Effect of Early Maternal and Newborn Skin to Skin Contact after Birth on the Duration of Third Stage of Labor and Initiation of Breastfeeding

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Abstract

- **Background: -** Early skin to skin contact between mother and newborn after labor makes an ideal environment for the adaptation of the newborn to extra uterine life. This simple procedure is recommended as an important enhancement in care directly after delivery. **The aim of this study:** was to evaluate the effect of early maternal and newborn skin to skin contact after birth on the duration of third stage of labor and initiation of breastfeeding. **Subjects and Method:** The study was conducted at Tanta University and El- Menshawy hospitals. A convenient sample of 100 parturient women was recruited. The study included a study group (50) who considered skin to skin contact and a control group (50) who received routine hospital care. **Five tools were used for the collection of data: Tool (I):** A structure interview schedule included the basic data related to a. socio demographic characteristics, b. Reproductive history. **Tool (II):** Assessment of the third stage of labor. **Tool (III):** Mother's breastfeeding knowledge Assessment tool**. Tool (IV):** Breastfeeding Assessment Tool: It included three parts: Part a: The Infant Breastfeeding Assessment Tool (IBFAT), Part b: Assessment of initial breastfeeding outcome, Part c: Assessment of successful latch on. **Tool (V):** Exclusive breastfeeding: Follow- up assessment tool. **The results** of the present study shown that the skin to skin contact group had well contracted uterus, less need for uterotonic drugs and no uterine atony or excessive blood loss have been recorded compared to the control group. Accordingly, the mean duration of third stage of labor was shorter **(6.48 ± 1.25)** among the skin to skin contact group than among the control group **(14.87± 3.88)**. It also revealed that success in first breastfeeding was higher among study group compared to control group. **Conclusion and Recommendation:** The study concluded that there is a positive effect of early maternal newborn skin to skin contact after birth on the duration of third stage of labor and initiation of breastfeeding.**Therefore,** it is recommended that refreshing courses, pre-service and in-service training programs especially for newly appointed nurses working in the delivery room about the implementation of skin to skin contact technique for all mothers and newborns.

Keywords: Early Skin to Skin Contact, Third Stage of Labor, Initiation of Breastfeeding.

Introduction

Pregnancy and childbirth are natural special events in women's life and in the lives of their families. This can be a time of great hope and happy anticipation; it can also be a time of fear, suffering and even death. Complications of pregnancy and childbirth are often the leading causes of morbidity and deaths between mothers in childbirth years in the developing countries. The health of mothers and their newborns is of critical importance, both as reflection of the current health status of large segment of our population and as a predictor of the health of the next generation [1,2]. Labor experiences are very individual and have personal meaning for women. Memories of giving birth are remembered lifetime. The first minutes after birth are very susceptible period for both mother and newborn. Complications and lack of care at this crucial time has consequences for mothers and newborns. The third stage of labor is considered the most important part of childbirth during which the newborn separation from the mother begins and the relationship between both is developed [3,4]. Breastfeeding and early initiation of maternal newborn Skin to Skin Contact directly after delivery can lead to 22% reduction in mortality of infants in the first month of life. Maternal newborn Skin to Skin Contact refers to putting the newborn on the mother's chest immediately after delivery, this process also recognized as kangaroo mother care maternal newborn Skin to Skin Contact directly after delivery is natural transition for the mother and newborn, facilitating the adaptation from intrauterine to extra uterine life and should be suggested for all mothers, irrespective of their infant feeding choice [5-8].

Early maternal newborn skin to skin contact is associated with several advantages for the mother and newborn. As it helps to regulate the newborn's heart and breathing rate, increase metabolic adaptation, decreases crying and decreases hypoglycemia incidence through normalizing the newborn's glucose levels especially when born to mothers with diabetes. Skin to skin contact causes surge of maternal oxytocin through the effect of touch, odor and warmth. Also, the temperature of the mother’s breast skin increases under the effect of oxytocin thus providing the newborn with warmth. Furthermore, the flight- fight effect is antagonized by oxytocin thus the maternal anxiety and stress will be reduced providing relaxation and social responsiveness. Throughout the first periods after birth, oxytocin can also promote parenting behaviors [9-11].

As well as the mother's mental health, the development of the newborn's wellbeing and adaptation during life are greatly affected by the quality of the relationship between both of them in the initial minutes following delivery. The first two hours after delivery is the greatest suitable time for the newborn to start breastfeeding presenting behaviors such as lip movements, finger to mouth movement, and vocal signals. This period gives good opportunity for mothers and newborns to develop a reciprocal relationship when kept together in direct SSC. Extreme advantage of this period for effective breastfeeding can be accomplished by applying skin to skin care process [(12-17)]. Early maternal newborn skin to skin contact through the third stage of labor has a positive effect on its duration, completeness of placental separation, immediate contraction of the uterus, position of the uterus, amount of bleeding, mother satisfaction and also the preference in future delivery[(18)]. In addition, SSC at birth along with the breastfeeding process may be protective against both incidence and severity of postnatal hemorrhage (PPH). Consequently, Lower rates of PPH have the potential to decrease maternal morbidity and mortality across the world [(12).]

Furthermore, literature revealed that application of such practice will also reduce the incidence of breastfeeding difficulties which has been shown to have negative impact on child health. Although maternal newborn skin to skin contact has been established to be supported by evidence, it is still not yet applied at Egyptian hospitals. There are no enough researches that address this practice and its effect at Tanta University Hospitals so, this study was conducted to encourage the application of such practice and to evaluate the effect of early maternal newborn skin to skin contact after birth on the duration of third stage of labor and initiation of breastfeeding.

Aim of the study

The aim of this study was to evaluate the effect of early maternal and newborn skin to skin contact after birth on the duration of third stage of labor and initiation of breastfeeding.

