

# Effect of Early Maternal - Neonate Skin -to - Skin Contact at Birth on the Neonates Temperature and Breastfeeding Initiation

<sup>1</sup>Hala Ahmed Thabet, <sup>2</sup>Isis Emile Gohar

<sup>1</sup>Woman's Health & Midwifery Nursing Department, Faculty of Nursing-Mansoura University, Egypt

<sup>2</sup>Obstetric & Gynecologic Nursing Department, Faculty of Nursing-Alexandria University, Egypt.

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**Abstract:** This study aimed to determine the effect of early maternal- neonate skin -to -skin contact on the neonate's temperature and breastfeeding initiation. **Setting:** This study was conducted at labor and delivery units at Mansoura University Hospitals, Egypt. **Design:** A quasi- experimental study was utilized. **Subjects:** A purposeful sample of 100 healthy women and their neonates. Women were randomly divided into two equal groups. The first fifty healthy women and their neonates (the control group) received routine hospital care and the subsequent fifty women (the study group) provided SSC. **Tools:** Three tools were used to gather data. **Tool 1:** Woman and neonate assessment tool which includes woman' demographic characteristics and neonates 'clinical data. **Tool 2:** Infant breastfeeding assessment tool (IBFAT): This tool was used to assess the success of first breastfeeding and time to effective breastfeeding. **Tool 3:** Neonates body temperature assessment form: It was a written form a researcher measured and recorded neonates 'auxiliary temperature with a digital thermometer **Results:** The study revealed that neonates who received early skin to skin contact with mothers after birth are less susceptible to hypothermia than those who do not. In addition, there are statistically significant differences between SSC compared to routine hospital care groups regarding success in first breastfeeding. **Conclusion:** Early maternal-neonate skin- to -skin contact at birth has positive effects for all mothers and their neonates on the duration and initiation of successful breastfeeding, neonate's temperature regulation, and prevention of hypothermia compared to neonates who received routine hospital care. **Recommendations:** Study clearly indicates all healthy babies more than 37 weeks gestation born by vaginal should be positioned in immediate skin to skin contact within the first hour of life or until the completed first breastfeeding and there is a need to organize continuing nursing education and training workshop for all the nurses and innovate a clear protocol on how to implement skin to skin contact for all mothers immediately after birth. These changes essentially support the millennium goals of enhanced maternal & child health.

**Keywords:** Early skin-to-skin contact, Initiation of breastfeeding, Neonatal hypothermia, Neonatal temperature.

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## 1. INTRODUCTION

Skin-to-skin contact (SSC) is defined as the placement of an uncovered baby, sometimes with a diaper or a cap on its mother's naked skin, and the uncovered side / back of the newborn shielded by a bath towel or a blanket. (UNICEF, 2011). The hands of the babies movement above the mom's breasts through SSC leads to rising oxytocin secretion, which effects in increasing breast milk volume and breast heat (Jonas et al., 2007).

In the newborn, period (SSC) has become common practice for healthy infants by applying maternity care practices that sustenance breastfeeding as outlined in the "ten steps of successful breastfeeding." of World Health Organization(WHO).SSC is sustained by evidence that the implementation of these practices rises overall and exclusive breastfeeding (Feldman-Winter&Goldsmith,2016).

The newborn baby is required to make very significant adaptations from the utero environment to the outside world immediately after birth (**Takahashi & Tamakoshi; 2018**). Childbirth usually occurs in a cool environment as the warmth inside the uterus is 38°C. Most of the newborn's cooling takes place immediately after birth, during the first 10 to 20 minutes. Because of such a rapid change in the environmental, the body temperature of the neonate's drops by two to four degree immediately after birth unless appropriate action is taken.

Attention was given to adverse effects of hypothermia on a neonate because they are susceptible to heat loss as they have an inadequate supply of subcutaneous fat and a too much body surface compared to their body weight (**Fraser & Cooper ; 2003**).

Hypothermia through the neonatal period is commonly regarded as a main responsible reason of significant mortality and morbidity in developing countries (**Darmstadt; et al 2005**). High incidence of hypothermia has been stated in countries with the highest percentage of newborn mortality; anywhere hypothermia is progressively gaining consideration and significance as a critical intervention for neonate survival (**Ellis, et al 1996**).

