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Skin-to-Skin Contact and Its Impact on Exclusive Breastfeeding Upon Discharge.

A thesis presented by

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Abstract

The purpose of this study was to determine if immediate skin-to-skin contact after Caesarean birth had an impact on exclusive breastfeeding rates at time of discharge. According to previous studies, when immediate skin-to-skin contact is implemented with mother and baby after birth, the choice to exclusively breastfeed increases. This study, utilizing a retrospective data analysis was done to compare exclusive breastfeeding rates prior to initiation of skin-to-skin contact after Caesarean birth and after initiation of skin-to-skin contact after Caesarean birth to determine if skin-to-skin contact had an effect on the rates of exclusive breastfeeding. It was hypothesized that skin-to-skin contact directly after Caesarean section would increase exclusive breastfeeding rates. RESULTS:>>> Compared with breastfeeding rates before implementation of skin-to-skin contact in the operating room following Caesarean section and breastfeeding rates after implementation of skin-skin contact, there was no significant difference in exclusive breastfeeding rates at discharge.

Key words: breastfeeding, exclusive breastfeeding, skin-to-skin, Caesarean birth

Introduction

Whether by choice or because of risk for complication, some mothers may require Cesarean section to deliver their baby instead of a traditional vaginal delivery. When a C-section is performed, the newborn is usually taken to the nursery while the mother remains in the post-operative area for recovery. This can cause the mother and baby to be separated for hours at a time. Because of the negative impact of separating baby and mother, skin-to-skin contact (also known as kangaroo care) has been implemented in many hospitals. Skin-to-skin contact is defined as “placing the naked newborn, prone, on the mother’s bare chest instantaneously following birth” (Sauder, 2012). Some of the benefits of skin-to-skin contact include enhanced bonding and breastfeeding while the baby is able to stay warm and will cry less (Crenshaw, 2007). Studies also show mothers who are allowed this skin-to-skin contact are more likely to make larger amounts of breast milk, breastfeed longer, and breastfeed without offering formula (Crenshaw, 2007). Skin-to-skin contact and its impact on breastfeeding is important to look at due to the benefits of breastfeeding as compared to using formula supplementation. This study is important because it implies that mothers will breastfeed longer if given the chance for skin-to-skin contact directly after delivery, specifically Caesarean delivery. The study hospital plans to become a Baby Friendly Hospital with the goal of increasing the percentage of skin-to-skin contact in the operating room to 100%. This program has been successful with vaginal deliveries in the study hospital and they are ready to expand this program to include the operating room. It is important to look at exclusive breastfeeding rates before, and after, implementation of skin-to-skin contact to determine if there is correlation. The purpose of this study is to determine correlation between the two variables, while looking at potential barriers to this implementation.

Literature Review

Kangaroo mother care, or skin-to-skin contact, was first suggested in 1978 by Dr. Rey in Bogota, Columbia. This care is based on the idea that early contact has a bonding effect for mother and infant. Skin to skin contact (SSC) is seen as a non-conventional, low cost way to provide newborn care (Bera et al., 2014). To perform skin-to-skin contact, a newborn must be placed skin to skin on the mother's chest and abdomen (Bera et al., 2014). This is a natural process that ideally starts immediately after birth, or shortly after, with the newborn remaining skin-to-skin with mother until the end of the first breastfeeding session (Decker, 2012). SSC can be classified as immediate, very early (30-40 minutes post-birth), or early (any that takes place during the first 24 hours) (Decker, 2012). Infants eligible for skin-to-skin contact are ones that are medically stable (Children's Hospital of Philadelphia, 2013). However, SSC has proven to be effective in stabilizing newborns when done immediately. Studies have shown even premature babies are more stable metabolically and breathe better if placed skin-to-skin directly after birth (Newman, 2009). A study done in 2013 showed evidence that SSC helps the newborn transition from intrauterine life with greater respiratory, temperature, and glucose stability and significantly less crying, indicating decreased stress (Phillips, 2013). All of these benefits seem to improve newborn outcomes, so why has it not been implemented everywhere?

