

Effect of Skin to Skin Contact on Maternal and Neonatal Outcomes

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Abstract

Mother and newborn skin-to-skin contact after birth bring about numerous protective effects; however, it is an intervention that is underutilized. Early skin-to-skin contact at birth, as well as nursing, protects against the occurrence and severity of the disease. **Aim:** To evaluate the effect of skin-to-skin contact on maternal and neonatal outcomes. **Subjects and method: Design:** A quasi-experimental research design was used to achieve the study's aim. **Setting:** The study was conducted in the Obstetric department at Beni-Suef University Hospital. **Subjects:** A Non-probability purposive sampling of 100 mothers and their neonates was divided into two groups (50 samples each in control and experimental group). **Six tools were used:** Tool (1) structured interviewing questionnaire, it included three parts: (a) personal data of mothers; (b) mothers' clinical data sheet, and (c) neonate's data; Tool (2) APGAR newborn scoring chart, Tool (3) infant breastfeeding assessment tool (IBFAT), and Tool (4) LATCH scale, (5) modified maternal breastfeeding satisfaction evaluation scale (MBFES), and Tool (6): Observation checklist during the third stage of labor. **Results:** The results of the study revealed that majority of studied mothers in the experimental group and the control group had no previous knowledge about skin-to-skin contact at birth. Skin-to-skin contact between mother and neonates at birth has a positive effect on improving initiation of breastfeeding and improving quality of first breastfeeding in the experimental group. Skin-to-skin contact between mother and baby at birth had a statistically significant effect on maternal outcomes (duration of the third stage of labor, blood loss during the third stage of labor, and maternal satisfaction) as well as neonatal outcomes (initiation of breastfeeding, quality of first breastfeeding, and time of first breastfeeding) ($p < 0.05$) need results related to study variables. **Conclusion:** According to the findings, skin-to-skin contact between mothers and their babies at birth reduced the duration of the third stage of labor and blood loss during the third stage of labor, improved maternal satisfaction, breastfeeding initiation, quality of first breastfeeding, and time of first breastfeeding initiation. **Recommendations:** It is critical to emphasize health professional training to offer crucial infant care, including skin-to-skin contact. To ensure that all mothers realize the benefits of skin-to-skin contact and early breastfeeding initiation, community engagement is also required.

Keywords: Maternal and neonatal outcomes, Skin to skin contact.

Introduction:

The third stage of labor is a very important time in a woman's life. The first and second stages, which were previously unremarkable, can become anomalous in a matter of minutes, with disastrous effects. The women confront a variety of issues in the third stage, including hemorrhage, retained placenta, and uterine inversion. Hemorrhage was a prominent cause of maternal death around the world, with a global frequency of 6% (Ministry of Health and Family Welfare, 2019).

Skin-to-skin contact is defined as placing a nude child on its mother's bare skin, sometimes with a diaper or a hat on, with the infant's exposed side/back covered by a blanket or a towel. During Skin-to-skin contact moving

the infant's hands over the mother's breasts causes a rise in oxytocin secretion which leads to an increase in breast milk secretion (Jonas et al., 2017).

Skin-to-skin contact is a part of child-rearing that may appear straight forward to others, but it is regarded as an art by experienced moms. The attachment between the mother and her infant at the time of birth is positively influenced by skin-to-skin care and birth hormones. Oxytocin is a hormone that causes the uterus to contract and stimulates maternal feelings such as touching, gazing at, and wanting to breastfeed her infant after birth (Phillips, 2020).

Early skin-to-skin contact during the third stage of labor improves labor duration, placental separation completeness, immediate

uterine contraction, uterine position, blood loss, and woman satisfaction and preference for future deliveries. Furthermore, skin-to-skin contact at delivery, in combination with nursing, may protect against both the occurrence and severity of Haemorrhage. Lower hemorrhage rates have the potential to reduce maternal morbidity (Sumithra et al., 2019).

Skin-to-skin contact "SSC" is also known to aid neonatal temperature regulation, metabolic adaption, and glucose blood level maintenance after birth. Infants' ability to create heat is decreased, resulting in a quick drop in temperature. As a result, maintaining a consistent temperature is one of the most crucial needs of newborns. Heat is transferred from the mother to the newborn during SSC, when the mother's body temperature triggers the infant's sensory nerves, causing the infant to relax, reduce sympathetic nerve tone, dilate skin vessels, and raise its temperature (Price et al., 2015).