Early initiation of breastfeeding (EIBF) can decrease neonatal death within one hour of delivery. On the other hand, the occurrence of EIBF in several developing countries is approximately 50 % and statistics remains unattainable for some countries (**Takahashi; et al 2017**). Babies with direct skin contact through early breastfeeding initiation (EBI) will have a more constant temperature compared to the ones without (**Srivastava; et al. 2014**). One of the recommendations of the World Health Organization is to start breastfeeding within the first half hour post-delivery .On the other hand, due to routine hospital care in most hospitals, mother-baby contact and breastfeeding initiation are postponed (**Karimi; et al 2019**).

First two hours after -birth is called critical period for stabilizing breastfeeding and its continuity. In this ideal time the newborns' feeding behaviors such as sucking and rooting strongly occur, as well as most of the newborns' responses to the thermal, touching and smell instigations received from their mother's body. Increasing the successful breastfeeding and maximum advantages of this period can be achieved by applying SSC method (**Moor & Anderson; 2007**). ) Skin -to-skin contact makes full-term baby capable to move near the nipples of mother and latch effectively (**Mahmood; Jamal & Khan; 2011**). Furthermore; it can lead to a significant enhancement in attachment and rooting which could improve rates of exclusive breastfeeding in newborns. Additional significant influence of SSC in neonates is to decline the anxiety levels related to their separation from their mothers. (**Thukral; et al 2012**)

Immediate Skin-to-skin contact after delivery until the end of the 1<sup>st</sup> breastfeeding has been displayed to prolong the breastfeeding duration, improve the chance of neonates being breastfed at all in the first months of life, and may too contribute to an increase in exclusive breastfeeding (**Moore et al. 2016**). SSC offers benefits to the neonate in the form of sustained high- temperature homeostasis, cardiovascular and metabolic stability and a reduced amount of irritability. Significant effects for the mothers comprise the reduction of depressive signs and less stress, more satisfaction throughout the postpartum period, enhanced breastfeeding and improved bonding with her neonate. (**Bigelow; et al; 2012 & Morelius; et al 2015**).

Skin-to-skin has been shown to help the baby adjust his or her body temperature, breathing , and heart rate more than radiant warmers and incubators (**Mannel.;Martens;&Walker;2013**).

However the mother and her baby are in SSC, heat is transmitted from the mother to the baby, during which the body temperature of the mom,s stimulates the sensory nerves of the neonate, causing relaxation of the baby, lessening the tone of the sympathetic nerves, opening the skin vessels and increasing the body temperature of the neonates. (**Jonas; et al; 2007**). At the critical period, one of the most essential nursing cares for newborn is to inhibit heat loss and to preserve the neutral temperature warm (**Takahashi & Tamakoshi; 2018**).

Skin-to-skin contact offers a suitable and economical yet high-quality alternative to technology. It is easily applied, even in small hospitals of very low-income countries, and has the possibility to save the lives of mother and neonates (**Safari; et al 2018**). As suggested by the Baby-Friendly Hospital Initiative (BFHI) , all babies should be located in skin-to-skin contact with their moms immediately post their delivery for at least one hour , to maintenance breastfeeding initiation (BFI) within one hour after birth and breastfeed the baby exclusively until six months of age (**WHO.UNICEF 2009 & Victora ; et al 2016**).

**1.1 Significance of the study**

It is simple, safe, cost-effective and practical. It is too a curative technique to avoid hypothermia in full-term neonates, Very limited studies emphasis on the effects of SSC on maternal and neonates health. Early maternal-neonate skin-to-skin contact (SSC) after childbirth is a physiological training that is globally suggested and has well-documented importance for the mother and her infant. SSC has also become part of the standard of care (Guala; et al 2016). Therefore the present study was carried out to assess the effect of early maternal -neonate skin -to -skin contact on the neonate’s temperature and breastfeeding initiation.