As with all changes in healthcare, there are barriers to implementing this care. One potential barrier is that there is concern about mother's alertness after a C-section. However, the use of spinal or epidural anesthesia allows the mother to remain alert, which would allow SSC to be achieved immediately without fear of mother's altered level of consciousness (Stevens, Schmied, Burns, & Dahlen, 2014). When in the operating room, SSC

is achievable with some modification. After the cord is cut, a receiving nurse will dry the baby, assign an Apgar, place a diaper on the baby, and then place the newborn on the mother's chest in transverse position on the breasts, and then cover mom and baby with a towel (Phillips, 2013). A diaper is used as precaution for the mother's surgical incision.

According to the Healthy Newborn Network, some of the benefits of SSC include normal infant breathing and heart rates, less stress on the infant, faster stabilization of blood sugars and temperatures, and encouragement of breastfeeding. The primary goal of skin-to-skin contact is to promote bonding and initiate breastfeeding as soon as possible after birth. In a meta-analysis on immediate SSC after Caesarean section, a compilation of the benefits listed are: maintains newborn thermoregulation and blood glucose levels, decreases risk of jaundice, reduces stress of birth, encourages bonding between the mother and newborn, and encourages longer duration of breastfeeding (Stevens et al., 2014). Some psychosocial benefits of SSC are that newborns do not suffer the negative effects of separation. This contact supports optimal brain development and actually facilitates attachment, which can help promote the infant's self-regulation in the long term (Phillips, 2013). It is the responsibility of the nurse to educate parents about the importance of this practice. SSC after a C-section has some barriers. These include: operating room staff not willing to accept the change, some hospitals will require a designated baby nurse to be in the OR and there may be staff shortages, concern for the mother's alertness, and concern for the incision site (Decker, 2012). Skin-to-skin contact cannot be achieved without collaboration between surgical team, anesthesia, pediatrics, and obstetrics departments. To implement this in any setting, the newborn is placed on the mother's bare chest, quickly dried off by the nurse, a hat applied, and is left skin-to-skin with mother for a minimum of

one hour (Sauder, 2012). In an ideal situation, SSC will be maintained until after the first feeding. At some study hospitals, health care personnel that were involved in C-sections participated in an educational program provided by the lactation consultant. This educational program helped the staff to understand the benefits of SSC and feel confident in implementing it (de Alba-Romero et al., 2014). There is even a DVD titled “Skin-to-Skin in the First Hour After Birth: Practical Advice for Staff after Vaginal and Cesarean Birth” that could be shown to staff members for education on how to properly handle SSC at any hospital or setting (Phillips, 2013). Another barrier could be that parents do not know the benefits of SSC or what it is. This has been addressed in some hospitals by giving out a detailed information leaflet and verbally informing the parents about this option before birth (de Alba-Romero et al., 2014). One study suggested that hospitals modify protocols to support uninterrupted skin-to-skin contact immediately after birth, including both vaginal and cesarean deliveries (Phillips, 2013). If there is an actual protocol for SSC, it is more likely to be implemented on a consistent basis. This care is recommended by major organizations such as the World Health Organization, American Academy of Pediatrics, the Academy of Breastfeeding Medicine, and the Neonatal Resuscitation Program (Crenshaw, 2007). The World Health Organization and the United Nations International Children’s Emergency Fund both recommend that skin-to-skin contact be initiated immediately after a vaginal birth, and as soon as the mother is stable after a Caesarean section (Stevens, et al., 2014). The Baby Friendly initiative, which was started by these two organizations, recommends that all babies have the opportunity for immediate SSC (Stevens et al., 2014). For hospitals that are trying to become an accredited Baby-Friendly hospital, facilitating breastfeeding is one of the main goals (de Alba-Romero et al., 2014). The recommendation