In developing nations, hypothermia during the newborn period is usually regarded as a major contributory cause of substantial illness and, at its worst, fatality. Hypothermia is common in nations with the greatest rates of neonatal mortality, and hypothermia is increasingly being recognized as a vital intervention for newborn survival (Essa & Ismail, 2015).

Significance of the study:

The maternal and neonatal mortality rates are as high as 84 cases per 100,000 live births and 23 cases per 1000 live births, respectively. There is a higher rate of death and morbidity. Hemorrhage is one of the leading causes of maternal death worldwide, with a reported frequency of 2–11%. Skin to skin contact help, particularly early suckling, can help avoid this. It increases mother-baby bonding, involution of the uterus to a pre-pregnant state, reduction of the risk of primary post-partum hemorrhage, and acts as a natural contraceptive (Shaker et al., 2019).

Furthermore, research has indicated that implementing such a practice will lower the occurrence of breastfeeding difficulties, which has been linked to poor child health. Despite

the fact that mother newborn skin-to-skin contact has been proven to be beneficial, it is still not practiced in Egyptian hospitals. Because there aren't enough studies on this practice and its impact at Beni-Suef University Hospitals, this study was carried out to encourage its use and evaluate the effect of skin-to-skin contact on maternal and newborn outcomes.

Aim of the study:

To evaluate the effect of skin to skin contact on maternal and neonatal outcomes

Research hypothesis:

- H1:** Mothers who practice early newborn skin to skin contact after birth will expect to experience short duration of third stage of labor compared to the control group.
- H2:** Mothers who practice early newborn skin to skin contact after birth will exhibit early successful initiation and exclusive breastfeeding more than those in the control group.

Subjects and Method:

Research design:

A quasi-experimental research design was used to achieve the study's aim.

Setting:

The study was conducted in the Obstetric department at Beni-Suef University Hospital. These settings were chosen because of the high prevalence of mothers in the selected setting, as well as the fact that it serves the most populous region of the country.

Subjects:

It consisted of a purposive sample of 100 mothers and their neonates were divided into two groups (50 samples each in control and experimental group).

Sample size:

Sample size was calculated based on a power analysis of $0.95(\beta=1-0.95=0.5)$ at $\alpha .05$ (one-sided) with large effect size (0.5) was used as the significance, 0.001 was used as the high significance.

Sampling technique:

A Non- probability purposive sampling was used.

Inclusion criteria

1. Mothers who are willing to join in this study.
2. Mothers undergoing normal delivery from 37 to 40 completed weeks of gestation.
3. Mothers with the age of 18years and above.
4. Mothers have a live fetus and desire to breastfeed the infant at birth.
5. Neonates with APGAR score more than 7.
6. Full-term (38 to 42 weeks of gestation)

Exclusion criteria

- 1- Mothers with a chronic disorder
- 2- Infant of mothers with gestational diabetes mellitus
- 3- Mothers with placenta previa
- 4- Neonates with meconium-stained amniotic fluid

Data collection tools:

Tool (1): Structured interviewing questionnaire, was developed by the researchers after reviewing the related literature and research studies; (Al-Morbaty et al., 2017; Safari, et al., 2018), it included three parts:

- (a) **Personal data of mothers** such as age, education level, residence, occupation, and previous mother' knowledge about skin to skin contact at birth
- (b) **Mothers' obstetric data:** It included data regarding parity, gestational age, and duration of the second stage of labor.
- (c) **Neonate's data;** it included data related to gender and weight of the baby.

Tool (2): APGAR newborn scoring chart, including APGAR score is taken as a screening tool for intervention. The maximum score is 10 and the minimum score is 0.

Tool (3): Infant Breastfeeding Assessment Tool (IBFAT), It was adopted from the

Infant breastfeeding assessment tool by **Matthews (1988)**, for assessing initiation of breastfeeding to get the baby feed, rooting, how long from placing baby on the breast to latch or suck and sucking pattern. The maximum score is 12 and the minimum score is 0.

