Effect of the Standard Breast Crawl Technique on Initiation of Breastfeeding and Maternal Outcomes

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Abstract

Background: The standard technique of the breast crawl proves to be the most efficient method for facilitating the enhancement of immediate and long-term success in breastfeeding, while also promoting a multitude of protective benefits for both the mother and the baby. **Aim:** was to examine the effect of the standard breast crawl technique on initiation of breastfeeding and maternal outcomes. **Research design & setting:** A quasi-experimental design was adopted at Fayoum General Hospital, El-Fayoum Governorate, Egypt. **Subjects:** A purposive sample of 110 parturient women was recruited based on the specified criteria. **Tools:** Four tools were used, a structured interview questionnaire, clinical observational sheet, measurement of PPH by measured amount of blood loss, and modified LATCH breastfeeding assessment tool. **Results:** A significant decline in the mean duration of the third stage of labor (14.2 ±5.9 min) and time taken to initiate breastfeeding (12.7 ±6.2 min) for the study group, compared to (20.0 ±6.4 min & 62.2 ±20.1min) correspondingly for the control group. Moreover, the majority of the study group had mild amounts of blood loss and good initiation of breastfeeding. **Conclusion:** The findings concluded that standard breast crawl significantly shortened the duration of the third stage of labor with spontaneous separation of the placenta, maintained firmness of uterine consistency as well as mild amount of blood loss during the early post-partum period, and enhanced good initiation of breastfeeding. **Recommendations:** It is suggested that the standard breast crawl procedure should be included in the written policies of all baby-friendly hospitals and be strictly followed to the best of their ability.

Keywords: The Standard Breast Crawl technique, Initiation of Breastfeeding, Maternal Outcomes.

Introduction

Childbirth refers to the culmination of pregnancy, wherein the fetus, membranes, umbilical cord, and placenta are expelled from the uterus either through vaginal delivery or cesarean section. Vaginal delivery stands as the most prevalent method of childbirth worldwide **(Milton, 2024).**

The process entails four distinct stages of labor, including the initial stage characterized by the shortening and opening of the cervix, the subsequent stage involving the descent and birth of the fetus, the third stage marked by the complete delivery of the placenta and its attached membranes, and the final stage encompassing the recovery of both the mother and the infant **(Martin, 2015; Columbia University, 2016; Milton, 2024).**

Upon the expulsion of the child, the uterine cavity experiences a significant size reduction. Consequently, the site to which the placenta is attached undergoes a noticeable decrease in size, resulting in the separation of the placenta from the uterine lining in multiple locations. In a matter of minutes, subsequent uterine contractions aid in the complete separation of the placenta, propelling it into the vagina where it is discharged through a bearing-down effort **(Thomas, 2019; Belleza, 2023).**

The third stage of labor typically lasts for 5-15 minutes, with a maximum duration of 30 minutes, and the amount of blood loss during this stage always ranges from 100 to 250 cc where the total amount of blood loss shouldn't exceed 500 ml following a vaginal delivery or 1000 mL following cesarean delivery during the early postpartum period. Any delay or failure in the separation of the placenta as a unified entity may lead to the opening of uterine blood sinuses and subsequent complications such as postpartum hemorrhage, retained placenta, and inversion of the uterus. These complications can contribute to increased rates of mortality and morbidity **(Güngördük**

et al., 2018; Thomas, 2019; Alemu et al., 2019; Smith, 2020; Belleza, 2023).

Early initiation of breastfeeding (EIBF) refers to the act of providing infants with their mothers' breast milk within the initial sixty minutes following delivery, thereby guaranteeing that the newborn receives colostrum. EIBF holds significant importance as it guarantees the provision of colostrum to the infant, a yellow fluid that contains vital nutrients and antibodies serving as both the initial source of nourishment and the primary immunization for the newborn **(Vijayalakshmi, 2018; World Health Organization [WHO], 2019).**

EIBF confers many advantages upon both the mother and the infant. It serves as a protective measure against infection acquisition in newborns, thereby reducing newborn mortality rates Moreover; EIBF plays a crucial role in enhancing cognitive development and decreasing the risk of developing non-communicable diseases and obesity later in life **(Mugadza et al., 2018; World Health Organization [WHO], 2023).**