from American Academy of Pediatrics is that babies have nothing but breast milk the first six months of their life. The reason that it is so important to breastfeed, as recommended for the first six months of a newborn's life, is the nutritional, immunological, and cognitive outcomes mentioned earlier (Flacking, Ewald, & Wallin, 2011). Babies that are placed skin-to-skin with mother after birth have the natural instinct to attach to the breast and begin breastfeeding (Crenshaw, 2007). When the mother has a chance to hold the baby after birth, the mother will produce more breast milk and breastfeed longer without use of formula. The Academy of Breastfeeding Medicine protocol calls for breastfeeding one hour after the delivery, early skin-to-skin contact, side-lying football breastfeeding position to minimize incision discomfort, and a pillow to protect the incision site. Protection of the incision site is one of the main concerns for skin-to-skin contact immediately after Cesarean section (Crenshaw, 2007). The ABM protocol also states that procedures such as weighing, measuring, and administering vitamin K and eye prophylaxis can be delayed to promote early parent-infant interaction (Phillips, 2013). Looking at a 2012 study, newborns that received SSC were two times more likely to be exclusively breastfeeding at 3-6 months compared to the babies who did not receive it (Decker, 2012). In another study, newborns with immediate SSC had 24% more mothers initiate breastfeeding and they did so an hour earlier than ones who did not receive SSC (Stevens et al., 2014). Women who give birth by cesarean instead of vaginally are shown to be more prone to postpartum depression, bonding difficulties, and unsuccessful breastfeeding (Flacking et al., 2011). There is an increased number of C-sections, yet only a few hospitals are implementing skin-to-skin contact in the operating room. The CDC said that in 2009, only 32% of hospitals were implementing skin-to-skin contact after an uncomplicated Caesarean birth. This is

significant because the rate of C-sections has increased greatly in the U.S. and represents about 32% of babies that are born (Decker, 2012). Studies have shown that Caesarean birth can reduce the initiation of breastfeeding, delay the first feeding and reduce the incidence of exclusive breastfeeding, which in turn increases the likelihood that a mother will use supplementation (Stevens, et al., 2014). A study by Hung and Berg (2011) discovered that supplementation was decreased by 41% in the study hospital when immediate or early SSC was implemented in the operating room (Stevens et al., 2014). With such a big number of babies being born via Caesarean section, it is time to optimize their outcomes. When a baby is separated from its mother for hours after a C-section, breastfeeding can become more difficult than it should be. Mothers get frustrated and do not continue to attempt breastfeeding, as reflected in lower breastfeeding rates after most cesarean deliveries (Phillips, 2013). This separation should not be the reason for decreased breastfeeding rates and increased use of supplemental formula. One study even showed an increase of exclusive breastfeeding three months after discharge (Gouchon, Gregori, Picotto, Nangeroni, & Giulio, 2010).

Skin-to-skin contact not only has positive benefits for baby, but also improves mother's mood. Mothers who have a Caesarean delivery report having a less satisfactory birth experience and have a higher frequency of postnatal depression, along with breastfeeding difficulties (de Alba-Romero et al., 2014). SSC may also help reduce maternal pain and keep both the mother and newborn physiologically stable (Stevens et al., 2014). Mothers who get to participate in SSC have increased maternal behaviors, show more confidence in caring for their babies, and also breastfeed for longer duration (Phillips, 2013). This can be an effect of the early parent-infant bonding interactions. One study even

showed a double in breastfeeding duration associated with as little as 15 minutes of immediate SSC (Phillips, 2013). Mothers have given feedback on the topic as well, stating that breastfeeding was easy when their baby had an opportunity for SSC immediately after Cesarean birth (Phillips, 2013). Another study that analyzed maternal satisfaction scores said that maternal satisfaction with how well their baby was breastfeeding was higher in an intervention group that received skin-to-skin contact (Srivastava, Gupta, Bhatnagar, & Dutta, 2014).

Hospitals have been reluctant to try skin-to-skin contact because it was originally thought that this might put infants at risk for hypothermia. However, studies have proven that this should not be a concern. Research shows that “thermal synchrony” occurs when a newborn is placed on its mother’s chest, which is where the mother’s chest temperature increases to warm a cool baby and decreases to cool an overly warm baby. A study done with newborns after cesarean delivery with SSC actually showed higher temperatures compared to babies under warmers (Phillips, 2013). Skin-to-skin contact has many advantages for both newborn and mother. If this contact can be initiated right after Cesarean section instead of two hours later, the newborn will have a more stable temperature and heart rate (Centre for Breastfeeding Education, 2014). Talking about temperature is important because a problem with premature or low birth weight newborns is their inability to control their temperature, which can be a preventable cause of morbidity and mortality (Bera et al., 2014). All of the results these studies have found show that the mother can be the best regulator for the baby, not a warmer or medical intervention. At Adventist Hinsdale Hospital where skin-to-skin contact has been implemented, over 90% of mothers choose to continue breastfeeding at discharge, although statistics are not yet available on how long they