Scoring system:

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.

Tool (4): LATCH scale: It was adopted from the LATCH assessment tool by **Jenson,Wallace & Kelsa (1994)**. Which is a composite score of 0-10 is possible, depending upon the identified criteria met in each of the key areas of breastfeeding for assessing the quality of first breast feeding by the latch, audible swallowing, type of nipple, comfort and hold. The maximum score is 10 and the minimum score is 0.

LATCH is a sensitive, reliable, and valid method for assessing breastfeeding skills based on observations and reports of effective nursing. The letters in the acronym LATCH stand for five different assessment parameters: "L" stands for how well the infant latches on to the breast, "A" stands for the amount of audible swallowing, "T" stands for the mother's nipple types, "C" stands for the mother's level of comfort, and "H" stands for the amount of support given to the mother to hold her infant to the breast. A numerical score of 0, 1, or 2 is assigned to each parameter. The LATCH scale was used to evaluate breastfeeding success in this study because it is a useful tool for mother-infant pairs who may benefit from additional skilled support to begin nursing.

If good latching was observed (grasps breast, tongue down, lips flanged, and rhythmic sucking), "1" if repeated attempts to hold the nipple in the mouth or stimulate to suck were observed, and "0" if bad latching (too drowsy or reluctant or no latching achieved) was observed. If audible swallowing occurred (spontaneous and intermittent 24 hold or

spontaneous and frequent > 24 hold), "1" if a few swallows occurred with stimulation, and "0" if ineffective swallowing occurred, the "A" evaluation was graded as "2." If an everted nipple was present (after stimulation), "1" if the nipple was flat, and "0" if the nipple was inverted, the "T" evaluation was rated as "2." The breast was given a "2" if it was soft and tender, and a "1" if it was filled or inflamed, had little blisters, or was bruised nipples. If the breast was engorged or if a crack occurred, the answer was "0." The 'H' assessment was scored as "2" if good positioning was achieved (staff or mother able to position/hold infant), "1" if only minimal assistance was required (i.e., elevate the head of the bed or place pillows for support), and "0" if full assistance was required (staff held the infant at the mother's breast). The total score runs from 0 to 10, with a higher number indicating more effective breastfeeding methods. Successful nursing is defined as a total score of higher than 7, while unsuccessful breastfeeding is defined as a total score of less than 7 (Lau et al., 2016).

Tool (5): Modified Maternal Breastfeeding Satisfaction Evaluation Scale (MBFES) (Parikh et al., 2018): This scale is used to assess maternal satisfaction with first breastfeeding. Modifications were done on parameters with permission from Ellen Leaf, who developed the tool.

Scoring system:

It consists of 9 items scored according to 5 response categories. The response scale has a range of 1 – 5 points. The total score is 45, the minimum score is 9.

Tool (6): Observation checklist during the third stage of labor: It was designed by the researcher for assessment of duration of the third stage of labor (in minutes), assessment of blood loss during the third stage of labor (in milliliter) by weighing perineal towels pre and post use in delivery field (1 gram = 1ml).

Validity of the tools:

Three professors assessed the tools' content validity, as well as their clarity, comprehensiveness, appropriateness, and relevance. The content validity of the tools and the instructional guideline were examined by

three experts in obstetric nursing. Changes were made based on the panel's judgment to ensure sentence clarity and content appropriateness.

Reliability of the tools:

Reliability was assessed by piloting & measuring the related Cronbach Alpha value. Tool one's reliability was 0.88, whereas tool two's dependability was 0.89, tool three's reliability was 0.85, tool four's reliability was 0.83, tool five's was 0.87, and tool six's was 0.87 according to the Cronbach's test.

Methods of data collection:

Filed work:

The data collection was conducted from the beginning of August 2020 to the end of January 2021. A total of 100 mothers and their babies were enrolled in the study. The researchers collected data from them two days a week from 9 A.m. to 1 P.m. during the morning shift (Sunday and Monday) within six months. Each interview took approximately 50-60 minutes to complete tools.

A pilot study:

A pilot study was conducted on 10% (10 mothers and their babies) of the total sample to test the clarity and feasibility of the research process. No modifications were carried out to develop the final form of the tools. Mothers and their babies who were in the pilot were excluded from the study.