**WHO Newborn body temperature classification (WHO, 1997).**

36.5 °C to 37.5 °C	Normal body temperature
36.0 °C to 36.4°C	Mild hypothermia
32.0 °C to 35.9°C	Moderate hypothermia
< 32 °C	Severe hypothermia

**1.2 Aim of the study:**

The aim of the current study was assess the effect of early maternal -neonate skin to skin contact on the neonate’s temperature and breastfeeding initiation

**1.3 Hypothesis**

*In order to achieve the aim of this study, it was hypothesized that:*

- Neonates who received early skin to skin contact with mothers after birth are less susceptible to hypothermia than those who do not.
- Neonates who received early skin to skin contact at birth is demonstrated earlier breastfeeding initiation compared to those who do not.

**2. Subject &Methods:**

**2.1 Research design:** Quasi-experimental design was used to conduct the present study.

**2.2 Setting:** The present study was conducted at the labor and delivery unit at Mansoura University Hospitals, Government; Egypt

**2.3 Subjects**

A purposeful sample of one hundred healthy and their neonates was selected according to certain inclusion criteria as follow: normal pregnancy, singleton normal delivery, full term neonates and having Apgar more than 7 at first & five minute, woman have the desire to breastfeed the baby immediately after birth, did not receive any painkiller medication and approved to join in the current study. The sample size was calculated by using Stephen Thompson formula for sample size calculation and with the consultation of statistician [Confidence interval (CI) = 95.0%, confidence limit = 0.05]. According to the sample size formula and considering the loss of samples, 100 mother-infant were selected. Then the samples were randomized to routine care “n = 50” and skin to skin contact “n = 50” groups via a random number table

**2.4 Tools for data collection**

Three tools for data collection were used as follow:

**2.4.1 Woman and neonate assessment tool**

This tool was developed by the researcher in the English language. It includes the following two parts:

**Part 1:** to assess a woman’s demographic characteristics (age, level of education, occupation.).

**Part 2:** to assess clinical data about neonates (weeks of gestation, neonate’s weight, gender)

**2.4.2 Infant Breastfeeding Assessment Tool (IBFAT):** It was adopted from (Mathews MK, 1988). This tool was used to assess the success of first breastfeeding and time to effective breastfeeding, it contains 4 items which denote the main components of infant breastfeeding behavior including willingness to feed, effectively rooting reflex, how long from placing baby on breast to latch & suck, and suckling pattern are assigned a numerical assessment based upon the answer selected by the researcher for each item. The time & duration in minutes between births until first breastfeeding per minutes did the neonate attach to the nipple and finish the first breastfeeding without support. Measuring an infant's first breastfeeding experience and success of subsequent breastfeeds pre discharge based on the **IBFAT** tool.

#### **Scoring system:**

The score for every component of the four components ranges from zeros to three for the total scores for the four elements ranges is twelve. The total scores were categorized as follow; Score of 10 to 12 was considered as successful feeding, scores fewer than 10 were considered the difficulty in first breastfeeding or unsuccessful breastfeeding. Period to initiate first breastfeed was assessed in minutes from birth till infant started first breastfeed.

#### **2.4.3 Neonates body temperature assessment form:**

It was a written form the researcher measured and recorded neonates 'auxiliary temperature with a digital thermometer, when the infant was at birth, 10 min, 20 min, 30min, 40 min ,and 50 min throughout the first hours after birth. According to WHO newborn body temperature classification (WHO, 1997), a body temperature range from 36.5°C -37.5°C was considered normothermia, temperature less than 36.5°C -36.0 °C was considered mild hypothermia and when temperature range from 35.9°C -32.0°C was considered moderate hypothermia and the temperature <32 °C was considered severe hypothermia.

#### **2.5 Pilot study**

A pilot study was carried out on ten percent of the total number of the study sample (ten healthy women and their neonates) to test the applicability, clarity, objectivity of the tools and the time needed for each tool to be fielded as well as the applicability of the study. The changes were done for the used tools then the last form was developed. Women and their neonates of the pilot study were excluded from the study's subjects.