maintain breastfeeding at home (Sauder, 2012). In a study conducted at San Francisco General Hospital, after implementation of early skin-to-skin contact in the operating room, babies were more effective in breastfeeding and less likely to require supplemental formula during their hospital stay (Hung & Berg, 2011). Within three months of implementing this program, skin-to-skin contact increased from 20% up to 68%. It is assumed that implementation of skin-to-skin contact in the study hospital will have the same results as hospitals who have implemented this already. The results being a correlation between immediate skin-to-skin contact after Caesarean sections specifically and an increase in exclusive breastfeeding rates.

Method

Participants

This study was conducted following approval by the University of Arkansas Institutional Review Board and the study hospital's Quality Improvement Department. Collaborative Institutional Training Initiative (CITI) training was completed by the investigator prior to the start of the study.

Study participants included females, over the age of 18, who had uncomplicated deliveries in the past two years. With an average of 90 births/month at the local hospital, a total of 59 electronic medical records were reviewed post intervention to obtain pertinent data, and 54 electronic medical records were reviewed for pre-intervention data. Mothers with high-risk delivery and babies who required medical intervention were not included in this study. High-risk delivery was defined as emergency delivery due to medical complications. Sample size was determined by amount of data available that met this criterion. To protect the patient, a random case number was assigned to each case, using a random number generator application. Only de-identified data was recorded. Information collected was kept in a password locked and secured computer.

Study Design

This study was conducted at a large hospital in the Northwest Arkansas area. The study included a retrospective portion, and present evaluation. During the study, electronic medical records of mothers that delivered babies in the past two years were reviewed. Electronic medical records six months prior to implementation of skin-to-skin contact and six months after skin-to-skin contact were reviewed for comparison. Data collection includes the time from delivery to initiation of skin-to-skin contact, how long the contact lasted, the mother's feeding preference on admission, and the mother's decision to exclusively breastfeed upon discharge. The information gathered was assessed to determine if immediate skin-to-skin contact impacts the decision of the mother to exclusively breastfeed upon discharge, and any barriers to implementing skin-to-skin contact.

Statistical Analysis

Data was analyzed to determine if a correlation between the implementation of skin-to-skin contact after delivery and exclusive breastfeeding upon discharge is present. Data has been summarized by mean and standard deviation. Mean values before and after implementation were compared by a paired *t* test; $P < 0.05$ has been considered statistically significant. A chi-squared test for association was conducted between breastfeeding rates and skin-to-skin contact, as well as some other variables, such as ethnicity, feeding preference on admission to the hospital, and feeding choice at discharge.

Results

One hundred thirteen charts were included in this analysis. Out of the 113 charts, 59 were post implementation of skin-to-skin contact and the other 54 were prior to skin-to-skin contact implementation. Tables 1 and 2 show demographic variations of the patients involved in the study. All patients were over the age of 18. The mean age of the mothers was 29.54 +/- .489 years. The sample was primarily Caucasian (63.7%) with the Hispanic population (14.2%) making up the second largest majority of study participants. Out of 44 charts where the length of skin-to-skin contact was documented, the mean time for SSC was 45 minutes. As seen by Table 3, the majority of skin-to-skin contact was initiated in the post-anesthesia care unit.