Ethical considerations:

Official approval was done and obtained through an issued letter from the Dean of Faculty of Nursing, Beni-Suef University to conduct this study. The researcher arrived at the delivery room, confirmed the consent of the laboring woman and her relatives, and gained her presence permission from the person managing the birth. The researchers visited with the medical and nursing director of the chosen setting to explain the study's aim and obtain their agreement.

To gain mothers' cooperation, oral consent was acquired. To secure authorization for data collection, the purpose of the study was explained, as well as the expected outcomes

from its implementation. The mothers were advised that participation in the study was entirely optional, and they were free to decline. Mothers have the right to drop out of the study at any time and for no reason. Mothers were told that their data would be kept private and only utilized for research.

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 demographic and obstetric 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:

Active management of the third stage of labor was performed for all participants. This is composed of three steps: 1) administration of 10 IU synthetic oxytocin, immediately after the birth of the baby; 2) controlled cord traction to deliver the placenta; and 3) massage of the uterine fundus after the placenta is delivered. Duration of the third stage of labor started with the delivery of the fetus and ends with the complete delivery of the placenta.

The Apgar score was determined immediately after the umbilical cord was cut. The infants were provided with this routine care by the nurses working in the delivery room. After the infants were weighed, dressed, and measured, they were handed to their mothers who were encouraged to begin breastfeeding. With the assistance of the researcher, infants in the intervention group were placed undressed in a prone position against their mothers' bare chest between breasts immediately after birth and before placental delivery or suturing of tears or episiotomy. The Apgar score was determined, the infant's nose and mouth were suctioned while on the mother's chest, the infant was

dried, and both mother and infant were covered with a pre-warmed blanket. To prevent heat loss, the infant's head was covered with a dry cap that was replaced when it became damp. Dressing and measuring of the infant were postponed to one hour after the delivery.

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. Finally, infants were transferred to postnatal room and were allowed to suck mother's breast.

The experimental group: comprised 50 laboring women who were encouraged to provide early maternal and newborn skin to skin contact after giving birth to the experimental group immediately after normal vaginal delivery for 30 minutes after delivery. Data collection was performed by using personal and clinical data sheet, APGAR newborn scoring chart, observation checklist during the third stage of labor, infant breastfeeding assessment tool (IBFAT), LATCH scale, and modified maternal breastfeeding satisfaction evaluation scale (MBFES) within 90 minutes after normal vaginal delivery.

Newborn infants are placed in skin-to-skin contact with their mothers immediately after their birth for at least one hour, and mothers help to initiate breastfeeding within the first half-hour following the birth of their infants

Post-tests for the duration of the third stage of labor, blood loss during the third stage of labor, initiation of breastfeeding, quality of first breastfeeding, and maternal satisfaction were performed in the control and experimental group. The data were tabulated and analyzed using descriptive and inferential statistics.

Some of the mothers in the two groups asked the researcher for assistance in breastfeeding their newborns; therefore, the degree of assistance provided by the researcher was scored along with other parameters of the LATCH scale (latch, audible swallowing, nipple type, comfort).

The researcher monitored the infants while they were exhibiting feeding behaviors

such as mouthing, locking, latching, and suckling. Breastfeeding initiation time after birth and duration of the first breastfeed were recorded, and then the LATCH scale was used to assess the success of the first breastfeed in the two groups.

Administrative design:

Administrative permission was obtained through an issued letter from the Dean of Faculty of Nursing, Beni-Suef University to the directors of the Obstetric department affiliated with Beni-Suef Oncology Center to achieve this study.

c. Evaluation phase:

Reassessing the effect of the of skin to skin contact on maternal and neonatal outcomes was followed and carried out after 30 minutes by using pre and post the same tool (tool 2,3,4,5, and 6).

Statistical analysis:

Data entry and statistical analysis were performed using SPSS for Windows, version 20. Frequencies and percentages for quantitative variables and mean and SDs for qualitative variables were represented descriptive statistics. Chi-square (χ^2) test was used to compare qualitative parameters. Statistical significance was considered at P-value <0.05 .