Research hypothesis:

Mothers who practice early newborn skin to skin contact after birth were expected to experience short duration of third stage of labor compared to the control group.

Mothers who practice early newborn skin to skin contact were expected to exhibit early successful initiation and exclusive breastfeeding more than those in the control group.

Subjects and Method:

i. Study design:

A quasi experimental research design was used in this study. Such design fits the nature of the study under investigations, in which the researcher tried to investigate evaluate the effect of early maternal/newborn skin- to- skin contact after birth on the duration of third stage of labor and initiation of breastfeeding. The comparison was done between two groups, group one, and group two.

ii. Setting:

The study was conducted at obstetric departments' labor units at two setting:

1. Tanta University hospital.
2. El-Menshawy hospital.

iii. Subjects:

A total convenient sample of 100 parturient women was selected from the previously mentioned settings. They were divided alternatively and equally into two groups:

1. Study group: 50 laboring woman who were applied the skin- to- skin contact practice.
2. Control group: 50 laboring woman who were exposed to routine hospital care.

The subjects of this study were selected according to the following inclusion criteria:

1. Women with normal course of pregnancy.
2. Primigravida.
3. Woman free from any medical or obstetrical complications.
4. Anticipated normal vaginal delivery and strong desire to breastfeed her newborn at birth.
5. Mother's breast and nipples with normal shape and size.
6. Full-term infant (38- 42 weeks of gestation).
7. Single viable fetus.

iv. Tools of data collection:

Tools of data collection were developed by the researcher based on relevant literature and used to collect data about the study subjects as follows:-

Tool (I): A structured interview schedule

Tool I: Bio Socio-demographic and reproductive history structured interview schedule: was used to collect basic data. It included two parts:

Part a:

This part assessed the socio-demographic data included; age, marital status, residence, level of education, occupation, duration of marriage, family income and type of family.

Part b: This part assessed the reproductive history included; gestational

age (weeks), number of abortions, stillbirth, time of initial antenatal visit, number of antenatal care visits, place of antenatal care, and if they were attending antenatal care classes regarding breastfeeding.

Tool II: Mother's breastfeeding knowledge Assessment tool:

This tool was adopted from Ibrahim (2015) [19]. It comprised 31 items to assess mother's general knowledge about breastfeeding. It included five main groups of questions entail the following information: General knowledge of breastfeeding, positions during breastfeeding, technique used in breastfeeding, benefits of breastfeeding for mother and benefits of breastfeeding for baby.

Tool III: Assessment of the third stage of labor:

This tool was developed by the researcher after review of literature. It included assessment of uterine contractility pattern immediately after birth, intake of any uterotonic drugs, presence of any abnormal signs of uterine atony or excessive blood loss, firmness of the uterus, position of the uterus, applying of immediate cord traction with counter pressure, performing of uterine massage, easily separation of placenta, completeness of placental and fetal membranes, site of cord insertion, composition of cord, and time of cord clamping. It included also presence of episiotomy, duration of third stage of labor and assessment of the newborn immediately after delivery which included; sex, birth weight (kg), gestational age per weeks, airway patency and also prescribed medications.

Tool IV: Breastfeeding Assessment Tool: It included two parts:

Part a: The Infant Breastfeeding Assessment Tool (IBFAT):

This part was adopted from Mathews (1988) [20]. The IBFAT appraised four parameters of infant suckling competence including readiness to feed, rooting reflex, fixing (Latch on) and suckling pattern. The range of scores for each of the four parameters ranged between 0-3. Thus a total score ranged from 0-12. An effective breastfeeding was achieved with a score of 10 or above.

Part b: Assessment of initial breastfeeding outcome:

This part included items; assessment of the duration from delivery to skin to skin contact, duration (minutes) of initial effective breastfeeding, the time in minutes between delivery and first effective breastfeeding, number of trials before the first effective breastfeeding and whether the newborn end the first breastfeeding by own self or not.

Part c: Assessment of successful latch on: This part was adopted from Ibrahim (2015) [19]. It measured latch on, audible swallowing, type of nipple, comfort, and holding. The range of scores for each of the five components was 0-2. Thus a total score was ranged from 0-10. This tool was used during the follow up visits (i.e.): at the first month and at the fourth month following birth. A well breastfeeding was achieved with a score of 8 or above.

Tool V: Exclusive breastfeeding: Follow-up assessment tool:

This tool was developed and used by the researcher to assess the exclusive breastfeeding among the two groups at the first month and at the fourth month following birth. It included questions related to continuation, discontinuation of breastfeeding,

reasons and barriers of exclusive breastfeeding (pain or breast problem, lack of milk and infant suffered from nausea and vomiting), action taken if stopped breastfeeding, breastfeeding rates and duration of breastfeeding in months. It included also mothers' opinion regarding the effect of skin to skin contact on the start and continuation of breastfeeding and whether they prefer skin to skin to skin contact in the future or not.

Method

1. Operational Design: The study was implemented according to the following steps:

A. Tool development

Tools (I, III, IV part b, V) were developed by the researcher after reviewing recent literature. Then, they were tested for their content and construct validity & reliability by three experts in the field of obstetric and gynecological nursing.

B. Ethical considerations:

Informed consent was obtained from laboring women who accepted to participate in the study after explaining the purpose of the study, confidentiality of information, benefits and right to withdraw from the study at any time if desired. The nature of the study did not cause any harm and/or pain for the entire sample.

C. pilot study

After development of the interview schedule, a pilot study was carried out on 10% of the sample (10 women from the study and control group) from the previously mentioned settings .This pilot study was conducted one month before data collection .They was excluded from the study sample.