#### **2.6 Content validity and reliability:**

Tools validity was confirmed through the content validity based on the expert opinion of (five juries from women's health and midwifery nursing, faculty of nursing). According to their comments, modifications were considered. These modifications included changing the wording of the phrases to be easy and understandable. The reliability of Infant Breastfeeding Assessment Tool (IBFAT) was done through Cronbach's alpha was calculated on 10 parturient women. Alpha coefficient value for was 0.912.

#### **2.7 Ethical considerations**

The research approval was obtained from the head of women's health and midwifery department, then agreement from research ethical committee of the nursing faculty, Mansoura University, Also, a letter of approval from the director of labor and delivery unit was obtained to conduct this study before initiating the study. The researcher clarified the purpose and aim of the study to the women included in the study. Written consent was obtained from women to ensure a willingness to engage in the study. The researcher maintained anonymity and confidentiality of subjects' data. Women were informed that they are allowed to withdraw from the study at any time without penalty.

#### **2.8 Fieldwork**

Fieldwork included three phases: the preparatory phase, implementation phase, and evaluation phase.

##### **2.8.1 Phase one: Preparatory phase:**

- The researchers reviewed the relevant literature related to the current study, then prepared and designed tools for data collection. Then, a pilot study was carried out among ten healthy women and their neonates
- This phase started by selecting women who met the inclusion criteria and explaining the nature of the study as well as taking their approval to participate in the study prior to data collection

### 2.8.2 Phase two: Implementation phase:

- Approval to conduct the study was obtained from the hospital administration and written informed consent from the mothers.
- The researcher introduced herself to each parturient woman in the study and collected data about their personal characteristics by using woman's and neonate assessment tool. Women were randomly divided into two equal study groups (i.e. intervention "SSC" and control "Routine care" groups), each group consisted of 50 healthy women and their neonates.
- The first fifty healthy women and their neonates (the control group) received routine hospital care) and the subsequent fifty women (the study group) provided SSC.
- In the control group who received the routine hospital care, the baby was delivered from the mother, dried quickly and the Apgar score was determined immediately after umbilical cord cutting. Then the baby was suctioned and placed in a crib after the accomplishment of the initial nursing care without skin to skin contact with their mothers during the period of the study (50 minutes). Finally weighing, dressing and measuring the baby were done. The babies were handed to their mothers after placenta delivery and repairing perineal tears or episiotomy of the mother, the baby was wrapped in a blanket and then the mothers were encouraged to start breastfeeding.
- The study group was motivated to offer early maternal/newborn SSC after giving birth. Their babies immediately were placed undressed in a prone position beside the mother's bare chest between breasts after delivery, before delivery of the placental and suturing of episiotomy or tears, an episiotomy is performed routinely to all women in both groups. The Apgar score was measured, and the baby was suctioned while on the mother's chest, well dried and both baby and mother were covered with a dry blanket. Ideally, all additional interventions were delayed until the completion of the first two hours after birth.
- To collect the study data firstly, the researchers, stayed with every woman till the end of the first two hours after birth. Throughout this period, a breastfeeding assessment tool was used to assess the success of the 1<sup>st</sup> breastfeeding. The breastfeeding practice was observed continuing until infants gave up the breast in both groups. The time and duration of the success of the 1<sup>st</sup> and subsequent breastfeeding was assessed and recorded prior to discharge.
- Secondly, temperature assessment form was used to record the axillary temperature of neonates throughout the study period.
- Data collection was conducted in morning and afternoon shifts starting from the beginning of June 2017 until the end of August 2017.

### 2.8.3 Evaluation phase:

- The time and duration of the success of the 1<sup>st</sup> and subsequent breastfeeding was assessed and recorded throughout the current study period for both groups.
- Axillary temperatures of the neonates were assessed and recorded throughout the current study period.

### 2.9 Data analysis

Collected information were coded, computed & analyzed by using the statistical package for social science (SPSS) version 22. Quantitative data were presented as mean and standard deviation (SD), Chi-square was used to check the significance of the detected difference was attained at  $p \leq .05$ .