Results:

Table (1): Showed that most of the mothers were aged $18 \leq 30$ years, both in the experimental (study) group (66%) and the control group (70 %). The experimental group (46%) and (60%) in the control had secondary education levels. in the experimental group (62%) of women were not working compared to the control group were (64%). Also, the same table pointed that (74%) of women in the experimental group and (72%) of the control group were from urban areas. There no statistically significant difference was found ($p>0.05$) between the experimental group and

control group variables regarding demographic data.

Figure (1): Illustrated that the majority (78% and 81%) of studied mothers in the experimental group and the control group had no previous knowledge about skin-to-skin contact at birth.

Table2 described the mothers' obstetric data of both groups. The majority of mothers (66% and 60%) in both groups were primipara. 44% of the experimental control group and 54% of the control group were in the gestational age of 39 weeks. 56% in the experimental group and 52% in the control group had the duration of the second stage of labor in between 31 – 60 minutes.

Table3 showed the babies' data of both groups. (66% and 70%) of them in both groups were male. Most of the newborns (68%) in the experimental group and (74%) in the control group had a birth weight of 2.5–3.5kg.

Table (4) represented the effectiveness of skin-to-skin contact at birth on maternal outcomes. It illustrated that skin-to-skin contact between mother and baby at birth has a positive effect on reducing the duration of the third stage of labor, reducing the amount of blood loss during the third stage of labor, and improving maternal satisfaction among mothers in the experimental group (p-value <0.05 level) with a statistically significant differences.

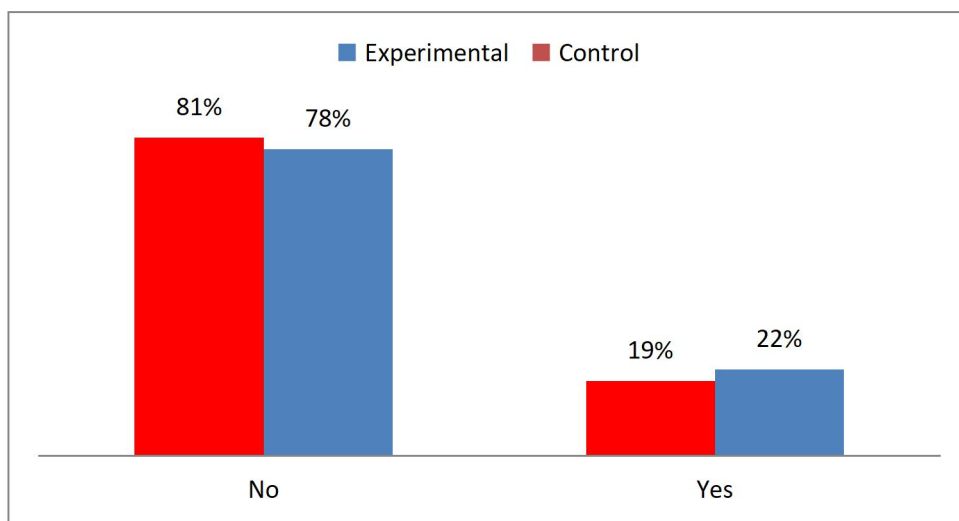
Table 5 showed the effectiveness of skin-to-skin contact at birth on neonatal outcomes. It shows that skin-to-skin contact between mother and neonates at birth has a positive effect on improving initiation of breastfeeding and improving quality of first breastfeeding in the experimental group (p-value <0.05 level) with a statistically significant differences.

Table 6: Indicated that, statistically significant differences were found between both groups regarding to successful breastfeeding.