The purposes of the pilot study were to:

- Ascertain the feasibility and applicability of the developed tools.

- Detect any problems peculiar to clarity of the statements that might interfere with the process of data collection.

Results of the pilot study:

The pilot study revealed that the sentences of the tools were clear and relevant. Few words and statements were rephrased and /or modified. Then, the tool was reconstructed and made ready for use.

D. Actual study (field work)

- The data was collected first from the control group followed by the study group to prevent the contamination of data.
- Data collection was accomplished according to emergency deviation at Gharbia Governorate 6 days per week at Tanta University hospital and El Menshawy hospital at the morning and afternoon shifts until the predetermined sample size was covered.
- **The study was carried out in four phases:**

a. Assessment and planning phase

- The researcher introduced herself to the participants ,took their informed consent and the interview schedule was then conducted individually for each participant (study and control groups) during the first stage of labor using **Tool I** to collect basic data about their bio socio-demographic and reproductive history.

Also, the knowledge of the study and control groups regarding breastfeeding, positions during breast feeding, technique used in breast feeding, benefits of breastfeeding for mother and benefits of breast feeding for baby were assessed individually during the first stage of labor using **Tool II**.

b. Implementation phase:

- **The control group:** comprised 50 laboring women who were received the routine hospital care (after cutting the cord, the infants were dried and put under warmer device for physical assessment and vitamin K injection. The mother's placental delivery and episiotomy repair were done at the same time. Finally, infants were transferred to postnatal room and were allowed to suck mother's breast.
- **The study group**: comprised 50 laboring women who were encouraged to provide early maternal and newborn skin to skin contact after giving birth. Their infants were placed undressed in a prone position against the mother's bare chest between breasts immediately after delivery, before placental delivery and suturing of episiotomy. At this time the infant was

suctioned while on the mother's chest, well dried and covered with a pre-warmed blanket over both mother and infant, the infant's head was covered with a dry cap that was replaced when it became damp to prevent heat loss. All other interventions were delayed until the end of third stage of labor.

- Skin to skin contact started during the first minute after birth and throughout the third stage of labor, to produce elevated levels of oxytocin aiding in separation and expulsion of the placenta
- The researcher assessed for duration of third stage of labor that determined by identifying the time of infant's delivery and the time of placental delivery and subtract both in minutes.
- During skin to skin contact the infant was moved close to the mother's breast to start breastfeeding and Infant Breast Feeding Assessment tool (IBFAT) was completed by the researcher to measure the "success during first breastfeeding".
- Instructions before discharge from hospital were given to mother regarding the importance of exclusive breastfeeding until four months after delivery.

Evaluation phase:

- **Tool III** was used immediately after delivery for study and control group to assess the mother during third stage of labor.
- **Tool IV** was used immediately after birth as soon as the newborn delivered for both groups to assess the successfulness of breastfeeding and latch on.
- Then both groups were followed up twice during the first and four months after delivery using **Tool IV Part a and Tool V** to assess successfulness and continuation of breastfeeding; the first follow up was done one month after delivery and the second was at the fourth month after delivery. The follow up was arranged with mothers and conducted during the vaccination time at the Maternal and Child Health Center that was known (MCH) for all participants.

3. Administrative design:

Written approvals: official letter clarifying the purpose of the study was obtained from the Faculty of Nursing and was submitted to the responsible authorities of the selected settings. The process of data collection took 10 months, from February 2017 until the end of November 2017.

Results

Table (1): Percent distribution of socio-demographic characteristics of the studied mothers (study and control group) (n=100).

Socio-demographic characteristics	The studied mothers (n=100)				χ^2	P
	Study group (n=50)		Control group (n=50)			
	N	%	N	%		
•Age (years):						
19-<25	8	16.0	9	18.0	14.765	0.001*
25-<30	23	46.0	35	70.0		
30-35	19	38.0	6	12.0		
Range	19.00-35.00		20.00-32.00			
Mean±SD	28.91±4.79		26.49±2.93			
•Marital status:						
Married	47	94.0	50	100	3.093	0.079
Widowed	3	6.0	0	0.0		
•Residence:						
Urban	10	20.0	11	22.0	0.060	0.806
Rural	40	80.0	39	78.0		
•Educational level:						
Illiterate	9	18.0	4	8.0	22.879	0.0001*
Read and write	3	6.0	15	30.0		
Primary & preparatory education	9	18.0	5	10.0		
Secondary education	25	50.0	15	30.0		
University education	4	8.0	11	22.0		
•Occupation:						
Housewife	36	72.0	40	80.0	0.877	0.349
Employee	14	28.0	10	20.0		
•Duration of marriage (years):						
0-<2	15	30.0	23	46.0	2.915	0.233
2-<4	30	60.0	22	44.0		
4 & more	5	10.0	5	10.0		
Range	0-10.00		1.00-4.00			
Mean±SD	2.52±1.83		1.96±1.05			
•Family income per month:						
Enough	40	80.0	31	62.0	19.010	0.0001*
Not enough	10	20.0	19	38.0		
•Type of family:						
Nuclear family	27	54.0	22	44.0	1.000	0.317
Extended family	23	46.0	28	56.0		

***Significant (P<0.05)**

Study group= mothers who were applied to skin- to- skin contact practice
Control group= mothers who were applied to routine hospital care

Table (1): Shows the socio-demographic characteristics of the study and control groups. It was observed that the mean age of the study group was 28.91±4.79 years corresponding to a mean age of 26.49±2.93 years among the control group. It was also, noticed that the majority of study and control groups (94.0% and 100.0% respectively) were married, (80.0% and 78.0% respectively) about two third of mothers among study and control group born in rural areas and were housewives

Table (2): Percent distribution of reproductive history of the studied mothers (study and control group) (n=100).

