the first eight weeks of their life would facilitate co-regulation of the cortisol levels between the mother and her newborn. The researchers utilized kangaroo holding, which is SSC on the chest of the mother. The participants in this study were 79 infants born between 32 and 35 weeks and were an average of 15 days old when the study was conducted. The sample was drawn from parents in five neonatal intensive care units in a city in the western United States. The infants included in the trial had to be free of umbilical lines, with no physical anomalies and no expected surgeries, and be on less than 0.5 L oxygen per nasal cannula. The mothers also had to be English or Spanish speakers who had no recorded drug use or chronic illnesses (Neu et al., 2014).

Neu et al. (2014) found that during the holding sessions, the mothers’ cortisol levels would decrease, and that over the eight weeks of holding ($p<0.01$), the decline in cortisol levels stayed relatively constant ($p=0.06$) (Neu et al., 2014). The findings for the infants were similar to those of their mothers. When holding the infant kangaroo style on the mothers’ chest, the cortisol levels for both the mother and infant decreased together; however, when the infant was clothed and held in the mothers’ arm, a negative correlation appeared in mother-infant cortisol levels (Neu et al., 2014). This suggests that not being held on the mothers’ bare chest causes a decrease in correlation of the cortisol levels. After the first week of differing cortisol levels for
the control group, the difference in cortisol levels decreased but never converged like the kangaroo group (Neu et al., 2014).

Bigelow et al. (2012) used a longitudinal quasi-experiment to research the effect of mother and infant SSC on postpartum depression. The depressive symptoms were analyzed during the first three months after giving birth, as well as the stress encountered by mothers in the first month with their new infant (Bigelow et al., 2012). The mothers were recruited to participate in the study when they visited perinatal clinics in two eastern Canada hospitals prior to giving birth between 2004 and 2007. The study was then conducted through home visits where the mothers were told to provide daily SSC during the infant’s first month of life. During the first week of life, mothers were instructed to provide six hours of SSC cumulative throughout the day for the infants first week of life and then to provide two hours per day of SSC for the remaining weeks (Bigelow et al., 2012). Bigelow et al. (2012) included 90 postpartum mothers who had infants that were older than 37-weeks gestational age. The mothers were divided into two separate groups, 30 of the women in the study provided SSC for more than 4,000 minutes in the infant’s first month of life, and the remaining 60 women were included in the control group which was required to provide less than 4,000 minutes of SSC with their infant in the first month (Bigelow et al., 2012). The two groups of women did not differ significantly with respect to their socioeconomic status, education, and race; however, the average age in the SSC group was 32 years and the average age in the control group was 28 (Bigelow et al., 2012).

In order to measure the depressive symptoms experienced by the mothers, Bigelow et al. (2012) used two self-report surveys after their SSC period with their infants: the Edinburgh Postnatal Depression Scale and the Center for Epidemiological Studies Depression Scale. Responses to these surveys showed that the SSC caused a decrease in the mother’s reported
depressive symptoms, and in the first postpartum weeks it also reduced mothers’ physiological stress, as measured by salivary cortisol levels (Bigelow et al., 2012). The mothers in the SSC group experienced a larger decrease in symptoms within their infants’ first week of life compared to the mothers in the control group (Bigelow et al., 2012). Bigelow et al. (2012) found that after one month of providing SSC, the mothers in the SSC group still scored lower on the Edinburgh scale, but only by a small amount compared to the control group. When comparing the mothers’ cortisol levels, the mothers in the SSC had a significant reduction in salivary cortisol over the infant’s first week compared to the control group (p=0.045).

The aim of a study using a focused medical ethnographic design was to explore the relationship and experiences between a mother and her neonate during SSC following a cesarean-section delivery while still in the operating room (Fredrick et al., 2014). Fredrick et al. (2014) included 11 women who were due to have a cesarean section at the Texas Medical Center. The women were between the ages of 23 and 38 and were between the gestational weeks of 39.1 and 40.2 (Fredrick et al., 2014). Of those women, eight had repeat cesarean sections, two women had cesarean sections due to medical issues, and one woman had a cesarean section due to breech presentation (Fredrick et al., 2014).

The researchers conducted an in-depth interview with the mothers prior to discharge and asked the mothers about their SSC experience. Fredrick et al. (2014) found that when the mothers were placed SSC with their neonate, they did not notice the surrounding operation room and were solely focused on their neonate. The mothers also stated they felt at peace while holding their neonate because having direct contact with their babies made the mother feel connected, comfortable, and at ease. The mothers appreciated the fathers’ comfort and assistance in providing SSC and felt that the fathers created a buffer between the OR and themselves. Some
of the mothers attempted to breastfeed on the operation table, but none of the neonates successfully latched. Once the mother and her neonate was taken to the recovery room, the mothers who tried to breastfeed again found rapid success with the neonates latching in 2-7 minutes (Fredrick et al., 2014). The neonates took an average of 5 to 18 minutes to achieve SSC with their mother and had an average of 33 minutes of SSC (Fredrick et al., 2014).

A quality improvement project was conducted to compare perceptions of mothers who had SSC after a cesarean section to mothers who did not have the opportunity to perform SSC after cesarean sections. Moran-Peters et al. (2014) explored the unavailability of SSC and identified perceptions of women who experienced SSC. The participants in this study were six English speaking women between the ages of 27 and 40 who were having a repeat cesarean section that was not due to a medical emergency (Moran-Peters, Zauderer, Goldman, Goldman, Baierlein, & Smith, 2014). The researchers obtained written consent from the participants and recorded the interviews with the participants in order to analyze the data using a conventional qualitative content analysis approach (Moran-Peters et al., 2014). Research was conducted in a Magnet-designated community hospital outside of New York City between July and September 2011.

The participants in this study reported having a better experience with the most recent cesarean section when they had SSC with their newborn (Moran-Peters et al., 2014). The women compared their previous experiences with cesarean sections and enjoyed the SSC directly after returning to the recovering room because they were able to hold their baby instead of having to wait for the baby to return from the nursery. The mothers also experienced better breastfeeding among their newborns compared to their previous children when they did not have SSC following birth. The mothers reported feeling more relaxed and calmer when breastfeeding...
after SSC (Moran-Peters et al., 2014). One of the strengths for this study was the use of qualitative evaluations that provided a better sense of women’s perspectives and experiences (Moran-Peters et al., 2014). By including the participants’ experiences in their own words, the study helps readers understand what the women liked and how they felt their experience improved. One of the limitations of this study was the small sample size; however, data saturation was reached (Moran-Peters et al., 2014).