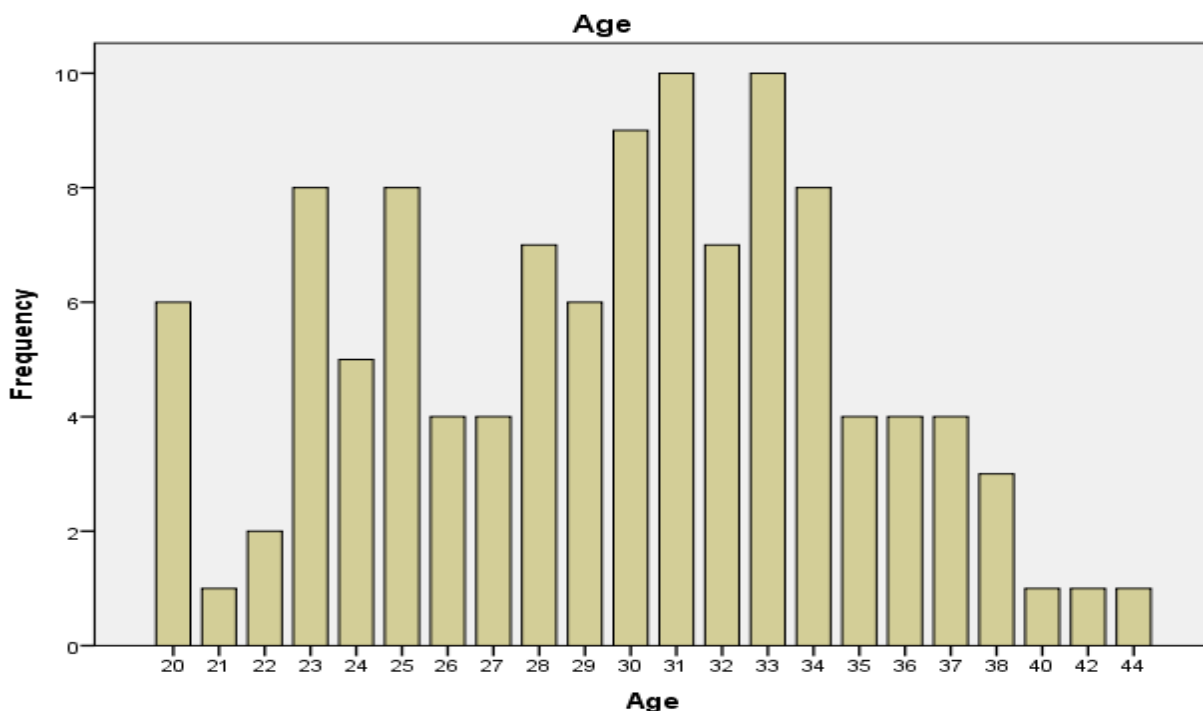


Table 1. Age range of patients. The mean age was 29.54.

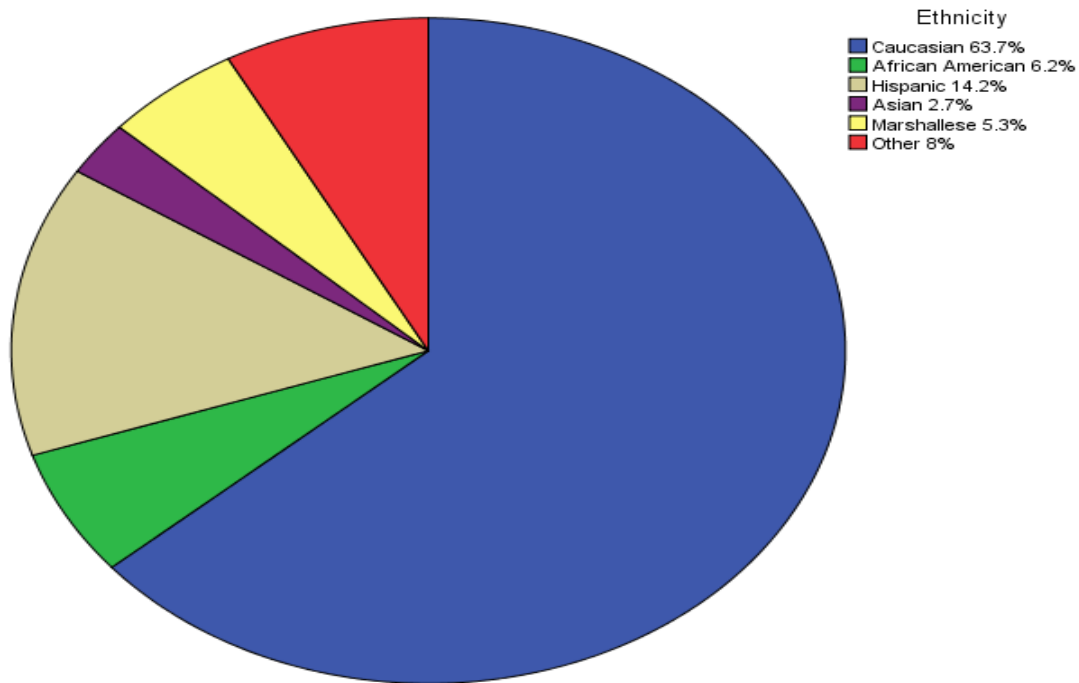


Table 2. Ethnicity of patients included in the study.