Reproductive history	The studied mothers (n=100) Study group (n=50) N	%	Control group (n=50) N	%	χ^2 P
•Gestational age (weeks):					
36 – 38	18	36.0	6	12.0	11.468
39 – 40	19	38.0	35	70.0	0.003*
41 – 42	13	26.0	9	18.0	
Range	36.00-42.00		38.00-42.00		
Mean±SD	39.02±1.67		39.94±1.18		
•History of abortion:					
None	34	68.0	34	68.0	0.000
one or more	16	32.0	16	32.0	1.000
•History of stillbirth infants:					
None	48	96.0	50	100.0	2.041
one or more	2	4.0.0	0	0.0	0.153
•Time of initial antenatal visit:					
First trimester	24	48.0	15	30.0	3.501
Second trimester	23	46.0	30	60.0	0.147
Third trimester	3	6.0	5	10.0	
•Number of antenatal visits:					
Less than four times	42	84.0	31	62.0	22.236
Four times & more	8	16.0	19	38.0	0.0001*
•Place of antenatal care:					
Governmental	5	10.0	14	28.0	13.279
Private hospital	7	14.0	5	10.0	0.004*
Private clinic	38	76.0	25	50.0	
Health unit	0	0.0	6	12.0	
•Attendance of antenatal classes about breast feeding:					
Yes	0	0.0	6	12.0	0.012*
No	50	100.0	44	88.0	6.383
-Persons who giving courses:					
Hospital nurses	*0*	*0.0*	*6*	*12.0*	-

***Significant (P<0.05)**

Study group= mothers who were applied to skin- to- skin contact practice
Control group= mothers who were applied to routine hospital care

Table (2): Describes distribution of reproductive history of the study and control groups. It was found that the study and control groups were slightly similar as regards the mean gestational age (39.02±1.67, 39.94±1.18 respectively, the same percentage (68.0%) of the study and control groups had no history of abortion, also (96.0%, and100% respectively) had no history of stillbirth infants. Also the majority of study group and control had less than 4 antenatal visits.

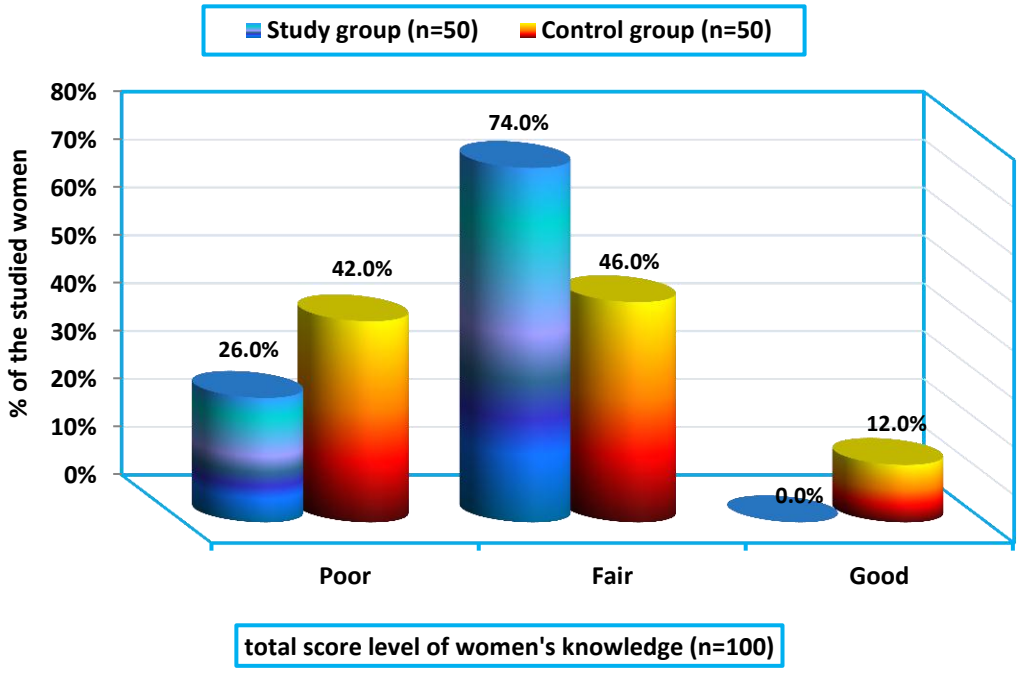

Figure (1): Distribution of total score level of mother's knowledge about breastfeeding (study and control group) (n=100).

Figure (1): Illustrates the distribution of total score level of mother's knowledge about breastfeeding. It was noticed that (74.0%, 46.6% respectively) among study and control groups attained fair knowledge about breastfeeding while only (0.0%, and 12.0% respectively) among study and control groups attained good knowledge about breastfeeding.

Table (3): Percent distribution of mothers assessment during the third stage of labor after implementation of skin to skin contact (n=100).