The standard breast crawl technique involves immediately placing the newborn on the mother's chest or abdomen after birth. Through the use of limb movements, the newborn is able to independently propel themselves towards the nipple, identify it, and initiate breastfeeding without any external assistance. This entire process typically takes a maximum of 60 minutes for the first breastfeeding session **(Sharma, 2017; Ozdemir, 2021; Rana & Swain, 2023).**

It encompasses a range of sensory, motor, olfactory, and neuron-endocrine inputs that contribute to the infant's movement and enhance their chances of survival in the new environment. It commences with an initial phase of awakening, followed by an active phase characterized by limb movements, rooting behavior, and visual engagement with the maternal visage. Subsequently, a crawling phase ensues, accompanied by the emission of soliciting sounds. This is followed by a phase of familiarization, where the infant licks the areola, and culminates in the suckling phase before entering a sleeping phase **(Tripathy et al., 2017).**

The standard breast crawl technique offers numerous advantages for the mother and her newborn, including the promotion of early breastfeeding initiation, the facilitation of uterine contractions that lead to the release of the placenta and the closure of blood vessels, a decrease in the amount of blood loss, prevention of anemia, promotion of uterine involution to reduce the risk of primary postpartum hemorrhage, a lower risk of postpartum depression, and reduced pain during the suturing of the episiotomy as the mother's focus is diverted towards the newborn **(Christena, 2018; Pang et al., 2020).**

Additionally, this technique assists in regulating the newborn's body temperature and blood sugar levels, facilitates the development of the newborn's nervous system, improves early sucking and rooting reflexes, and fosters a strong bond between the mother and baby, resulting in reduced crying among these infants, emotional stability tend to face a reduced likelihood of being abandoned. Furthermore, this quality contributes to an overall enhancement in the health and well-being of both the mother and her newborn **(Christena, 2018; Pang et al., 2020).**

Nurses possess the capability to fulfill a significant role during the third stage of labor as well as the early postpartum period. This includes executing the administration of oxytocin by the directives provided by the attending physician after the delivery of the fetus. Additionally, they perform the act of late cord clamping, which is typically carried out within a time frame of 1 to 3 minutes after birth. In cases where the neonate is experiencing asphyxiation and immediate resuscitation is required, early cord clamping, occurring less than one minute after birth is conducted **(Mwakawanga & Mselle, 2020).**

To foster the early initiation of breastfeeding and the expulsion of the placenta, nurses are encouraged to employ the standard breast crawl technique. Furthermore, they employ controlled cord traction, supported by uterine assistance, to facilitate the delivery of the placenta. To ensure completeness, the examination of the placenta and membranes is conducted. Synthetic suture materials that are absorbable are utilized for the primary repair of episiotomy or perineal lacerations. Vital signs are duly recorded, and an assessment of the fundal level, consistency, position, and shape of the uterus is performed. In the event of uterine atony, a slight uterine massage is conducted. Moreover, the amount and consistency of blood loss are examined. Nurses also encourage mothers to regularly evacuate the

urinary bladder, as this promotes uterine involution. Lastly, mothers are encouraged to engage in early ambulation **(Belleza, 2023).**

Significance of the study, the standard breast crawl is regarded as the most inherent, impromptu, coherent, and uncomplicated approach to advancing the initiation of breastfeeding and enhancing the health and welfare of both the mother and the newborn. Additionally, the consciousness and practicability of the breast crawl pose a significant obstacle due to the lack of definitive instructions and procedures about the act of breast crawling. Furthermore, it is not a customary practice in all healthcare establishments. During the third stage of labor and the early postpartum period, numerous complications can arise. Among these complications, postpartum hemorrhage is the most prevalent. It is crucial to note that postpartum hemorrhage is the primary cause of maternal mortality, leading to approximately 70,000 deaths worldwide annually. Additionally, it is estimated that around 14 million women experience postpartum hemorrhage. It is worth mentioning that postpartum hemorrhage accounts for 20% of all maternal deaths in Egypt. The standard breast crawl can decrease the amount of blood loss and reduce the risk of primary postpartum hemorrhage **(Vlassoff et al., 2016; World Health Organization [WHO], 2023).**