## 3. RESULTS

**Table (1)** reveals that the general characteristics of the homogeneous study groups. It clarifies that there were no statistically significant differences between the control and study groups regarding their sociodemographic maternal age. The mean age in both groups in the current study was 24.04±2.850 years. More than one third (38%) of the control group had a university educational level, compared to twenty-six 26% of a group using the skin-to-skin contact. About three quarters 70% of the study group was housewives, compared to the eightieth percent of the control group.

**Table 1: Frequency and percentage distribution of women' according to their socio-demographic characteristics for the control group (n= 50) & study group (N=50)**

Demographic characteristics	Studied sample				X <sup>2</sup> p
	Control group n=50		Study Group n=50		
	No	%	No	%	
<b>Age (in years)</b>					
20-	33	66%	30	60 %	0.83 0.66
25-	12	24%	17	34%	
30-35	5	10%	3	6%	
<i>Mean +SD 24.04+2.850 years</i>					
<b>Educational level</b>					
Read and write	9	18%	7	14%	2.397 (.494)
Basic education	11	22%	16	32%	
Secondary	11	22%	14	28%	
University	19	38%	13	26%	
<b>Occupation</b>					
Housewife	40	80%	35	70%	1.333 (.248)
Employee	10	20%	15	30%	

**Table (2)** shows that regarding infant sex more than half of the neonates (52%) was male in the control group compared to more than two thirds (68%) was female in the study group .Concerning neonates birth weight, it's found that only 3.4 % of the control group & study group had a birth weight of below 2.5 kg. Moreover, more than one-fifth of both groups (24.1%) had a birth weight of above 3.5 kg. However, the mean gestational age in two groups was (39.413 ± 0.729, 39.443 ± 0.769) respectively.

**Table 2: Frequency and percentage distribution of neonatal according to their clinical data characteristics in the control (n=50) and study groups (N=50)**

Neonates clinical data	Control Group n= 50		Study Group n= 50	
	No	%	No	%
<b>Infant sex</b>				
▪ Male	26	52%	16	32%
▪ Female	24	48%	34	68%
<b>Birth weight (in KG)</b>				
▪ Mean ± S.D.	3.05 ± 0.71		3.11 ± 0.68	
<b>Gestational weeks</b>				
▪ Mean ± S.D.	39.413 ± 0.729		39.443 ± 0.769	

**Table (3)** illustrated that mean temperature among neonates in the control and study groups throughout their 1<sup>st</sup> fifty minutes of life. There were statistically significant differences between both groups in relation to their mean temperature at birth, ten min., twenty minutes, thirty minutes, 40 min. and fifty minutes of life ( p= 0.078 , p = 0.001 , p= 0.0001, p= 0.001, p= 0.001 & p= 0.001) respectively.

**Table 3. Mean neonates temperature in the control (n= 50) and study groups throughout their first 50 minutes of life (N=50)**

Time	Neonates Temperature				T	p
	Control Group n=50		Study Group n=50			
	Mean	SD	Mean	SD		
- At birth	36.214	.2825	36.028	.4300	1.85	0.078
- 10	35.566	.5340	36.003	.2745	3.06	0.001*
- 20	34.676	1.9248	36.028	.3555	4.01	0.0001*
- 30	35.345	.4532	36.076	.5047	3.105	0.001*
- 40	35.431	.6459	36.269	.4552	3.65	0.001*
- 50	35.500	.6595	36.276	.4485	3.09	0.001*



**Table (4)** regarding the neonatal temperature throughout their 1<sup>st</sup> fifty minutes of life between the control and the study groups. It is observed that 4 percent of neonates in study group had hypothermia at 20 minutes of life compared to about one third (32.0 %) of neonates in the control group and the difference was statistically significant difference with  $p=0.0054$ . Regarding the neonate’s temperature at thirty minutes of life, the majority (98%) of neonates in control had hypothermia compared to only 10% in the study group & the difference was statistically significant with  $P\leq 0.0001$ . while more than three quarters (76%) of neonates in the control group had temperature below 36 C at 40 minutes of life compared to more than one garter (30%) in study group and the difference was statically significant with  $p=0.00062$ . Moreover, most of the neonates (80%) in the control group had hypothermia compared to more than one quarter (28%) at 50 minutes of life and the difference was statically significant with  $p = 0.0007$ .