**Benefits of Skin-to-Skin Contact for Infants**

In a systematic review article Moore, Anderson, and Bergmen (2009) explored if SSC had beneficial or adverse effects on lactation, behavior, and physiological adaptation in a mother and infant dyad. The authors reviewed 30 randomized and quasi-randomized clinical trials searching the “Cochrane Pregnancy and Childbirth Group’s and Neonatal Group’s Trials Registers, Cochrane Central Register of Controlled Trials, and MEDLINE” (Moore et al., 2009). The studies included a total of 1925 dyads that included babies born between 34 and 37 gestational weeks (Moore et al., 2009). All dyads had SSC within 24 hours postpartum, and all control groups underwent usual hospital care. Both mother and baby had no medical issues and were considered to be healthy. The studies included SSC performed within one minute of birth, called ‘birth SSC,’ SSC performed within 30 to 40 minutes after birth, called ‘very early SSC,’ and SSC performed anytime between one hour and 24 hours after birth, called ‘early SSC’ (Moore et al., 2009).

Early SSC resulted in significantly better breastfeeding performance, measured by using the Index of Breastfeeding Status, and longer duration over time of breastfeeding, except for the breastfeeding status between 28 days and one month (Moore et al., 2009). The longer breastfeeding duration was less successful due to maternal barriers experienced in the US, such
as maternity leave. There was no difference in the body weight of the infants on postpartum day 14 between the control groups and the SSC groups. Mothers involved in the SSC group felt less anxiety on day three postpartum and felt more comfortable in their ability to care for their baby upon discharge (Moore et al., 2009). At 45 minutes postpartum, infants in SSC had more normal abdominal temperatures than infants placed under radiant warmers (Moore et al., 2009). SSC infants also had lower heart rates and respiratory rates and higher blood glucose levels compared to infants in the control group infants. A limitation of this review was that across studies different instruments to measure infant temperatures were used.

The effect of SSC on infant’s temperature and breastfeeding success was analyzed using a randomized clinical trial. The sample included 90 mothers and their infant who were born via cesarean section in a hospital west of Iran (Beiranvand et al., 2014). The moms were included in the study if they had a singleton pregnancy, were between the 38th and 42nd gestational week, and were between 18 and 40 years old (Beiranvand et al., 2014). The infants had to be full term and have APGAR scores above 7 in order to be included in the study (Beiranvand et al., 2014). During the study, the researchers used random assignment to create two groups, a routine care group and a SSC group. All infants were taken from the mother in the operating room and brought to the nursery to have tests done and then were returned to the mother once she was in the recovery room. The times that the infants were separated from their mothers were not documented. The SSC group was dressed in a diaper and a hat and put on the mother’s chest while the control group was dressed and given to the mother to breastfeed. Both groups had the infant’s temperature taken at the start of the holding session and every half hour for two hours using an infrared ray thermometer on their forehead.
There was no significant difference in temperature for either group of infants; however, there was an increase in the success of breastfeeding for the SSC group (Beiranvand et al., 2014). Infants that were placed in SSC with their mother breastfed sooner than the infants in the control group. The SSC infants also had higher scores for their rooting reflex and sucking reflex (Beiranvand et al., 2014). There was no significant difference in the latching of either group.

One of the major limitations of this study was that the researchers had the couplets engage in SSC once the mother was out of the operating room, instead of immediately. The results on temperature differences are very important even though there was no difference between groups because the results show there is not a risk for hypothermia during SSC.

**Benefits of Skin-to-Skin Contact for Preterm Infants**

In a review of 21 randomized control trials, Conde-Agudelo and Díaz-Rossello (2016) investigated if kangaroo mother care (KMC) is an alternative to conventional cot care in low birth weight (LBW) infants. A total of 3,042 infants were included in the study, all weighing under 2,500 grams (Conde-Agudelo & Díaz-Rossello, 2016). The researchers used the Cochrane National Review Group search strategy which included CENTRAL, MEDLINE, CINAHL, POPLINE, WHO, and Embase. Continuous or intermittent KMC was compared to conventional neonatal care for stabilized and non-stabilized LBW infants. Any study that included KMC as a bundle of interventions was excluded, as well as quasi-randomized studies, and studies on healthy full-term infants.

Infants that were in the KMC group gained more weight per day than infants in the conventional cot care group (Conde-Agudelo & Díaz-Rossello, 2016). They also had greater increases in length and head circumference. The infants in the KMC also were more likely to be breastfeeding at discharge and at the three month follow-up visit. The LBW infants in the KMC
group had a reduction in the risk of infection, sepsis, and hypothermia than the other LBW infants, as well as a reduced risk of mortality at discharge, at gestational age of 40-41 weeks (Conde-Agudelo & Díaz-Rossello, 2016). Mothers were also more satisfied with the use of KMC than the conventional cot care.

In a randomized clinical trial performed in Brazil, Filho et al. (2015) investigated if SSC between mothers and their infants colonized with MRSA would result in decolonization. The study included 102 newborns admitted to three different NICU’s in Sao Luis, Brazil. The infants weighed between 1,300 and 1,800 grams, were hospitalized for at least four days, and had positive cultures of MRSA and/or Methicillin-Oxacillin-Resistant Staphylococcus (MRSE) (Filho et al., 2015). The mothers in this study were not colonized with these bacteria. Infants above 1,800 grams were excluded from the trial because they often did not stay hospitalized for more than four days and infants below 1,300 grams were not included because they were subjected to routine umbilical catheterization (Filho et al., 2015). During the study the mothers and infants were divided into two groups, a control group that underwent routine care without SSC, and the study group which underwent seven days of having SSC twice a day for 60 minutes each time. The mother-newborn dyads were originally cultured at the beginning of the intervention and the newborns were cultured again seven days after the intervention began.

The infants in the study group were 2.35 times more likely to become decolonized than the infants in the control group (Filho et al., 2015). The reason for the decolonization was unclear to the researchers, but they suspected that the mothers’ sensitive bacteria was able to replace the newborn’s MRSA/MRSE (Filho et al., 2015). Upon entrance to the NICU, all mothers used proper hand hygiene; however, the mother’s chests were not cleaned before holding their infant. The researchers attribute the decolonization of the infants being linked to the
mother’s unwashed chest, and that bacteria on the mother could have replaced the newborns bacteria that had colonized their nostrils.