The initiation of breastfeeding diminishes post-perinatal infant mortality by a varying range of 19% to 26%, thus preserving the lives of 1.3 million children annually. It has been observed that delaying the initiation of breastfeeding beyond the initial hour of birth elevates the risk of neonatal mortality twofold. Globally, in the first month of life, 2.3 million infants perished in the year 2021, the majority of which transpired within the first week. Daily, there are approximately 6,400 fatalities among neonates. Sub-Saharan Africa holds the highest neonatal mortality rate worldwide, with 27 deaths occurring per 1000 live births, encompassing 43% of global newborn deaths. Similarly, the current infant mortality rate for Egypt in 2023 is documented as 13.166 deaths per 1000 live births and In 2021, the neonatal mortality rate for Egypt was 10 deaths per 1,000 live births **(Khan et al., 2015; World Health Organization [WHO], 2022; United Nations International Children's Emergency Fund [UNICEF], 2023; Ware et al., 2023; Macrotrends, 2024).**

Therefore, this study was conducted to determine effect of the standard breast crawl technique on initiation of breastfeeding and maternal outcome. The findings of the present study have the potential to offer substantiation that assistance contributes to the advancement of the initiation of breastfeeding and enhances the well-being of mothers.

Aim of the study:

Was to examine the effect of the standard breast crawl technique on initiation of breastfeeding and maternal outcomes.

Hypotheses:

To reach the aim of this study, the following hypotheses were formulated

- Parturient women who experience the standard breast crawl technique have a better initiation of breastfeeding than those who don't.
- Parturient women who experience the standard breast crawl technique show better maternal outcomes than those who don't.

Operational definition:

Maternal outcomes: In this study will include various factors such as the duration of the third stage of labor, method of placental delivery, uterine involution, time taken to initiate breastfeeding, and amount of blood loss.

Materials and method

Materials

Research design:

A quasi-experimental design, known as the posttest non-equivalent control group design, was adopted in the present study to investigate the effect of the standard breast crawl technique on initiation of breastfeeding and maternal outcomes. A quasi-experimental design can be characterized as a type of research design that shares similarities with experimental research, albeit not meeting the criteria for true experimental research. The nonequivalent groups design, a form of between-subjects design, does not involve the random assignment of participants to different conditions. Within a posttest design, the two dependent variables of initiation of breastfeeding and maternal outcomes were assessed once subsequent to the implementation of the standard breast crawl technique.

Settings:

This study was conducted at the labor, delivery, and postpartum unit at Fayoum General

Hospital, El-Fayoum Governorate, Egypt. This setting was predicated upon its status as the primary university-affiliated medical facility in El-Fayoum Governorate, which comprises a comprehensive range of obstetrical and gynecological services, as well as a substantial influx of parturient women. This deliberate choice of setting facilitates the researcher's ability to capture a representative sample size.

Subjects:

A purposive sample of 110 parturient women was recruited based on the specified inclusion criteria such as women with full-term pregnancy (37–42 weeks) have a singleton viable fetus with the cephalic presentation, normal pregnancy, normal vaginal delivery, and women taken during labor, as well as early postpartum period. Otherwise, parturient women were excluded from this study with the following criteria as suffering from any medical, obstetric, or gynecological risk factors and /or conditions, have nipple abnormalities; newborns who have Apgar sore less than 7 and have any congenital abnormities that can affect breastfeeding.

The statistical program Epi info 7 was employed to compute the sample size by employing the subsequent parameters: population size= 150/ month, expected frequency= 50%, acceptable error= 5%, confidence coefficient= 95%, and minimal sample size= 108. The final sample size was 110 for a potential normal response. Subsequently, the chosen participants were split, equally and randomly into the study group and the control group:

- The study group was composed of 55 parturient women who experienced the standard breast crawl technique
- The control group was composed of 55 parturient women who got routine hospital care.

Tools:

Four tools were employed to gather data.