Table 3: Where skin-to-skin contact after Caesarean Section was initiated. OR= Operating Room. PACU= post-anesthesia care unit. NICU= neonatal intensive care

Upon admission to the hospital prior to labor, 64% of mothers said that they planned to exclusively breastfeed, while 14.7% chose formula, and 21.3% wanted to do a combination of both. Table 4 shows the feeding preference on admission for both the pre and post intervention groups, broken down according to ethnicity of the patient.

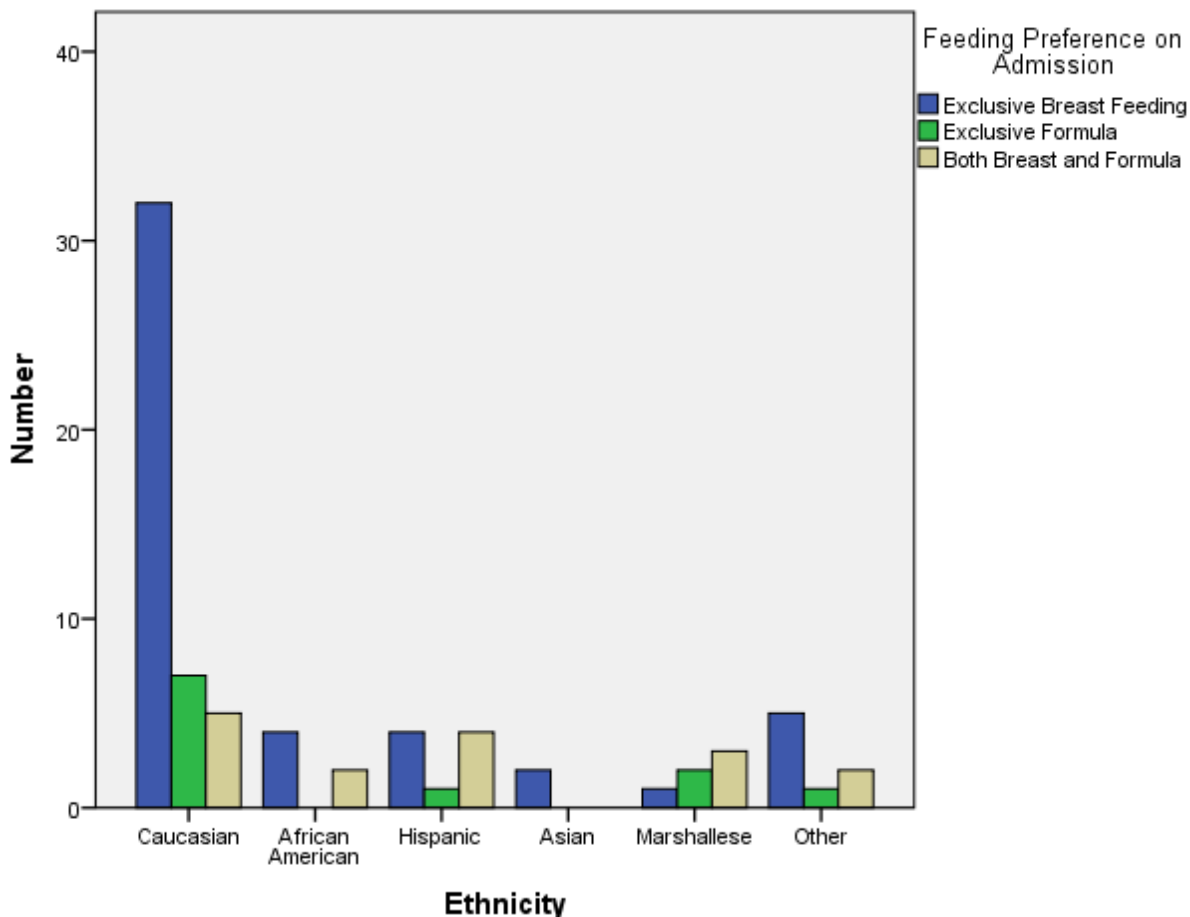


Table 4. Feeding preference when asked at time of admission.