In an observational, prospective, single-center study, the safety of the “supported diagonal flexion position” and the effect of this position on the communication between the mother and baby were evaluated (Buil, Carchon, Apter, Laborne, Granier, & Devouche, 2016). Supported diagonal flexion (SDF) position is when the mother holds the baby diagonally on her chest, compared to the usual vertical positioning used during SSC. The study was comprised of 15 very premature babies that were born between 26 and 32 gestational weeks (Buil et al., 2016). The sample was collected at a level III NICU in a hospital in France. The babies were excluded if they had any secondary neurological conditions or severe medical conditions, and the mothers were excluded if they had incapacitating physical or psychological diseases (Buil et al., 2016). The SSC sessions were recorded by videotape, and the first and last sessions were reviewed by the experimenters. During the first session, the nurse in charge assigned half of the mothers to perform SSC using the vertical position and half to use the SDF position. A total of ten SSC sessions were undertaken, each session focusing on something different such as the baby’s heart rate, respirations, oxygen saturation, and behavioral state (Buil et al., 2016). Maternal depression was evaluated using the Edinburgh Postpartum Depression Scale. None of the mothers were diagnosed with depression; they were just identified for being at risk of developing depression. At the end of the ten sessions, the mothers were given a Likert Scale to assess their feelings on having face-to-face communication with their baby during SSC (Buil et al., 2016).

The researchers found that SDF position improved the communication between the mother and baby and that there was an increase in visual attention compared to the vertical position group (Buil et al., 2016). The researchers noticed more vocalization and smiling in the
mothers who held their infant in the SDF position. There was no significant difference in the physiological variables, such as heart rate, respirations and oxygen saturation, among the babies in either group; however, the length of the SSC sessions increased when the mothers used the SDF positioning. Moms also felt more comfortable using the SDF position and their depression scores on the Edinburgh Postpartum Depression scale decreased significantly between the first and last session, while moms in the vertical group had no change in depression scores (Buil et al., 2016).

There is limited research on the effects of different positioning for SSC and this study found that there is an increased benefit for mothers’ depression using SDF. The major limitation of this study was that it did not confirm the benefits and safety of SDF positioning over a longer period of time. A longitudinal study would have been more beneficial to evaluate SDF positions long-term effects.

The Father’s Role in Skin-to-Skin Contact

In a study conducted by Velandia, Uvnäs-Moberg, and Nissen (2012), the researchers explored the breast-seeking and crying behaviors of babies when they were in SSC with their mother versus their father. This study is part of a larger randomized control trial among women in Stockholm. The mothers who took part in this study had an uncomplicated pregnancy and had a planned cesarean section. There were 17 baby boys and 20 baby girls. Immediately after the baby was born, the baby was placed on the mother’s bare chest diagonally so that the cesarean section could be continued. After 5 minutes of SSC with the mother, the baby was randomized to either continue SSC with the mother for 25 more minutes or was passed onto the father for 25 minutes (Velandia et al., 2012). On the day of the cesarean section the parents found out which parent would undergo the observed SSC.
During SSC, the researchers found that the baby girls rooted earlier than baby boys regardless of parent they were with (Velandia et al., 2012). The mothers smiled less than the fathers during SSC. The mothers were more likely to touch the baby boys more than they touched the baby girls; however, mothers were more likely to provide stimulation to the babies while the father was more likely to engage in vocal communication (Velandia et al., 2012). The baby girls cried significantly more than the baby boys and cried more when they were in SSC with the mother than compared to being in SSC with the father.

Erlandsson et al. (2007) studied the effect of SSC with the father compared to conventional cot care on crying and pre-feeding behavior. The randomized control trial included 29 fathers and their infants in a hospital in Sweden. All of the infants were delivered by elective cesarean section between 37 to 41 gestational weeks. The infants were determined to be healthy at the first assessment following birth. The infants were then randomly assigned to undergo SSC with their father or be placed in a bassinette following birth. The crying behavior of the infants was recorded and the behavioral assessments were observed and scored using the Neonatal Behavioral Assessment Scale (Erlandsson et al., 2007).

The major finding in this study was the impact of SSC on the infants crying. Infants that were assigned SSC with their father cried significantly less than infants placed in a bassinette next to their father (Erlandsson et al., 2007). The infants placed in SSC also reached a calm and drowsy state twice as quickly as the infants in the bassinettes. Rooting and sucking activity was higher in the bassinette group, but SSC facilitated overall coordination of pre-feeding behaviors more than the bassinette care (Erlandsson et al., 2007).
Health Care Workers’ Experiences with Skin-to-Skin Contact

Clinicians’ attitudes to SSC were examined in qualitative study using semi-structured interviews to assess the impact of SSC after both vaginal and cesarean deliveries. To assess clinicians’ assessments of SSC, Koopman, Callaghan-Koru, Alaofin, Argani, and Farzin (2016) conducted interviews in an OB/GYN and NICU unit in a university-affiliated hospital in the United States. Koopman et al. (2016) interviewed a total of 11 doctors and nurses. One doctor and five nurses from the OB/GYN unit, and one doctor and four nurses from the NICU. The staff on the OB/GYN unit had an average of 13 years of experience, and the NICU staff had an average of six years of practice. (Koopman et al., 2016). The interviews lasted for 10-30 minutes.

The data was analyzed using thematic analysis (Koopman et al., 2016). According to study participants, SSC has a clear impact on the mother and newborn, but all of the participants said that immediate SSC seldom happens after cesarean sections. For vaginal deliveries, the participants reported that many factors make SSC difficult, such as not having the baby properly warmed, and interference with intravenous lines and cardiac leads (Koopman et al., 2016). The participants reported that mothers do not want early SSC after cesarean sections because they want their baby to be cleaned first. If a mother requests to have SSC following the birth of her newborn, extra nurses will assist her; however, if the mother does not request SSC before delivery, then the mother is not told about the benefits of SSC prior to the birthing process (Koopman et al., 2016). By interviewing nurses and doctors who are involved in the delivery process, the researchers were able to assess some factors that limit the use of SSC. These practitioners’ perspectives provide insights into how SSC can be more effectively implemented in hospital settings.
In order to understand the experience and perceptions midwives have with SSC, Zwedberg, Blomquist, and Sigstad (2013) performed interviews with eight different midwives in Sweden. The interviews used open-ended questions about SSC in order to explore the midwives past experiences with SSC and how they implement it in practice. The midwives provide assistance to the mothers during and after birth and assisted the mothers with SSC. In order to get a diverse group of midwives with different educational experiences, the selection criteria included midwives that had been practicing for less than three years or more than ten years.