Assessment of mothers during third stage of labor	The studied mothers (n=100)				$\chi 2$ test P
	Study group (n=50)		Control group (n=50)		
	n	%	N	%	
•Uterus is contracting immediately after birth:					
Yes	50	100.0	36	72.0	14.040
No	0	0.0	14	28.0	0.0002*
•Intake of any uterotonic drugs:					
Yes	1	2.0	14	28.0	11.290
No	49	98.0	36	72.0	0.0008*
-If yes, when these drugs were taken:					
In less than one minute of the newborn's birth	0	0.0	5	10.0	2.950 0.229
After complete delivery of newborn	0	0.0	6	12.0	
After delivery of placenta	1	2.0	3	6.0	
- Side effects of taken uterotonic drugs :					
Shivering	1	2.0	10	20.0	FE
Nausea and vomiting	0	0.0	4	8.0	0.789
•Presence of uterine atony or excessive blood loss:					
Yes	0	0.0	10	20.0	13.040
No	50	100.0	40	80.0	0.0001*
•Consistency of the uterus:					
Firm like the size of grapefruit	50	100.0	36	72.0	10.698
Not firm (boggy)	0	0.0	14	28.0	0.001*
•Palpate the height of fundus:					
At or lower than umbilicus	48	96.0	36	72.0	9.000
Highly above umbilicus	2	4.0	14	28.0	0.003*
• Did immediate cord traction apply with counter pressure?					
Yes	50	100.0	50	100.0	-
No	0	0.0	0	0.0	
•Massage the uterus after delivery of placenta and membranes:					
Yes	50	100.0	50	100.0	-
No	0	0.0	0	0.0	
•Placenta was separated easily:					
Yes	50	100.0	39	78.0	10.210
No	0	0.0	11	22.0	0.001*
•Delivery of complete placenta:					
Yes	50	100.0	50	100.0	-
•Delivery of complete fetal membranes:					
Yes	50	100.0	50	100.0	-
•Normal site of cord insertion:					
Yes	50	100.0	50	100.0	-

*Significant (P<0.05) FE=Fisher Exact test

Table (3): Cont.

Assessment of mothers during third stage of labor	The studied mothers (n=100)				χ^2 P
	Study group (n=50)		Control group (n=50)		
	N	%	N	%	
•Cut end of the cord had two arteries and one vein:					
Yes	50	100.0	50	100.0	-
•Time of cord clamping:					
Immediately after birth of the baby (early)	0	0.0	34	68.0	48.530
Within 2-3 minutes after birth of the baby (late)	50	100.0	16	32.0	0.0001*
•Presence of episiotomy:					
Yes	4	8.0	4	8.0	1.000
No	46	92.0	46	92.0	0.000
•Duration of third stage of labor:					
Less than 5 minutes	10	20.0	0	0.0	33.640
5- 10 minutes	32	64.0	15	30.0	0.0001*
11- 15 minutes	7	14.0	25	50.0	
16- 30 minutes	1	2.0	10	20.0	
Mean ±SD	6.48±1.25		14.87±3.88		
t-test	13.545				
P	0.0001*				

*Significant (P<0.05)

Table (3): Denotes Percent distribution of mothers during third stage of labor after implementation of skin to skin contact. It was observed that 100% of the study group had contracted uterus immediately after birth, with easily separation of placenta, no uterine atony or excessive blood loss, compared to (72.0%, 78.0%, and 80.0%) of the control group. This finding was statistically significant (P<0.05).Almost all (98.0% and 96.0%) of the study group had no need of uterotonic drugs while the height of fundus was at or lower than the level of umbilicus compared to (72.0% and 72.0%) of the control group. It is also observed from the table that the duration of third stage was shorter among the study group than among the control group. The mean duration for the study group was 6.48±1.25minutes compared to 14.87±3.88 minutes among the control group.

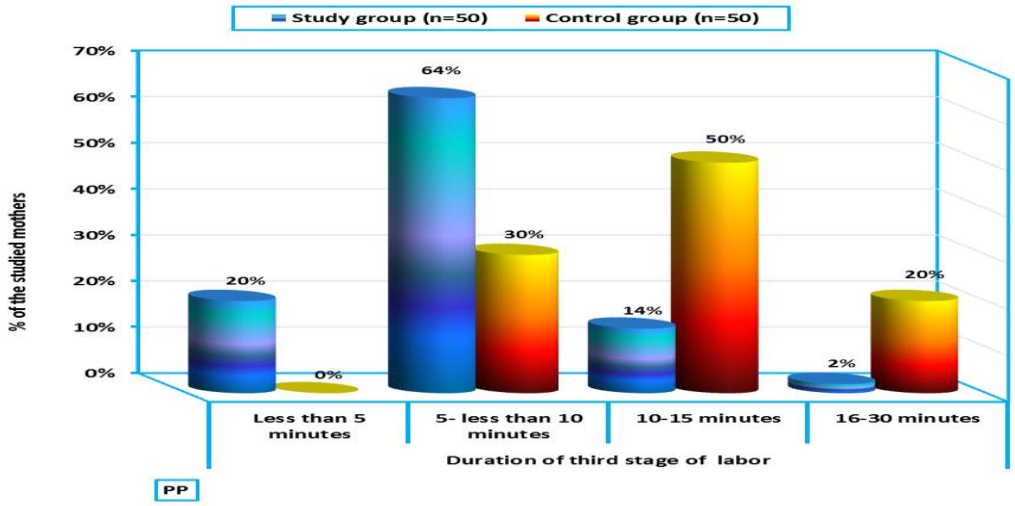

Figure (2): Duration of third stage of labor among the studied mothers (n=100).

Figure (2): Shows that the duration of the third stage of labor between five and less than ten minutes (was shorter) among the study group after the implementation of skin to skin contact, than the control group (64%, and 30% respectively), while the third stage duration between ten and fifteen minutes (was longer) among the control group, than the skin to skin contact group (50%, and 14%) respectively.