A chi-square test for association was conducted between skin-to-skin contact and exclusive breastfeeding at discharge. All expected cell frequencies were greater than five. There was not a statistically significant association between skin-to-skin contact and exclusive breastfeeding at time of discharge (Table 5 and 6, Graph 1).

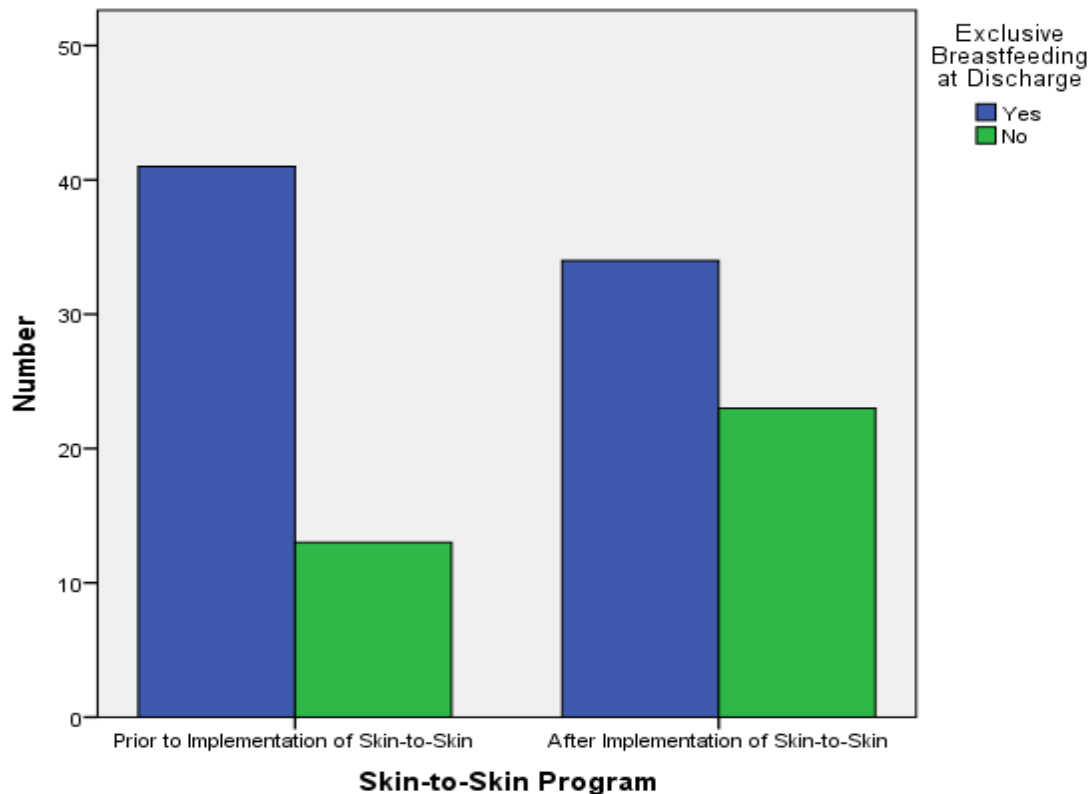
Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square | 3.352 ^a | 1 | .067 | .073 | .051 |
| Continuity Correction ^b | 2.651 | 1 | .103 | | |
| Likelihood Ratio | 3.388 | 1 | .066 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 3.322 | 1 | .068 | | |
| N of Valid Cases | 111 | | | | |

Table 5. Chi-Square test. $P < 0.5$ is considered statistically significant.

| Comparison of Exclusive Breastfeeding Rates | | | | |
|--|----------------------------------|-------------------------|--------|--------|
| | | Exclusive Breastfeeding | | Total |
| | | Yes | No | |
| Prior SSC | Count | 41 | 13 | 54 |
| | % within Prior/After | 75.9% | 24.1% | 100.0% |
| | % within Exclusive Breastfeeding | 54.7% | 36.1% | 48.6% |
| | % of Total | 36.9% | 11.7% | 48.6% |
| | | | | |
| After SSC | Count | 34 | 23 | 57 |
| | % within Prior/After | 59.6% | 40.4% | 100.0% |
| | % within Exclusive Breastfeeding | 45.3% | 63.9% | 51.4% |
| | % of Total | 30.6% | 20.7% | 51.4% |
| | | | | |
| Total | Count | 75 | 36 | 111 |
| | % within Prior/After | 67.6% | 32.4% | 100.0% |
| | % within Exclusive Breastfeeding | 100.0% | 100.0% | 100.0% |
| | % of Total | 67.6% | 32.4% | 100.0% |
| | | | | |

Table 6. Comparison of exclusive breastfeeding rates at discharge prior to implementation of skin-to-skin contact and after implementation.