During the interviews, the majority of midwives reported “fighting an uphill battle” when it came to implementing SSC. These challenges came from parents being unwilling to engage in SSC following a cesarean section and health care providers not being accustomed to working around SSC (Zwedberg et al., 2013). The unwillingness from the parents stemmed from their lack of education on the benefits of SSC. Some midwives reported the parents having unrealistic expectations of the post-delivery experience and thought their baby would be quiet and asleep in the crib (Zwedberg et al., 2013). The midwives felt as if there are many obstacles to overcome such as space limitations and poor collaboration with health care providers. Another large obstacle to overcome was the pain experienced by the mother after cesarean section delivery (Zwedberg et al., 2013). An additional challenge that was often faced was the involvement of the mother’s mother and mother-in-law and if they did not encourage SSC, then the mother was less likely to implement it. The midwives in this study all thought that SSC was natural and has many benefits for both the mother and baby but often faced too many challenges to correctly implement it.
Summary

Results of this literature review indicate that there are many benefits of SSC for both the mother and infant, regardless of gestational age. The major benefit that was consistent for mothers following SSC was an increase in comfort for the mothers with their new infants. SSC helped to reduce depressive symptoms felt by new mothers following the birth of their baby (Bigelow et al., 2012). Mothers that engaged in SSC felt more satisfied with their birthing experience compared to their previous births (Conde-Agudelo et al., 2016). Not only did mothers feel more confident and have reduced anxiety, they also had decreased cortisol levels compared to mothers who did no engage in SSC (Neu et al., 2014). When mothers underwent SSC in the operating room following a cesarean section, they felt more focused on their newborn and felt at peace and ease rather than focusing on the operating room (Fredrick et al., 2014).

In addition to the mothers’ benefits, there are numerous benefits for both preterm and term newborns. Preterm babies had decreased levels of cortisol after engaging in SSC with their mother (Ney et al., 2014). Low birth weight babies that were colonized with MRSA after birth and engaged in SSC with their mother while in the NICU had a higher and faster rate of becoming decolonized (Filho et al., 2015). Preterm newborns that engaged in SSC had a reduction in developing infections, sepsis, and hypothermia (Conde-Agudelo et al., 2016). Term infants had an increased success of breastfeeding sooner and had higher scores for their rooting and sucking reflex if they were engaged in SSC (Beiranvand et al., 2014). Infants also cried significantly less when they were held in SSC, even with their father, as compared to when they were placed in a bassinette (Velandia et al., 2012).

In regard to performing SSC on the operating room table post-cesarean section, mothers had a difficult time getting their newborns to latch, but they did find that their attempts in the
operating room lead to more successful and faster latches in the recovery room (Moran-Peters et al., 2014). When mothers were unable to engage in SSC in the operating room due to being on the operation table and having analgesia, the fathers were able to perform SSC, and it led to the same benefits as babies engaged in SSC with their mothers (Erlandsson et al., 2007). The majority of the articles found that having the mothers and infants engage in SSC immediately after birth was the most successful. If SSC is initiated within five minutes after birth, the mothers had more benefits such as feeling more comfortable (Redshaw et al., 2014). Initiating SSC as soon as possible also helps to avoid infants from experiencing hypothermia (Beiranvand et al., 2014). Continuing SSC for at least 60 minutes led to better breastfeed incomes when infants were three months old (Redshaw et al., 2014). Positioning the infant in the supported diagonal flexion position results in mothers being more vocal to their infants and engaging in longer SSC sessions (Buil et al., 2016).
CHAPTER 3

Best Practice Guidelines: Benefits of SSC Following Birth

The purpose of this thesis was to develop best practice guidelines for SSC following both vaginal and cesarean births. The literature review conducted in the review of Chapter 2 explored the most common benefits of SSC contact for mothers, preterm and term infants, as well as having SSC following cesarean sections and vaginal births. Chapter 3 will take the evidence found in the review of literature to develop best practice guidelines for SSC. The proposed best practice guidelines will be used to help educate new parents, before birth, on the benefits of SSC following birth. The best practice guidelines will also be used to create a fact sheet to help healthcare professionals understand the benefits of SSC and the ways they can assist parents in providing SSC following birth.

SSC can be implemented following both vaginal and cesarean births, but it should not be the priority intervention when the mother or baby have serious healthcare concerns. Only infants that present with APGAR scores of seven or above five minutes following birth should be considered for immediate SSC (Saxton et al., 2015). Many of the benefits of SSC are most likely to occur within 40 minutes of birth, thus it is very important to try and engage in SSC immediately following birth. A common concern of SSC is that it can lead to infants becoming hypothermic. Infants that engage in SSC as soon as possible have not shown to have any difference in their body temperature compared to infants who are taken to the nursery following birth (Beiranvand et al., 2014). In certain situations, immediate SSC may not be possible, but SSC should, if possible, be implemented within 30 to 40 minutes of delivery to help stabilize infant heart rates and respiratory rates (Moore et al., 2007). When mothers give birth via cesarean section, the goal is to implement SSC within 15 minutes, as this timeframe is the most
optimal for helping mothers feel most comfortable in the operating room (Redshaw et al., 2014). It is recommended that SSC sessions continue for the first month of life in order to help mothers have a reduction in stress (Bigelow et al., 2012).

SSC has shown to have many different benefits for preterm and term infants, as well as mothers. Preterm infants who engage in SSC tend to have faster weight gains, reduction in infections, and more successful breastfeeding rates (Table 1). Term infants have shown to have better rooting and sucking reflexes when engaging in breastfeeding following SSC sessions (Beiranvand et al., 2014). Mothers who participate in SSC following birth are more likely to have a decrease in the chances of developing postpartum depression and anxiety (Redshaw et al., 2014). When mothers are unable to engage in SSC immediately following birth, fathers have been shown to provide other benefits for the infants. Fathers who participate in SSC with their infant instead of placing them in the bassinette can help their infant reach a calm and drowsy state faster (Erlandsson et al., 2007). Infants who are in SSC with their father following birth are also shown to cry less (Velandia et al., 2012).