Table (1): Distribution of the studied mothers in both groups regarding their data(n=100)

Item	Experimental (50)		Control group (50)		X2	p-value
	No.	%	No	%		
Women ' age in years						
18≤ 30 years	33	66	35	70	2.17	>0.05
30 ≤ 40 years	17	34	15	30		
Women ' education						
Illiterate	7	14.0	5	10	2.33	>0.05
Secondary	23	46.0	30	60		
Higher	20	40.0	15	30		
Occupation						
Working	19	38.0	18	36	2.45	>0.05
Not working	31	62.0	32	64		
Residence						
- Rural	13	26	14	28	2.63	>0.05
- Urban	37	74	36	72		

Not significance P-value >0.05

**Figure (1):** Distribution of the studied mothers in both groups regarding their previous knowledge about skin to skin contact at birth (n=100)**Table (2):** Distribution of the studied mothers in both groups regarding their obstetric data (n=100)

Item	Experimental (50)		Control group (50)		X2	P-value
	No.	%	No	%		
Parity						
Primipara	33	66	30	60	4.11	>0.05
Multipara	17	34	17	34		
Grandmultipara	0	0	3	6		
Gestationalage(Completedweeks)						
38	16	32	19	28	0.9	>0.05
39	22	44	27	54		
40	12	24	9	18		
Durationof2ndstageoflabor(Inminutes)						
15–30	3	6	4	8	4.19	>0.05
31–60	28	56	26	52		
61–90	19	38	20	40		

Not significance P-value >0.05

Table (3): Distribution of the studied babies in both groups regarding their demographic data (n=100)

Item	Experimental (50)		Control group (50)		X ²	p-value
	No.	%	No	%		
Gender						
Male	30	60	35	70	2.13	>0.05
Female	20	40	15	30		
Weight						
< 2.5 kg	13	26	4	8	5.03	>0.05
2.5 - 3.5 kg	34	68	37	74		
> 3.5 kg	3	6	9	18		

Not significance P-value >0.05

Table (4): Distribution of the studied mothers in both groups regarding the effectiveness of skin to skin contact at birth on maternal outcomes (n=100)

Item	Experimental(50)	Control group (50)	X ²	P-value
	No.	No		
Duration of the third stage of labor	28.89	42.34	13.040	0.0001*
Amount of blood loss during the third stage of labor	26.34	46.22	33.640	
Maternal satisfaction	54.45	19.56	48.530	

*Significant (P<0.05)

Table (5): Distribution of the studied babies in both groups regarding the effectiveness of skin to skin contact at birth on neonatal outcomes (n=100)

Item	Experimental (50)	Control group (50)	X ²	P-value
Initiation of breastfeeding	52.43	18.57	19.577	0.0001*
Quality of first breastfeeding	50.51	20.49	37.363	

Table 6: Correlation between demographic characteristics of the studied newborn and successful breast feeding

Newborn' demographic characteristics	Experimental group (50)	Control group (50)	Successful breast feeding	
			F	P-value
▪ Gender	11.76 ±3.32	7.87± 2.56	48.34	0.00
▪ Weight	11.85 ± 2.07	7.60± 2.02	48.33	0.00

* P-value <0.05----- statistically significance

Discussion:

The result of the present study revealed that skin-to-skin contact between mother and baby at birth has a positive effect on reducing the duration of the third stage of labor, reducing the amount of blood loss during the third stage of labor, and improving maternal satisfaction. From the researchers' point of view, this result reflected the positive effect and importance of skin-to-skin contact intervention for improving mothers' outcomes. Common third-stage labor-management approaches do not increase the generation of oxytocin by the mother or reduce catecholamine levels in the early minutes after

birth, both of which would improve the mother's contractions and so reduce her blood loss. This reflected also, that skin to skin is significant strategy for improving maternal satisfaction and reducing the amount of blood loss during the third stage of labor.

This result is supported by that of **Reshma et al., (2020)** who studied "Effectiveness of skin to skin contact between mother and baby at birth on maternal and neonatal outcomes among parturients" and found that there is a significant difference in post test scores of maternal outcomes after skin to skin contact between mother and their baby at birth.

Similarly, **Al-Morbaty, et al., (2017)** conducted a study about "The effect of mother and newborn early skin-to-skin contact on the duration of separation and expulsion of the placenta" in the delivery room at King Fahd Hospital of the University, Al Khobar, and Saudi Arabia and results illustrated that there was a significant positive effect of early skin-to-skin contact in shortening the duration of the placental delivery.

This finding is also, matched with **Sumithra et al., (2019)** who conducted a study at Government Ranees Hospital about "Effectiveness of Early Suckling on Third Stage Labour among Parturient Women" and found that early suckling was effective in reducing the duration of the third stage of labor and blood loss.