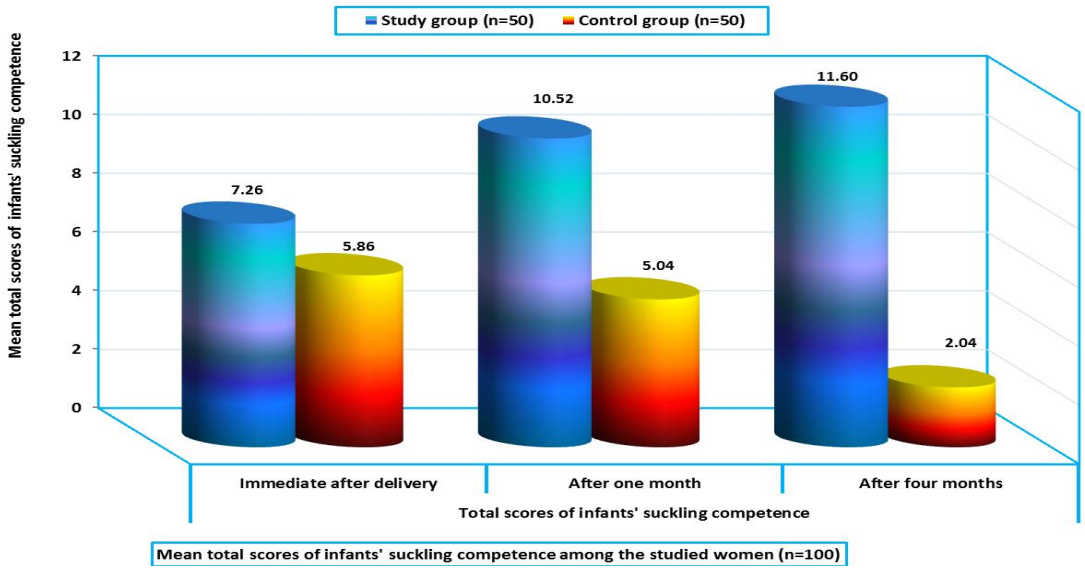

Figure (3): Mean total scores of infants' suckling competence immediately after delivery, at one and at four months after delivery among the studied mothers (n=100).

Figure (3): Shows the Mean total scores of infants' suckling competence immediately after delivery, at one and at four months later among the studied mothers. It was noticed that mean scores of infants' suckling competence immediately after delivery, at one and at four months later among the study group were (7.26, 10.52, and 11.60 respectively) compared to (5.86, 5.04, and 2.04 respectively) among the control group.

Table (4): Outcome assessment of initial breastfeeding among the studied mothers (n=100).

Outcome assessment of initial breastfeeding	The studied laboring mothers (n=100)				χ^2 P
	Study group (n=50)		Control group (n=50)		
	N	%	n	%	
•Duration of first effective breastfeeding (minutes): Mean±SD	9.4± 6.6		6.5± 5.5		2.098 0.037*
•Time between delivery and first effective breastfeeding (minutes): Mean±SD	33.76 ± 3.280		107.72 ±26.511		-
t-test	19.577				
P	0.0001*				
•Number of trials before first effective breastfeeding:					
No trial (0)	25	50.0	3	6.0	37.363
1 & 2	25	50.0	27	54.0	0.0001*
3 & 4	0	0.0	19	38.0	
5	0	0.0	1	2.0	
•The newborn self-ended the first breastfeeding:					
Yes	44	88.0	21	42.0	21.270
No	6	12.0	29	58.0	0.000*

***Significant (P<0.05)**

Study group= mothers who were applied skin- to- skin contact practice
Control group= mothers who were applied routine hospital care

Table (4): Illustrates outcome assessment of initial breastfeeding among the studied mothers. It was observed that the duration of first effective breastfeeding was longer among study group than, among the control group where the mean duration was (9.4± 6.6 and 6.5± 5.5 respectively) among the study and control groups. The table also reports that the time between delivery and first effective breastfeeding was significantly shorter among the study group than, among the control group where the mean time was 33.76 ± 3.280 minutes compared to 107.72 ±26.511minutes among the study group and the control group respectively (P= 0.0001).

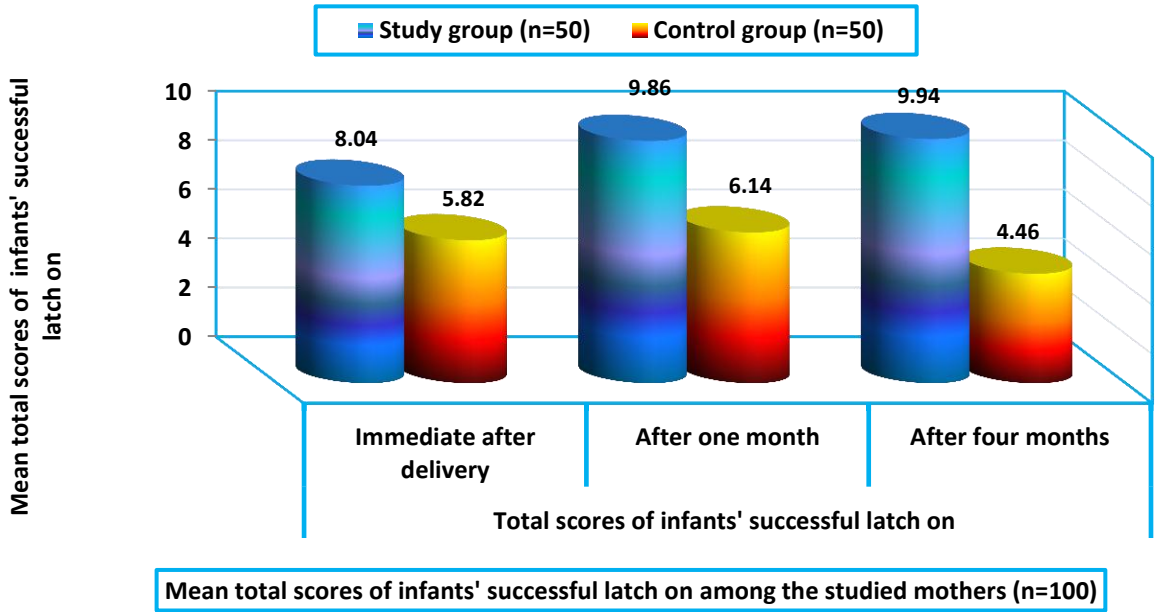

Figure (4): Mean total scores of infants' successful latch on immediately after delivery, at one and at four months later among the studied mothers

Figure (4): Displays assessment of infants' successful latch on immediately after delivery, at one and at four months later among the studied mothers. It was noticed that the mean total score of infant's successful latch on immediately after delivery, at one and at four months later among the studied mothers were (8.04±1.66, 9.86±0.61, and 9.94±0.42 respectively) with a statistically significant differences (χ2=66.769, P= 0.0001) among study group compared to (5.82±0.71, 6.14±2.92, and 4.46±3.19 respectively) with a statistically significant differences (χ2=69.378, P= 0.0001) among control group.