The Importance of Education

An educational pamphlet format was chosen to display the information on SSC since many parents and healthcare professionals are unaware of the benefits of SSC, as well as how it should be implemented immediately following birth. There are two ways to implement SSC, the common method, and the more comfortable method. Kangaroo care is the method that is used in most hospitals; however, supported diagonal flexion has shown to be more comfortable for mothers and allow for longer SSC sessions and improve in communication between the dyad (Buil et al., 2016). Many nurses are unfamiliar with implementing SSC in the operating room due to a lack of educational training and opposition of other healthcare professionals (Koopman et al., 2016).
Midwives have attributed the difficulty of implementing SSC immediately following birth due to the lack of education from both the parents and other healthcare professionals (Zwedberg et al., 2013). Having an educational pamphlet available to parents will allow them to be informed prior to the start of the birthing process. The healthcare professionals will also receive the educational pamphlet in addition to a fact sheet on information important for them to know (see Appendix A for the fact sheet). The main healthcare professionals targeted will be labor and delivery nurses, postpartum nurses, neonatal intensive care nurses, but doctors and patient care technicians will also have information available for them. The healthcare professionals will be able to gain knowledge on the best practice guidelines to understand the importance of SSC for both their patients. Table 1 outlines best practice for educating parents and nurses on skin to skin contact.
Table 1: Best Practice Guidelines for Educating Parents and Healthcare Professionals on the Benefits of Skin to Skin Contact Following Vaginal and Cesarean Births

<table>
<thead>
<tr>
<th>Content of Pamphlet and Fact Sheet</th>
<th>Topics</th>
<th>References</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
| Classifications for Providing Skin to Skin Contact for Both Infants and Mothers | - Infants with major healthcare concerns should not engage in SSC immediately after birth.  
- Infant who have an APGAR score of 7 or above, after 5 minutes of birth, should be considered for early SSC. | Saxton, A., Fahy, K., Rolfe, M., Skinner, V., & Hastie, C. (2015). Does skin-to-skin contact and breast feeding at birth affect the rate of primary postpartum haemorrhage: Results of a cohort study. *Midwifery, 31*(11), 1110-1117. doi:10.1016/j.midw.2015.07.008 | Level II |
Timing of Skin to Skin Contact (how soon and for how long)

- If possible, SSC should be initiated immediately to avoid hypothermia in infants. If SSC is initiated within 5 minutes, mothers will tend to feel more confident in their ability to care for their infant. If immediate SSC is not possible, SSC should try to be initiated within 30 to 40 minutes to reduce infant heart rates and respiratory rates, as well as normalize higher blood glucose levels.
- In the operating room, SSC should be initiated within 15 minutes to help mothers feel at peace and increase the success of breastfeeding.
- SSC should take place for at least 60 minutes every session to increase the odds of infants breastfeeding at age 3 months.
- SSC should be continued for the first month of life to help reduce stress felt by mothers.


Benefits of Skin to Skin Contact for Preterm Infants (birth at less than 37 weeks)

- It is important for preterm infants to engage in SSC in order to gain weight faster per day and can have a reduction in infection, sepsis, and hypothermia. These infants are also more likely to breastfeed successfully.
- Preterm infants who underwent SSC following birth are also likely to have a decrease in their cortisol levels following birth.
- Providing SSC for preterm infants who are infected with MRSA following birth can also help to decolonize the infants.


Level I


Level I


Level I
### Benefits of Skin to Skin Contact for Term Infants

- Term infants that experience SSC have a higher success rate of breastfeeding, as well as breastfeeding sooner. These infants also have higher scores for their rooting and sucking reflex.


**Level I**

### Benefits of Skin to Skin Contact for Mothers

- Mothers who engage in SSC following their birth can experience a decrease in occurrence of postpartum hemorrhage.
- Skin to skin contact following birth can also lead to a reduction in depression and anxiety experienced by mothers.


**Level II**
BENEFITS OF SKIN-TO-SKIN CONTACT

Reasons to Have Skin to Skin Contact Following Cesarean Sections

- Providing SSC following a cesarean birth can cause mothers to have a better birthing experience overall.
- Infants who engage in SSC do not have a risk for developing hypothermia.


Level II

Level I

Involving the Father

- Having the father of the infant provide SSC, instead of placing the infants in a bassinette following birth, will help the infant reach a calm and drowsy state faster.
- Infants who experience SSC with their father within 5 minutes following cesarean section are more likely to cry less.


Level I
### How to Achieve Skin to Skin Contact

- Supported diagonal flexion, when the diaper clad infant is held diagonally, can lead to better communication between the mother and infant.
- Supported diagonal flexion is preferred by some mothers because it is more comfortable for the mother.
- Kangaroo care is the most common type of SSC and occurs when the diaper clad infant is placed in the upright position on the mother’s bare chest between her breasts, covered with a blanket.


### Safety First

- During the first two hours after birth, the newborn should be watched very carefully by both parents and healthcare workers.
- The newborn should be closely watched to make sure the newborn keeps a pink skin color and is breathing.
- Skin-to-skin contact should only be done when the mother is not fatigued or on sedating medications.
- Parents engaged in SSC should remain free of distractions, including the use of smartphones, while they participate in SSC with their newborn.

Information for Healthcare Professionals Involved in the Skin to Skin Contact Process

- Evidence supports the need for nursing staff to have educational sessions available to them, so they can correctly implement SSC during cesarean and vaginal births.
- Collaboration between midwives, nurses, doctors, and patient care technicians should be established prior to the birthing process in order to facilitate the parents’ wishes for SSC effortlessly.


Summary of Proposed Pamphlet

The proposed educational pamphlet is aimed at educating new parents on SSC prior to going into labor. The pamphlet is also aimed towards nurses to give them extra information on how to implement SSC in both birthing situations. Information that will be included in the education pamphlet is which infants should engage in SSC, the benefits of SSC for mothers and infants, the importance of involving fathers, and the ability to use SSC after caesarean sections. The pamphlet will also include when to initiate SSC and for how long, which position of SSC is best for both mother and infant, and how important it is to provide extra educational sessions on SSC for nurses. The main objective of this educational pamphlet is to make parents and nurses aware of the benefits and risks of SSC and the simple way it can be integrated into the birthing process. This pamphlet will be used in birthing classes that are provided by the local hospital where the patients plan on giving birth.
CHAPTER 4
Implementation and Evaluation

Chapter 4 will focus on how to take the best practice guidelines and implement them into an educational pamphlet. The first portion of this chapter will focus on creating an educational pamphlet that will be used to help parents and nurses learn more about the benefits of SSC following birth. This educational pamphlet will be implemented in childbirth classes to help parents discuss the benefits of SSC before they come into the hospital in labor. Nurses will also be given the educational pamphlet and a fact sheet so they can learn about the benefits of SSC and the ways to properly implement SSC into practice.