This finding agrees with a study by **Srivastava et al., (2014)** who did a study entitled "Effect of very early skin to skin contact on success at breastfeeding and preventing early hypothermia in neonates" and observed that skin to skin contact led to higher maternal satisfaction rates among women in the study group.

Similar findings were obtained in a study conducted by **Mejbel & Ali, (2015)** in Baghdad, Iraq, to investigate the efficiency of skin-to-skin contact on the duration of the third stage of labor.

The mean duration of the third stage of labor in the skin-to-skin contact group was substantially shorter than the usual care group in an Egyptian study of low-risk primiparous women who received either skin-to-skin contact or normal hospital care (Essa & Ismail, 2015).

The findings of this study are symmetrical with a study carried out by **Parikh et al., (2018)**, They reported that skin to skin contact in force faster contraction of uterus, lesser need for uterotonics and lesser blood loss. 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.

The result of the present study revealed that showed that skin to skin contact between mother and neonates at birth has a positive effect on improving initiation of breastfeeding and

improving the quality of first breastfeeding in the experimental group. From the researchers' point of view, this result indicated the critical need and importance of skin to skin contact intervention for improving neonates' outcomes.

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.

This result is matched with a study conducted by **Reshma et al., (2020)** who studied "Effectiveness of skin to skin contact between mother and baby at birth on maternal and neonatal outcomes among parturients" and noticed that skin to skin contact between mother and baby at birth had good effects on neonatal outcomes

Similar results were reported by **Parikh et al., (2018)** who studied "Effect of early maternal newborn skin to skin contact in labor room on the third stage of labor and success at breastfeeding" and revealed that breastfeeding was initiated within 30 minutes of birth among the majority of women in the study group.

Also, the result is in the line with **Safari et al., (2018)** who studied "The effect of mother and newborn early skin-to-skin contact on initiation of breastfeeding, newborn temperature and duration of the third stage of labor" who found mothers who received skin-to-skin contact had successful breastfeeding.

Similar findings have been described by **Aghdas et al., (2014)** who studied "Effect of immediate and continuous mother-infant skin-to-skin contact on breastfeeding self-efficacy of primiparous women: a randomized control trial"

According to the American College of Nurse-Midwives, skin-to-skin contact aids newborns with smelling and finding the nipple, allowing them to commence breastfeeding more quickly and successfully (**American College of**

Nurse-Midwives, 2019). This is due to the high amounts of catecholamine in the infant's nose shortly after birth, which renders the olfactory bulbs very sensitive to odor cues (**Righard & Alade, 2020).**

Early contact enhanced breastfeeding initiation and duration in newborns, according to research conducted by **Moore and Anderson, (2017)** in the United States.

Breastfeeding at an early age stimulates breast milk production, provides antibody protection for the newborn and determines the success of breastfeeding establishment, duration, and neonatal mortality risk (**Takahashi et al., 2017).** **Essa & Ismail, (2015)** also, observed that the skin-to-skin contact and control groups had statistically different rates of first breastfeeding success.

Results of the current study indicated that, statistically significant differences were found between both groups regarding to successful breastfeeding. This may be related to immediate skin-to-skin contact may increase the success rate of breastfeeding initiation, decrease time to the first breastfeeding, prevent the use of formulas for neonatal feeding, enhance bonding and maternal well-being (**Stevens et al., 2014).**

World Health Organization, 2019 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 this study, it was concluded that skin to skin contact between mother and their neonates at birth affected reducing the duration of the third stage of labor and blood loss during the third stage of labor, improving maternal satisfaction, initiation of breastfeeding, first breastfeeding and time of

initiation of first breastfeeding among mothers in the experimental group.

Recommendations

Based on the findings of the current study, it was recommended that:

- In-service training programs based on evidence-based practice should be provided especially for newly mothers about skin-to-skin contact immediately after birth.
- It is critical to emphasize health professional training to offer crucial infant care, including skin-to-skin contact. To ensure that all mothers realize the benefits of skin-to-skin contact and early breastfeeding initiation, community engagement is also required.
- Continuous education and training programs should be provided for mothers on how to implement skin-to-skin contact.
- Further studies should be replicated among a large number of mothers undergoing cesareansection.

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