**Table 4: Neonatal temperature in the control group (n=50) and study (n=50) groups during their first 50 minutes of life.**

Neonatal temperature	Control Group (n=50)		Study Group (n=50)		X <sup>2</sup> p- value
	No	%	No	%	
<b>At 10 m</b>					
▪ Normothermia ( $\geq 36.5^{\circ}\text{C} - 37.5^{\circ}\text{C}$ )	48	96%	50	100%	1.02
▪ Hypothermia ( $\leq 36^{\circ}\text{C} - 32.0^{\circ}\text{C}$ )	2	4%	0	0.0%	0.313
<b>20 m</b>					7.73
▪ Normothermia	34	68%	48	96%	0.0054*
▪ Hypothermia	16	32%	2	4%	
<b>30 m</b>					43.31
▪ Normothermia	1	2%	45	90%	0.00001*
▪ Hypothermia	49	98%	5	10%	
<b>40 m</b>					11.71
▪ Normothermia	12	24%	35	70%	0.00062*
▪ Hypothermia	38	76%	15	30%	
<b>50 m</b>					15.59
▪ Normothermia	10	20%	36	72%	0.0007*
▪ Hypothermia	40	80%	14	28%	

$p \leq 0.05$  significant

**Table (5)** The data shows that 96% of the study group had a neonate self-initiated attachment to the nipple compared to only two fifths (40%) of the control group with  $p < .01$ . Furthermore, 90% of the neonates of the study group completed the first breastfeeding by themselves compared to more than one third (36%) of the control group with  $P < 0.01$ . When the mothers are asked to estimate the neonate’s first breastfeeding, Good breastfeeding was reported by 88% of the study group compared with only (38%) of the control group with  $p < .01$ . The time between delivery until first breastfeeding was significantly shorter in the study group than in the control group, where the mean time duration among both groups was  $33.76 \pm 3.28$  minutes compared to  $102.52 \pm 25.4$  minutes respectively ( $p < .01$ ). Additionally, the duration of first breastfeeding was longer in the study group than in the control group, wherever the mean duration between the study and control group was  $21.02 \pm 2.044$  minutes and  $6.18 \pm 1.309$  minutes respectively with  $p < .01$ .

**Table 5: Frequency and percentage distribution of the neonates according to their first breastfeeding assessment in the control group (n=50) and study group (N=50).**

First Breastfeeding	Control Group (n=50)		Study Group (n=50)		X <sup>2</sup> p- value
	No	%	No	%	
<b>Neonate attach to the nipple Without staff assistance</b>					
▪ Yes	20	40%	48	96%	32.792 (.000*)
▪ No	30	60%	2	4%	

<b>Neonate end the first breastfeeding Without staff assistance</b>					
▪ Yes	18	36%	5	90%	<b>24.135 (.000*)</b>
▪ No	32	64%		10%	
<b>How do you estimate the first breastfeeding of the neonates</b>					
▪ Good	19	38%	44	88%	<b>27.815 (.000*)</b>
▪ Fairly good	7	14%	4	8%	
▪ poor	24	48%	2	4%	
<b>Time (minutes) between delivery and first breastfeeding</b>	102.52 ± 25.411		33.76 ± 3.280		<b>19.577 (.000*)</b>
<b>Duration (minutes) of first breastfeeding:</b>	6.18 ± 1.209		21.02 ± 2.044		<b>39.389 (.000*)</b>

Table (6) shows that there was highly significance difference among study groups and the time of breastfeeding initiation after birth. Neonates received SSC started breastfeeding at 2.31 ± 1.385 (mean ± SD) minutes after birth, but neonates in the control group started breastfeeding 5.39 ± 5.654 (mean ± SD) minutes after birth with p ≤ 0.001. As shown in table 6, mean duration of first breastfeed in women with SSC versus routine care was (23.17 ± 7.88 & 23.68 ± 7.22) respectively; however, a not significant difference was observed among mothers who practiced SCC. In the study group, the IBFAT score was significantly better than the control group (mean 9.55 vs. 6.77; P < 0.0001).