Before an educational pamphlet can be created, different design features to promote health literacy must be considered. The educational pamphlet should be written at a low health literacy level so that the pamphlet can be given to a wide audience. The average reading level in the United States is between the 8th and 9th grade level; however, one out of five American adults read at the 5th grade level or below, and every two out of five American adults over the age 65 read below the 5th grade level (Doak, Doak, & Root, 1996). Diffusion of Innovations by Everett Rogers will help guide the implementation of the educational pamphlet into a childbirth class setting. The Theory of Diffusion of Innovation is a communication theory that can be used to implement a new idea into society, such as a pamphlet to expecting parents (Rogers, 2010). This theory is divided into five stages that help guide the implementation and evaluation process. These stages are knowledge, persuasion, decisions, implementation, and confirmation (Rogers, 2010). The first four stages will be discussed in the first part of Chapter 4 and the confirmation stage will be used to discuss the evaluation process later in the chapter. Additionally, the second
half of this chapter will focus on the strengths and limitations of this project and recommendations for further research on SSC.

**Implementation**

**Creating an Educational Pamphlet**

Several of the research studies in Chapter 2 discussed the need for more education of both the parents and nurses. One of the major obstacles in initiating SSC is that “many parents lack knowledge about the benefits of skin-to-skin contact” (Zwedberg et al., 2013, p. 220). If the parents are unaware of the benefits SSC has for both the mother and newborn, they are less likely to engage in SSC in the hospital and after discharge. A pamphlet was deemed to be the most effective in educating parents on the benefits of SSC before they come into the hospital in labor. In addition to some parents being unfamiliar with SSC, some nurses can also be unaware of the positive effects of SSC and the ability to engage in SSC following cesarean sections as well (Zwedberg et al., 2013).

This educational pamphlet will address two different populations, and therefore it is very important to have the educational pamphlet at an appropriate health literacy level. A third of the United States population has difficulties adhering to common health tasks, such as following directions on a prescription bottle (America’s Health Literacy, 2008). Only twelve percent of United States adults are at a proficient health literacy level (America’s Health Literacy, 2008). Fourteen percent of American adults have a below basic health literacy level, meaning they can only read a few short sentences and understand their meaning (America’s Health Literacy, 2008). Since this pamphlet will be directed at community members on both sides of the spectrum, the pamphlet needs to use simple language so that everyone that views the pamphlet will be able to understand some of the benefits of SSC.
Research indicates that pamphlets need to have text coherence to help the reader take away more information (Whittingham, Ruiter, Castermans, Huiberts, & Kok, 2007). The text in the pamphlet needs to follow a logical order and the headings featured throughout the pamphlet need to make the text easy to follow along with. Illustrations help readers to build connections to what they are reading. When texts and pictures are placed together, working memory is established which helps readers understand the information more easily (Whittingham et al., 2007). Pop-out effects, such as color, different-size text, and different fonts are helpful to grab the reader’s attention to valuable information (Whittingham et al., 2007).

**Diffusion of Innovations**

The Theory of Diffusion of Innovations was developed by Everett Rogers, an American communication theorist. The theory focuses on how a new product, or innovation, is “communicated through certain channels over time among the members of a social system” (Rogers, 2010, p. 5). Diffusion is a special type of communication that deals with a new idea being presented to a group of people. The Theory of Diffusion of Innovation has five different stages because when an individual accepts a new concept, it is not instantaneous, rather it takes a process that occurs over a certain amount of time (Rogers, 2010).

**Knowledge.** The first stage of the innovation-decision process occurs when the individual is first presented with the innovation’s existence (Rogers, 2010). This would occur when the parents are given the educational pamphlet for the first time in their childbirth class. The parents are beginning to understand some of the benefits of SSC. The knowledge stage can happen almost by accident because before the parents were presented with the pamphlet, they did not know it existed (Rogers, 2010). There are several characteristics of the individual that come into play during the knowledge stage: these include the socioeconomic characteristics,
personality variables, and communication behavior of the individual (Rogers, 2010). It is important to be aware of these characteristics when designing the pamphlet to allow for the individual to gain as much information from the pamphlet as possible.

The knowledge stage requires the individual to understand the pamphlet, often requiring the individual to talk to others to gather meaning and understanding (Rogers, 2010). Presenting the parents with this educational pamphlet during a childbirth class will allow the parents to discuss their understanding of SSC. This will also allow the childbirth educator to be involved in the discussion process and answer any questions the parents may have. This pamphlet will also be presented to nurses in the labor and delivery setting, postpartum setting, and neonatal intensive care setting so that they can gather more information on SSC and help the parents to implement SSC after delivery. The nurse managers on each floor will present the nurses with the educational pamphlet and fact sheet during their morning huddle and then follow up with an evaluation during the monthly staff meeting. Presenting the information during the morning huddle will allow for the nurses to discuss the pamphlet in a group setting and help each other give meaning to the pamphlet. In addition to the nurse manager leading the discussion amongst the nurses, the nurse educator and hospital nurse director will also be involved in the educational process. Other healthcare professionals who will be involved in the SSC process include doctors and technicians. The knowledge level of these healthcare professionals regarding SSC will need to be considered in order to include them in the SSC discussion.