Tool (I): A structured interview questionnaire:

This tool was developed and created by the researcher and consisted of two sections, based on a thorough analysis of current and pertinent literature to gather the following data:

First section is demographic data encompassing a variety of factors, such as age, marital status, level of education, occupation, family type, and residence. **Second section** is obstetric history encompassing gravidity, parity, and number of abortions in addition to inquiries concerning the current pregnancy, like the desired/planned pregnancy and the gestational age in weeks.

Tool (II): Clinical observational sheet:

This tool was employed and created after doing a thorough analysis of current and pertinent literature. It included five parts:

First part, determine the duration of the first stage of the labor in an hour and, the duration of the second stage of the labor in minutes. **Second part,** the determination of the duration of the expulsion of the placenta during the third stage of labor, was computed using the amount of time from soon after the baby's delivery until the placenta and membrane completely separated and also assessed the method of placental delivery. **Third part,** determines the amount of blood loss during the third stage of labor using the BRASS-V drape. **Fourth part,** assess uterine involution through assessment of the presence of uterine contractions, fundal level, consistency of uterus, and augmentation of uterine contractions. **Fifth part,** evaluate the time taken to initiate breastfeeding in minutes. **Sixth part,** assess the vital signs of the mother.

Tool (III): Measurement of postpartum hemorrhage (PPH) by measured amount of blood loss:

This tool was adopted and used by the researcher to measure the amount of blood loss during the early postpartum period for measuring PPH. It included measuring the amount of blood loss by applying a new clean pad and then observing the amount of blood stain in the peripad and recorded based on Jacobson (1985) as the amount of blood loss was described as scant, small, moderate, and large, if the peripad blood stain was 10 to 25 ml this indicated to mild amount; if the peripad blood stain was 25 to 50 ml this indicated to moderate amount, if the peripad blood stain was 50 to 80 ml this indicated to sever amount.

Tool (VI): The modified LATCH breastfeeding assessment tool:

It was developed by Jensen et al. (1994). It was adopted and used by the researcher to assess the immediate initiation of breastfeeding**.** This tool included five components: assistance, attachment (oral muscular tone), sucking and

swallowing (sucking efficiency and maturity), breast drainage, and length of feed (the amount of time spent at the breast for nutritive sucking). A score of [0, 1, or 2] is assigned to each item.

The total score ranged from 0-10 as follows:

- Worst or not able to initiate breastfeeding through the standard breast crawl technique (0 - 3)
- Better or need assistance to initiate breastfeeding through the standard breast crawl technique (4 - 6)
- Good or actively initiated breastfeeding through the standard breast crawl technique (7 - 10)

Validity and reliability of the tools:

A jury of three specialists in the field of maternal and neonatal health nursing evaluated the tools to ensure their content validity, and any necessary adjustments were made. The reliability of tools (III) and (VI) was assessed using Cronbach's alpha value (internal consistency), and the results showed that tool (III) (0.896) and tool (VI) (0.901) were dependable.

Ethical consideration:

Official permission was obtained from the Committee of Ethics Scientific Research at the Faculty of Nursing at El-Fayoum University for the validation of the tools and the study. Moreover, parturient women provided their written informed consent prior to any data collection, subsequent to being briefed on the study's objectives and significance. The researcher emphasized that participation in the study was voluntary, with the option to withdraw at any point without the obligation of providing justification. They were assured of the confidentiality of their identity, their right to privacy, and the safeguarding of the information collected.

Pilot study:

A pilot study was carried out on 11 parturient women who were not included in the study sample. It was done to determine the tools' suitability and clarity as well as to gauge how long it would take to gather the data. The required adjustments were made following the pilot investigation.

Method

The study was completed in accordance with the subsequent phases:

Preparatory phase:

- Tools (I) & (II) were developed and created by the researcher after doing a thorough analysis of current and pertinent literature. Tools (III) & (VI) were adopted and used for data collection.
- Approval from the vice dean of graduate studies and research at El-Fayoum University's Faculty of Nursing filed an official letter to the relevant authorities in the study sites requesting their consent for data collection after outlining the purpose of the study.