Discussion:

Skin to skin contact is defined as holding the newborn in a prone position between the mother's breasts against her bare chest. This simple and cost free procedure is recommended as an important enhancement in care immediately after delivery[21-5]. The World Health Organization (WHO) stated that over 1.5 million baby deaths per year happen because of insufficient intake of breast milk. Non breastfed newborns affected by diseases at least 2.5 times more than breastfed infants **(World Health Organization, 2013)** [26].Mothers education regarding healthy birth practices about (maternal newborn skin to skin contact), is significant strategy for improving breastfeeding initiation, duration, and exclusivity [17-21]. Ensuring evidence based maternity policies that facilitate "no separation" is an essential responsibility for all nurses [27]

Concerning sociodemographic characteristics of the studied mothers, it was evident from the findings of the present study that the majority of study and control groups were in age group between 25 to less than 30 years old with mean age (28.91±4.79) (26.49±2.93) years for both groups respectively. Regarding mother's education, it was found that (50% & 30%) of study and control groups respectively had a secondary educational level, almost all of both groups were married, and lived in rural areas.

Concerning the reproductive history of the studied mothers, the finding of the present study demonstrated that the majority of the mothers were at 39-40 week of gestation, had no abortion, no still birth infants, had less than 4 antenatal visits, and most of the study and control groups didn't receive prior information about early initiation of breastfeeding This finding was agreed with the study of Al-Morbat et al., (2017) [28], They reported that the majority of women their mean of gestational age was 39±1. Another study conducted by Essa R &Ismail N (2015) [29], reported that the majority of women delivered around 39 weeks gestation, and most of the study and the control groups (98% & 96%) respectively didn't receive prior information about early initiation of breastfeeding.

Regarding assessment of mothers during the third stage of labor, the findings of the present study revealed highly statistically significant difference between the study and control groups in relation to uterine contraction during the third stage of labor, intake of uterotonic drugs and presence of uterine atony or excessive blood loss. The findings of this study are symmetrical with a study carried out by Parikh et al., (2018)

[30], They reported that skin to skin contact inforce faster contraction of uterus, lesser need for uterotonics and lesser blood loss. These results are also consistent with Gabriel et al., (2010) [31] & Dordevic (2008) [32]. The similarity between the previous studies and the finding of the present study may be attributed to the fact that when the newborn touches her mother's abdomen, knees, and legs press into the abdomen in a massaging manner stimulates uterine contractions and therefore decreases the risk of postpartum hemorrhage.

Concerning the consistency of the uterus. The present study showed that almost the entire study group had firm uterus compared to less than three quarters of the control group.This study finding agreed with the study of Essa &Ismail (2015) [29], concluded that most of the study group had firm uterus in its consistency and the height of fundus was at or lower than the level of umbilicus than the control group. Similar findings have been reported in an earlier study carried out by Mejbel and Ali (2012) [33]. They concluded that there were significant differences between study and control groups in the third stage of labor assessment regarding hardness of uterus and height of fundus. The similarity between the previous studies and the finding of the present study may be attributed to the fact that the maternal newborn contact and the baby's first early attempts for breastfeeding stimulate the release of maternal oxytocin and strengthen the uterine contraction that helps firmness of the uterus.

The present study findings revealed that the duration of third stage of labor was shorter among the study group than among the control group. This finding was in line with Essa &Ismail (2015) [29], who concluded that the average duration of the third stage of labor among the study group was approximately 9 minutes shorter in the study group than in the control group. The study finding was also in harmony with study conducted by Emam & Abd Elhakm (2010) [34], They revealed that the average duration of the third stage of labor among both groups was approximately 7 minutes shorter in the study group than in the control group. The similarity between the previous studies and the finding of the present study may be stem from the fact that skin to skin contact during the third stage benefits the mothers, where massage of the breast by the baby induces a large oxytocin surge from the mother's pituitary gland into blood stream. Close emotional interaction also coupled with cutaneous, visual and auditory stimuli from the baby when placed in prone position in SSC also help oxytocin release. This oxytocin may

play a role in reducing the duration of third stage of labor, and promotes spontaneous and natural delivery of placenta.

Concerning total score level of mother's general knowledge regarding early initiation of breastfeeding; the present study showed that the majority of mothers had fair level of general knowledge regarding early initiation of breastfeeding This finding agreed with the study done by Jagadale et al., (2015) [35], they illustrated that the majority of mothers in their study had also fair level of knowledge regarding breastfeeding. In addition, the present study finding coincided with the study of Akinyinka et al., (2016) [36]. The similarity between the previous studies and the finding of the present study maybe due to most of mothers were primipara with no previous experience of early initiation of breastfeeding and didn't attend any antenatal classes about early initiation of breastfeeding.