**Persuasion.** The second stage of the innovation-decision process occurs when the “individual forms a favorable or unfavorable attitude toward the innovation” (Rogers, 2010, p. 11). Once the parents are presented with the pamphlet in the childbirth class, they will either decide they like the information presented, or they do not. The characteristics that are realized by
the parents during the persuasion stage include relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2010). Relative advantage occurs when the parents compare SSC to other practices they have learned about and decide on which practice they favor more. The parents will also have to determine if the information they were presented with regarding SSC is compatible with their existing values. If parents have conflicting values, the new idea of SSC will be more difficult to implement (Rogers, 2003). Next, the parents will determine how complex the educational pamphlet is and decide if the pamphlet is too difficult to understand and use (Rogers, 2003). It is important to create an educational pamphlet that is easily understood by all the individuals who will read it. If an individual finds the pamphlet too difficult to understand, then the individual may not implement SSC (Rogers, 2003). The fourth characteristic that needs to be taken into consideration during the persuasion stage is trialability. Trialability is the degree to which the information on SSC may be used with on a limited basis (Rogers, 2003). The educational pamphlet will need to be handed out to the expecting mothers towards the end of the childbirth series when the mothers are close to delivery. This will help ensure that the parents will be able to remember SSC closer to their delivery date when they will start engaging in SSC with their newborn. Lastly, SSC will need to be demonstrated to the parents by the childbirth educator so that they can observe what SSC looks like before engaging in it with their newborn. The chances are greater of the parents engaging in SSC if they can easily observe the SSC and the advantages it has for both the newborn and parent (Rogers, 2003).

The process of persuasion that the parents go through is similar to the process for the nurses. The nurses on the unit will compare the information of SSC to their current practices regarding mother and infant bonding. The nurses will determine if SSC is compatible with their
existing values and if they have any conflicting thoughts on the experience. Complexity of the educational pamphlet will most likely not be of high concern to the nurses, as they will mostly have a higher educational level than the parents. While the nurses will most likely be aware of the basic information provided on the educational pamphlet, the nurses will be presented with the educational pamphlet so that they are aware of what education the parents are receiving. The fact sheet will be provided to the nurses in order to inform them of specific evidence and statistics regarding the benefits of SSC. The specific information provided on the fact sheet will hopefully target the nurses who are most hesitant and resistant to the information regarding SSC. The informational needs to be presented at morning huddle so that the nurses can focus their attention on retaining the information on SSC before they become concerned with their patients. A demonstration of proper SSC will be provided by the nursing manager or nurse educator.

**Decisions.** During the third stage of the innovation-decision process, the individual takes part in different activities to help the individual decide if they should accept or reject the new ideas (Rogers, 2010). The expecting parents will engage in discussions and demonstrations of SSC to help the parents accept the educational pamphlet. It is during this stage that individuals will decide to either use the educational pamphlet as the best course of action or reject the pamphlet (Rogers, 2003). The pamphlet will be written in a clear and concise manner, at a low health literacy level, and will be presented during a childbirth class where the parents can discuss the benefits of SSC and observe SSC before their newborn is born. SSC will be demonstrated by the childbirth educator so that parents can see how it is implemented. The childbirth educator will ask parents if they are likely to take part in SSC with their newborn. These factors will hopefully help the expecting parents be able to understand the benefits of SSC for both the newborn and mother. During the decision-making stage, the nurse manager will lead the
discussion amongst the nurses on their thoughts regarding the pamphlet and fact sheet. The nurse manager and clinical educator will be able to help answer any of questions the nurses may have on it and how SSC can be implemented on their unit.

**Implementation.** The implementation phase occurs when the individual puts the new information to use (Rogers, 2010). Up until this phase, the innovation-decision making phases have all been mental decisions (Rogers, 2010). The implementation for this process occurs when the new parents implement the information from the educational pamphlet and engage in SSC with their newborn. The implementation phase can continue for a long period of time depending on the situation. For parents, the implementation phase will occur after birth and hopefully for several months after their baby is born. The implementation for nurses will take place two months prior to the parents receiving the educational pamphlet. This will allow for the nurses to become familiar with SSC, how to perform it in the OR, and be able to adjust their practice before the parents who received the educational pamphlet go into labor. For nurses, the implementation phase will occur for an extended period. There is a point in the implementation phase where the innovation becomes part of the individuals regular ongoing operations (Rogers, 2003). Once nurses realize the benefits of SSC, they will encourage SSC for all their parents, making it a regular part of their practices.

**Summary**

In order to successfully implement SSC as a regular practice for parents and nurses, research was conducted to create an educational pamphlet and the Theory of Diffusion of Innovations was used to help implement SSC into practice. An educational pamphlet was created with textual coherence that helps the reader to gather the main ideas of SSC through the use of effective headings, different size texts, colors, and pictures. The Theory of Diffusion of
Innovations has guided the implementation process of the educational pamphlet into a childbirth class. In the next section, the evaluation process of the educational pamphlet will be discussed by using the confirmation stage of the Theory of Diffusion of Innovations.

**Evaluation**

The last step of integrating this educational pamphlet is to evaluate its effectiveness in the childbirth class setting. Regarding the Theory of Diffusion of Innovation, this final step is part of the confirmation stage. During this stage, a decision is made if the individuals adopt or reject the new idea (Rogers, 2003).

**Confirmation**

During the confirmation stage, the individual looks for reinforcement based on their acceptance or rejection of the new idea presented to them (Rogers, 2003). The individual can also reverse their decision if they are presented with conflicting information. The confirmation stage is also the time that individuals will try to avoid a state of dissonance, or having “an uncomfortable state of mind” (Rogers, 2003, p. 189). To prevent the parents in the childbirth class from entering a state of dissonance, consistent information regarding SSC needs to be supplied to the parents. The educational pamphlet will assist the parents in gaining knowledge on SSC and the childbirth class will allow the parents to discuss the information with the educator. By including the few risks that SSC can produce, the parents will gain the insight that the benefits of SSC outweigh the risks and should not face any conflicting information. It will also be up to the nurses who are presented with the educational pamphlet, at the same hospital, to continue educating the new parents about SSC and assisting them to implement SSC after birth.
Confirmation of parents’ knowledge. To confirm the best-practice guidelines educational pamphlet implementation success, feedback from the parents will be required. This will be done by providing the parents with two separate surveys.

One survey will be handed out at the end of childbirth class to gain insight on whether the parents learned any additional information on SSC from the pamphlet and if the pamphlet helped them decide if they will be initiating SSC with their newborn. The survey will also focus on the pamphlet’s layout to determine if the parents thought the pamphlet was easy to read and follow along. The parents will be required to write two benefits of SSC stated in the pamphlet to prove that they were able to read the information. This will be done to see if the parents gained any knowledge from the pamphlet instead of just answering “yes” or “no”. The last part of the survey will feature a section where the parents can say what they thought of the educational pamphlet and if they would have wanted any more information on SSC.