Assessment phase:

- At the labor unit, the parturient women were initially encountered by the researchers during the first stage of labor. The researchers introduced themself and described the study's title and goal. Then, to complete tool (I), the researchers conducted individual interviews with each parturient woman. The duration of completion of the interview varied from 10-15 minutes on average, depending on the level of understanding and responsiveness of the questionnaire.
- The sample was divided into two groups, the control group and the study group. The control group began and finished earlier than the study group.

Implementation phase:

- Data was gathered over five months, starting in October and ending in February 2023.
- For control group followed the routine hospital care (separating the baby from the mother soon after delivery to do immediate care of the newborn then bringing the baby to the mother when arrived in the postpartum ward to start breastfeeding).
- The researchers personally met with each parturient woman in the delivery room to make sure the setting was clean and at a suitable temperature.
- For the study group, immediately following the baby's birth, the researchers began using the standard breast crawl technique. Once the infant

had stopped crying and they had monitored it for any unusual complications, they dried the baby (except from his hands) with a gentle cotton cloth.

- Steps of the standard breast crawl technique: **(Sharma, 2017; Rana & Swain, 2023)**

  After the baby was placed on the mother's belly, it was permitted to crawl around to locate the nipple for rooting, sucking, and suckling, and help was given if necessary. The newborn is placed in the prone position, face down, such that its toes touch the mother's uterus on one side of her abdomen. Then use a dry, light warm cloth to cover the newborn and mother together to ensure skin-to-skin contact. In addition, instruct the mother to hold the baby with both hands to prevent the newborn from slipping. For the initial breastfeeding, the breast crawl was applied for a maximum of sixty minutes.

- The researchers quantified the amount of blood loss immediately after delivery of the newborn using the BRASS-V drape, equipped with a 2500 ml calibrated and tapered reservoir, along with a malleable filter to strain out non-sanguineous elements. This drape is integrated into a polymeric sheet positioned beneath the parturient's gluteal region and fastened around her midsection, with the tapered section suspended between her lower limbs. Due to its unavailability as a standard tool for evaluating blood loss in the third stage of labor at the research site, the BRASS-V drape was procured through the researchers' funding. The measured amount of blood loss was during the early postpartum period by applying a new clean pad and then observing the amount of blood stain in the peripad and recording based on Jacobson (1985).

Evaluation phase:

- The researchers evaluated the duration of complete separation of the placenta and membrane and the method of placental delivery by tool (II).
- The researchers assessed the amount of blood loss immediately after delivery of the newborn by tool (II) and during the early postpartum period by tool (III).
- The researchers conducted palpation of the maternal abdomen to evaluate the involution of the uterus by assessing the occurrence of uterine contractions after the delivery of the newborn, as well as by evaluating the fundal level and consistency of the uterus following the delivery of the placenta. They also investigated whether the augmentation of uterine contractions was performed by tool (II).
- The researchers assessed the initiation of breastfeeding by the tool (VI) and evaluated the effect of the standard breast crawl technique on initiation of breastfeeding and maternal outcomes by comparing the score of initiation of breastfeeding and maternal outcomes between the study and control groups.

Statistical analysis:

For all statistical studies, SPSS for Windows version 26 was used. The continuous data were presented as mean ± standard deviation (SD) and had a normal distribution. Numbers and percentages were used to express categorical data. The chi-square test was utilized to compare variables with categorical data. At $p<0.05$, statistical significance was established.

Results:

Table (1) displays the distribution of parturient women in control and study groups according to their demographic characteristics**.** It was found that 52.7% & 47.3% of the control and the study groups respectively were aged between 25-35 years with a mean age (26.7 ±5.7 & 26.3 ±5.9) years respectively. Regarding their marital status, almost all of both the latter and former groups correspondingly (96.4% & 98.2%) were married. According to studied women's occupations, 61.8% of the control group and 52.7% of the study group were housewives. In addition, their level of education, 14.5% % & 16.4% of the control and study groups correspondingly can read & write as well as 49.1% & 34.5% of them respectively had secondary education. Moreover, 54.5% & 60.0% of the latter and former groups respectively had extended families, and 58.2% & 60.0% of the control and study groups correspondingly lived in a rural area. Finally, no statistically significant differences were found between the two groups' socio-demographic characteristics.