Graph 1. Comparison of exclusive breastfeeding at time of discharge before skin-to-skin program initiated and after

Discussion

The results of this study do not support the hypothesis, which is that there is correlation between skin-to-skin contact and exclusive breastfeeding rates at discharge. There was no statistically significant correlation between initiating skin-to-skin contact after Caesarean delivery and exclusive breastfeeding rates at discharge. Many factors could influence the results of this study. As shown on the Table 3 above, the vast majority of skin-to-skin contact was not initiated in the operating room, but rather in the post-anesthesia care unit. In most cases, this would not be considered immediate SSC, but would fall under the very early category (Decker, 2014). This could have had an effect on successfulness and continuation of breastfeeding. It should also be

taken into consideration that the first two hours after delivery are the most optimal time to initiate breastfeeding, related to the sleep-wake cycle of infants, meaning that any skin-to-skin contact initiated after the initial two hours may not have had the same effect as immediate skin-to-skin contact would (Srivastava et al., 2014). As indicated earlier, the mean time for skin-to-skin contact was 45 minutes. In previous studies, it took the newborn an average of 50 minutes of uninterrupted skin-to-skin contact to successfully initiate the first feeding, meaning that longer contact may have been needed to effect breastfeeding choices (Srivastava et al., 2014). All of these factors could contribute to hypothesis not being supported in this study.

Study Limitations

This research study had many limitations. One limitation was the small sample, making it difficult to generalize results and identify a strong correlation to support the proposed hypothesis. There were also some omissions of data on the charts collected, making data incomplete. Secondly, the study hospital claimed that skin-to-skin contact was started at the end of 2012. However, upon speaking to a hospital representative and looking through charts, skin-to-skin contact in the operating room was not consistently performed or charted until the latter part of 2013. Furthermore, it was not until November 2014 that the lactation consultant made a push for more performance and documentation of skin-to-skin contact, specifically in the operating room. When looking at the retrospective charts to gather baseline data, in some cases it was difficult to determine if the mother actually went home exclusively breastfeeding or if that was the choice at hospital admission. However, at the end of the study, charting in the hospital system changed to reflect this discrepancy. Education may need to be given to staff, as teaching the importance of skin-to-skin contact and implementing it regardless of feeding method choice is part of the study hospital's policy.

Future Research and Nursing Implications

In future research, specifically at the study hospital, it would be beneficial to look at exclusive breastfeeding rates at one and three months post discharge, utilizing a longitudinal study design. This would have to be done by an inside source of the hospital as it would take time to complete. When looking at Table 4, it is obvious that different ethnicities place higher value or preference on choice of breastfeeding or formula supplementation. In particular, it is interesting to note that the Marshallese more often choose to do a combination of breastfeeding and bottle instead of exclusive breastfeeding. Future research could look at this from an educational and cultural perspective. Besides exclusive breastfeeding, none of the other beneficial effects of skin-to-skin contact were explored in this study, such as warmer body temperature and maternal satisfaction. One thing that could have affected the results of this study is nurse's compliance with charting. Prior to implementation of skin-to-skin contact, it was unclear whether the mother really was exclusively breastfeeding at discharge or the nurses charted what the mother's original intent was. This ambiguity could have created falsely high exclusive breastfeeding rates in the prior to implementation section, resulting in skewed study results. Accurate charting is important from not only a research perspective, but also as a patient safety measure.

Conclusion

Skin-to-skin contact did not prove to have a correlation with exclusive breastfeeding rates in this study. However, with education and more accurate documentation of skin-to-skin contact, the results of the study may vary greatly if repeated. Although skin-to-skin contact was not always performed immediately in the operating room, this study shows that it can be done.

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