The second survey will be given to the parents following their hospitalization. The same hospital that offered the childbirth education classes will also hand out the post-delivery follow-up survey. By handing out the survey at the end of hospitalization, the parents will be able to evaluate their SSC experience in the labor and delivery setting, the postpartum setting, and possibly the neonatal intensive care setting. This survey will only be given to parents that took the childbirth education class and received the SSC educational pamphlet. The second survey will focus on whether SSC was initiated following birth, if both parents engaged in SSC, and if the parents want to continue SSC following discharge.

By handing out one survey following the end of the childbirth class, immediate feedback will be documented, and parents can focus more on the pamphlet and their opinion of its readability. The second survey will be used to see if parents engaged in SSC and to see if they
will continue to engage in SSC following birth. Data will be collected over 6 months of childbirth education classes. This will allow for a large sample of expecting parents to evaluate the educational pamphlet and provide feedback.

**Confirmation of nurses’ knowledge.** The second part of the evaluation process comes from gaining insight on the nurses’ opinion of the educational pamphlet. Even though this educational pamphlet is mostly directed toward expecting parents, the information in the pamphlet is beneficial to nurses as well. The educational pamphlet will be available on the labor and delivery unit at the specific hospital that the childbirth classes are offered at, so that the nurses can use the pamphlet to learn more about SSC. The pamphlet will also be handed out to the nurses during their monthly staff meeting. The nurses will also be provided with a brief survey that they can fill out to provide their feedback on the educational pamphlet. The survey handed out to the nurses will ask if they plan on using this information to educate their patients, if they found the information helpful, and if they will implement SSC with their patients more often after reading the pamphlet. The nurses will also have the opportunity to add their own comments on whether there is information they felt should be included or excluded in the pamphlet. SSC will also be added to the patients’ electronic health records so that SSC can be documented to help evaluate the effectiveness of the educational pamphlet as well. This will show how many patients are engaging in SSC and for how long.

**Strengths, Limitations, and Recommendations for Future Research**

The strength of this thesis is that it included a thorough review of literature on a wide range of articles. The review of literature included information on mothers, fathers, preterm infants, and term infants engaging in SSC following both vaginal and cesarean section deliveries. Another strength of this thesis is the inclusion of looking at SSC following cesarean section
deliveries, since this is a new topic with limited research. An additional strength of this thesis is the incorporation of the risks of SSC in addition to the many benefits. The educational pamphlet improves the quality of patient care by providing information on SSC in order to show parents the importance of engaging in SSC with the newborn. By providing the pamphlet to the nurses, patient care is improved even more by educating the healthcare professionals that will be involved in the SSC process.

One of major limitations of this thesis was a lack of research conducted on how to improve SSC in the operating room. Several research studies concluded that healthcare professionals do not conduct SSC in the OR, but none of those studies determined how to better the SSC experience in the OR. Another major limitation was the lack of high-level evidence. Some of the studies on SSC in the OR were based on experts’ opinions and knowledge, not on evidence. This thesis only works at a primary prevention level by educating expecting parents and nurses about the importance of SSC and not providing a best practice protocol for implementing SSC sessions after birth. Another limitation of this thesis was the use of research that was published more than five years ago.

Recommendations for future research include conducting studies on the implementation of SSC in the operating room. The research concerning SSC following cesarean births is not a highly researched topic. The additional findings could help to educate healthcare professionals on the benefits of performing SSC in the OR and the methods they can use to help initiate SSC amongst the newborn and mother. Additional research should be conducted on the benefits of SSC on preterm infants. Not many studies have considered the ability for parents to engage in SSC with their preterm infants in the Neonatal Intensive Care Unit. Additionally, research should
be conducted on the long-term benefits of SSC. Many studies look at the sessions of SSC when the newborn is born, but not at the continued sessions that take place at home.

**Summary**

The purpose of this thesis was to develop best practice guidelines for SSC following vaginal and cesarean section deliveries and to explore the most common benefits for parents and their newborns, both preterm and term infants. This thesis also aimed to determine if it is as beneficial to engage in SSC after cesarean sections deliveries as it is after vaginal deliveries. Current research has shown that there are many benefits to SSC for mothers, fathers, and infants. There is limited research on SSC following cesarean deliveries, but the research conducted has found SSC to provide the same, if not more, benefits to mothers and infants. Research has also found that there needs to be increased education for both healthcare providers and parents to inform them on the benefits of SSC and the possibility of initiating SSC in the OR. An educational pamphlet was created to educate expecting parents and nurses on the best practice guidelines for SSC following both types of deliveries. The pamphlet contained information on the benefits of SSC for all parties involved, when to engage in SSC, and for how long. This thesis proposed that an educational pamphlet would be implemented into a childbirth class at a local hospital, where the nurses in the labor and delivery unit would also receive the educational pamphlets. The evaluation process of the pamphlet would include two different surveys for the parents given to them after the childbirth class and after hospitalization. The nurses would receive a survey following the monthly nurse huddle. The feedback on the surveys would be used to determine if parents gained new knowledge on SSC, if parents engaged in SSC, and if nurses initiated SSC with their patients. Overall, the educational pamphlet will help to educate
parents on the benefits of implementing SSC as part of their birthing experience as well as educating nurses on the importance of initiating SSC with their patients.
References


Appendix A

Fact Sheet on Skin-to-Skin Contact for Healthcare Professionals

- Maternal Benefits
  - Women at a low risk for primary postpartum hemorrhage and had skin-to-skin contact decreased their risk of PPH by **50 percent**
  - Women who engaged in skin-to-skin contact with their baby for more than 60 minutes had a **77 percent** chance of breastfeeding at three months

- Skin-to-Skin Contact in the Operating Room
  - Women who engaged in skin-to-skin contact in the operating room, reported feeling more at peace, connected, and comfortable
  - There is **no significant difference** in temperature among infants engaged in skin-to-skin contact in the operating room and recovery room compared to infants who were swaddled in a blanket

- Infant Benefits
  - Skin-to-skin contact infants had lower heart rates and respiratory rates and higher blood glucose levels than non-skin-to-skin contact infants
  - **52 percent** of infants placed in skin-to-skin contact with their mother showed readiness to breastfeed compared to 25 percent of infants that were swaddled
  - Pre-term infants who engaged in skin-to-skin contact gained more weight per day than infants in cots
  - Skin-to-skin contact with pre-term infants lead to a reduction in the risk of infection, sepsis, and hypothermia
  - Pre-term infants infected with MRSA are **2.35 times** more likely to become decolonized if they engage in skin-to-skin contact