Table 6: Mean neonates breastfeeding behavior in the control group (n=50) and study groups (n=50)

Neonates breastfeeding behavior	Control Group n= 50 (mean ± SD)	Study Group n= 50 (mean ± SD)	X <sup>2</sup> p- value
<b>Time of breastfeeding initiate (minute)</b>			
▪ (Mean ± SD)	5.39 ± 5.654	2.31 ± 1.385	< 0.001
▪ Range	1-19	1-9	
<b>First ,breastfeed duration (minute)</b>			
▪ (Mean ± SD)	23.68 ± 7.22	23.17 ± 7.88	0.64a
▪ Range	10-25	10-35	
▪ <b>IBFAT score</b>	6.71±1.895	9.55±1.143	<0.0001

\* ≥ 10 (Successful breastfeeding) \* < 10 (Unsuccessful breastfeeding)

Table (7): demonstrated that the majority of women (96%) receiving SSC had a successful first time breastfeeding compared to more than half (52%) of the women in the routine care group. Between the two groups, there were statistically highly significant differences with p ≤ .01.

Table 7: Frequency and percentage distribution of study subjects according to their overall score of successful first breastfeeding based on IBFAT scores in the control group (n=50) and the study group. (n=50)

Total score Successful first breastfeeding	Control Group n= 50		Study Group n= 50		X <sup>2</sup> p- value
	no	%	no	%	
- Successful	26	52%	48	96%	16.89 0.0007*
- Unsuccessful	24	48%	2	4%	

\* ≥ 10 (Successful breastfeeding) \* < 10 (Unsuccessful breastfeeding)



**Table (8):** illustrates that all mothers (100%) of the SSC group had succeeded in subsequent breastfeeding pre-discharge, compared to about two-thirds of the control group mothers (64 %). Between the two groups, there were highly significant differences with  $p \leq .01$ .

**Table 8: Frequency and percentage distribution of study subjects according to their success of subsequent breastfeeding pre-discharge based on IBFAT scores in the control group (n=50) and study groups (n=50)**

Total score Successful of subsequent breastfeeding	Control Group n= 50		Study Group "SSC" n= 50		X <sup>2</sup> p- value
	no	%	no	%	
- Successful	32	64%	50	100%	32.792 (.000*)
- Unsuccessful	18	36%	0	0.0%	

\*  $\geq 10$  (Successful breastfeeding)      \* $<10$  (Unsuccessful breastfeeding)

#### 4. DISCUSSION

Maintaining neonate’s temperature immediately after delivery is an essential part of early neonate’s management. Neonates are at risk for loss of heat at delivery because of decrease subcutaneous tissue and skin permeability to water and a high ratio of surface area to body mass. Hypothermia in a newborn is recognized by the World Health Organization (WHO) “as a body temperature less than 36.5 °C” is the main reason to neonatal morbidity and mortality both in the developed & developing areas of the world. (WHO, 1997 & Ogunlesi et al; 2008).

There was clear evidence that SSC has an advantage for both mothers and infants in both physiological & behavioral regulation. His findings clearly stated in a study conducted in this context that SSC and breastfeeding are undoubtedly the most natural cost-efficient means of bonding between the mother and her newborn. (Al-Morbaty, Ashmauey & Al-Ghamdi; 2017)

Regarding hypothermia occurrence, the results of the current study concluded that neonates who received early skin to skin contact with mothers after birth are less susceptible to hypothermia than those who do not. This may be due to that the chest or abdomen of the mother is only at the right temperature that has been transferred via conduction to the neonates. This result congruent with Färdig and Carfoot who concluded that the body temperature was warmest for neonates who were given early skin to skin contact with their mothers than those who were not. (Färdig;1980 & Carfoot;2005). Fransson et al also support the present result, which highlighted important of close bodily contact with the mothers for the temperature control of neonates, also supports the present result. (Fransson;Karlsson ;& Nilsson; 2005)

Concerning the mean neonates’ body temperature among control and study groups throughout their first fifty minutes of life. The results of the present study revealed that there were highly statistically significant differences between both groups. The same finding was supported by Safari et al,2018, who mentioned that more than one third (42%) of the babies who did not receive skin contact had hypothermia , on the other hand ,only two percent of the babies who received skin contact with their mothers developed hypothermia after delivery . Furthermore the current study findings are in an agreement with Takayama et at; (2000), who reported that, while the baby was in contact with his mother, the temperature of the body continuously increased, from the researcher point of view this finding could be due to the fact that when the baby was with the mother who is considered to be a warm surface than when lying in the crib, and the heat is transferred from the mother’s body to him by conduction.