According newborn breastfeeding tool, the findings of current study revealed that, there was significant difference in total score of suckling competence between the study and control group infants, This finding was in line the study done by Srivastava et al., (2015) [37], They observed that skin to skin contact contributed to better suckling competence as measured by IBAT score and more babies in the skin to skin contact group were exclusively breastfeeding at 6 weeks postpartum. A similar study conducted by Emam & Abd Elhakm (2010) [34]. They reported that early skin to skin contact between mother and her baby associated with higher successfulness of first breastfeeding in the study group compared to the control group according to the scores achieved by IBFAT scale. This finding was also in harmony with Moore et al., (2016) [38] . They reported that among skin to skin contact group the newborn demonstrated effective breastfeeding almost twice earlier at one month postpartum. Fortunately, the similarity between the previous studies and the finding of the present study is an excellent indicator that early SSC is an effective intervention that improves baby's suckling competence. This may be attributed to the fact that the first 2 hours post birth, is the optimal time for the infant to initiate breastfeeding showing behaviors like mouthing, lip smacking movements, hand to mouth activity and vocal cues. This period gives also an excellent opportunity to develop a reciprocal relationship between mother and her baby when kept together in an intimate skin to skin contact.

Regarding the time between delivery and first effective breastfeeding the present study findings showed that the time to

initiate first feed after birth was shorter among skin to skin contact group than among the control group, where the mean time was 33.76 ± 3.280minutes among the study group compared to 107.72 ± 26.5 minutes among the control group. Concerning the duration of first effective breastfeeding, the mean duration of the first effective breastfeeding was significantly longer among skin to skin contact group than among the control group. Parallel with these findings, Essa et al., (2015) [29] & Abd Elhakm et al., (2010)) [34] . They indicated that the period to start the initial breastfeeding after birth was short in the study group compared to the control group. Moreover, the duration of the initial breastfeeding in the study group was twenty minutes which means that it was three times more than the control group.

Concerning the number of newborn's trials to catch the breast before first effective breastfeeding. The present study showed that half of study group had no trials before their first effective breastfeeding compared to only 6% in the control group. From the researcher's point of view this result may be due to early maternal newborn skin to skin contact after birth improves the newborn's ability to suckle the breast, so it reduces the number of newborn's trials to catch the breast. Regarding the newborn's ending the first effective breastfeeding by himself. The present study illustrated that the majority of study group's newborn ended the first effective breastfeeding without any help compared to only 42% of the control group. This result was in line with Essa et al., (2015) [29] & Abd Elhakm et al., (2010) [34]. They reported that 88% of the study group's newborns ended the first breastfeeding by themselves compared to only 42% of the control group.

The findings of the current study revealed that the total score level of infant's successful latch on regarding infant's latch, audible swallowing, type of nipple, comfort, and hold were significantly good among the study group compared to the control group immediately after delivery, at one and at four months later. The current study finding of the increased latching on is consistent with the study of Essa et al., (2015) [29] and Svensson et al., (2013) [39]. They found that the latch breastfeeding charting system in their study group had higher score compared to the control group. They also concluded that to reduce future problems with latching on, a healthy neonate needs to remain in skin contact with the mother directly following delivery, and continuously, during postpartum residence. This will ensure that the infant will be capable of breastfeeding when breastfeeding reflexes are well

developed. The similarity between the previous studies and the finding of the present study reinforce the practice of early maternal newborn skin to skin contact immediately after birth for its beneficial effects on breastfeeding outcomes by improve breastfeeding latch on.

Concerning the continuation and discontinuation of breastfeeding after one and four months ,The results of the current study showed that early skin to skin contact had a significantly effect on the continuation of exclusive breastfeeding after one and after four month among the study group than the control group. The current study finding is similar to the Cochrane systemic review of Moore et al., (2016) [38], They found statistically significant and positive effects of early skin to skin contact in relation to breastfeeding duration within three months of age. The similarity between the previous studies and the result of the present study reinforce previous reports in the literature noted that continuous SSC during the first 2 hours of post birth significantly enhances the rate of breastfeeding initiation and continuation.

The findings of the current study revealed that the main reasons for discontinuation of breastfeeding after one and four months after delivery were due to breast problems, insufficient breast milk and/or that the baby refuses the breast. The present finding was consistent with the survey of Bolling et al., (2007) [40], they found that perceived inadequate supply of breast milk was the most common reason for cessation of breastfeeding between 1 week and 4 months. It is also similar to the study of Li et al., (2008) [41], They found that more than one half of mothers in their study reported that breast milk alone didn't satisfy the baby at one and six months.

World Health Organization (WHO) [42] emphasizes the importance of skin to skin contact between the mother and the newborn immediately after birth, as well as the initiation of breastfeeding within the first hour of birth. Encouraging mother participation in skin to skin contact interventions is a critical part of nurse's role. So, encouraging skin to skin contact among mothers and their newborns has great effect on providing better post-delivery care, promoting positive bonding, shorten the duration of the third stage of labor, increasing the duration of breastfeeding, and enhances the rate of breastfeeding initiation as well as encouraging continuation of exclusive breastfeeding.

Conclusion:

Based on the findings of the present study, it can be concluded that The skin to skin contact group had well contracted uterus,

less need for uterotonic drugs and no uterine atony or excessive blood loss have been recorded compared to the control group. Accordingly, the duration of third stage of labor was shorter among the skin to skin contact group than among the control group. Early maternal newborn skin to skin contact also was significantly provides early successful initiation and continuation of exclusive breastfeeding after one and after four month. Hence, it is concluded that the study findings evident that there is positive effect of early maternal newborn skin to skin contact after birth on the duration of third stage of labor and initiation of breastfeeding.

Recommendations

This study recommended that Refreshing courses, pre-service and in-service training programs based on evidence-based practice should be provided especially for newly appointed nurses working in the delivery room about the implementation of skin to skin contact method for all women and newborns.

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