Ogunlesi et al, who stated that skin to skin contact is effective in the preventing and treatment of neonate’s hypothermia, also support these results. (Ogunlesi et al;2008). Moreover, neonates who don’t received early skin contact with their mothers have been found to cry more, they also have significantly higher levels of salivary cortisol 6 hours after delivery compared to neonates who have skin contact, an indicator of stress. A cry is associated with higher rates of heart and

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breathing that deplete the energy reserve. (Moor ;& Anderson 2007 & Takayama et at; 2000) In addition, early maternal-infant SSC was associated with prolonged breastfeeding, increased maternal affection & love scores ,touch ,and improved maternal attachment behavior. (Ferber& Makhoul; 2004)

Regarding the initiation and success of the first breastfeeding according to the IBFAT scale scores. The present study found that the majority of women (96%) receiving SSC had a successful first time breastfeeding compared to more than half (52%). of the women in the control group. This result goes in line with findings reported in the literature by (Aghdas; Talat ;& Sepideh; 2014) revealing the neonates training to start the breastfeeding and their breast sucking performance in the SSC group was better than control. This finding can be attributed to increased mother tactile and oral stimulation by skin contact with their newborn babies.

Based on IBFAT scores, evaluating the successful later breastfeeding before discharge, it was found that all women receiving SSC (100%) had successful pre-discharge subsequent breastfeeding compared to about two-thirds (64%) of a woman receiving routine care. This finding is supported with, Redshaw et al, who reported that usefulness of early contact. Women who contact their baby within 5 min. after delivery were more expected to start breastfeeding and do breastfeeding at the discharge of the facility (Redshaw; Hennegan & Kruske; 2014). On the other hand Carfoot et al., contradict our study result, which stated that the success of later breastfeeding pre-discharge was no significant difference between the two groups. Carfoot's reason for this finding was the presence of a research helper in the delivery room this may have encouraged the nurse midwife to give more support equally to the mothers in both groups. Moreover, this study assesses the success of breastfeeding differently from the current study. (Carfoot ;Williamson;& Dickson; 2005). From the researcher point of view this finding could be due to that increased nurse's workload in the delivery room did not allow the nurse to give proper care and support during the normal routine hospital care for women in the control group. Also, during routine hospital care given, healthy full-term newborns are exposed to some interventions lead to delayed mother contact with their baby.

**5. CONCLUSION**

Early maternal-neonate skin to skin contact at birth has positive effects for all mothers and their neonates on the duration and initiation of successful breastfeeding, neonatal temperature regulation, and prevention of hypothermia compared to neonates who received routine hospital care

**6. RECOMMENDATIONS**

In light of the current study results, the researcher recommends the following:

1. All healthy babies more than 37 weeks gestation born by vaginal should be positioned in immediate skin to skin contact within the first hour of life or until the completed first breastfeeding and there is a need to organize continuing nursing education and training workshop for all the nurses and innovate a clear protocol on how to implement skin to skin contact for all mothers immediately after birth. These changes essentially support the millennium goals of enhanced maternal & child health.
2. Incorporating the undergraduate maternity nursing curriculum, importance of early mother /neonate skin to skin for prevention of neonate's hypothermia.
3. Enable woman and their neonate to keep together and to practice rooming in twenty- four hours a day.
4. Immediate maternity skin- to-skin contact should be included in neonates ' routine hospital care.
5. Nurse midwives, pediatricians , and other providers should be encouraged to start and continue SSC immediately after delivery while performing appropriate suitable risk management and further studies should be carried out and replicated with a large sample to generalize the study results and must be completed to offer an overwhelming amount of evidence to support SSC and change the standard

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