Table (2) illustrates the distribution of parturient women in control and study groups according to their obstetric history. It was observed that 36.4 % & 43.6% of the latter and former groups respectively had two pregnancies but, the vast majority of both groups had no abortion. Also, the latter and former groups (36.5% & 40.7%) respectively had two previous deliveries. Moreover, studied parturient women whose gestational age was 39-40 weeks were 56.4 % and 52.7% for the control and study groups correspondingly. Regarding their pregnancy planning, almost all of the two groups (94.5% & 98.2%) respectively had planned pregnancy. No statistically significant differences were found between the control and study groups according to their obstetric history.

Table (3) manifests the distribution of outcomes of parturient women in study and control groups. The mean duration of the third stage of labor was 14.2 ±5.9 min for the study group, compared to 20.0 ±6.4 min for the control group. It was shown that almost all control and study groups (96.4% & 98.2%) respectively had spontaneous placental delivery. Also**,** 90.9% of the control group and 98.2 % of the study group had uterine contractions after delivery of the newborn. Moreover, augmentation of uterine contractions was executed for 10.9% of the latter group, compared to 1.8% of the former group. In addition, the consistency of the uterus was firm after delivery of the placenta among the entire study group and 98.2% of the control group. Furthermore, there was a highly statistically significant difference between the two groups (P=<0.001) according to the amount of blood loss during the third stage of labor where the mean amount of blood loss was 178.6 ±23.1ml for the study group, compared to 238.3 ±44.6 ml for the control group. The table also showed that the fundal level after delivery of the placenta was at the level of umbilicus among 81.8% of the study group, compared to 70.9% of the control group. The mean time taken to initiate breastfeeding was12.7 ±6.2 min for the former group, compared to 62.2 ±20.1min for the latter group. Finally, there were statistically significant differences between the control and study groups regarding the duration of the third stage of labor, fundal level after delivery of the placenta, and time taken to initiate breastfeeding, where (P<0.001).

Figure (1) shows the distribution of parturient women according to vital signs during the early postpartum period. It was found that the mean temperature was 37.1 ±0.3 ºC & 37.3 ±0.4ºC for the former and latter groups respectively; the mean pulse was 83.1 ±6.5 b/m & 85.8 ±7.1b/m for both groups respectively; the mean of blood pressure was 121.5 ±4.9 mm Hg & 123.6 ±5.2mm Hg for them respectively and the mean respiration was 18.9 ±2.1 breaths/m & 19.9 ±2.8 breaths/m correspondingly. There were statistically significant differences between the control and study groups regarding temperature (p= 0.004).

Figure (2) reveals the distribution of parturient women in control and study groups according to the amount of blood loss during the early postpartum period. It was obvious that 89.1% of the study group had mild amounts of blood loss, compared to 45.5% of the control group. Therefore, a highly statistically significant difference was found between the two groups, where (P<0.001).

Table (4) demonstrates the distribution of the parturient women in control and study groups according to their initiation of breastfeeding using a modified LATCH scale. The initiation of breastfeeding was observed to be good among 89.1% of the former group, compared to 1.8% of the latter group. On the other hand, it was worst among 52.7% of the control group, compared to none of the study group. Therefore, the difference between the two groups was found to be highly statistically significant, where (P<0.001).

Table 1. Distribution of Parturient Women in Control and Study Groups According to Their Demographic Characteristics N=110.

demographic characteristics	Control group (n=55)		Study group (n=55)		Chi – Square test	
	Frequency	%	Frequency	%	X^2	P
Age (Years)						
< 25	22	40.0	23	41.8		
25 – 35	29	52.7	26	47.3		
> 35	4	7.3	6	10.9	0.586	0.746
Mean ±SD	26.7 ±5.7		26.3 ±5.9			
Marital status						
Married	53	96.4	54	98.2		
Divorced	1	1.8	1	1.8		
Widowed	1	1.8	0	0	1.009	0.603
Occupation						
Housewife	34	61.8	29	52.7		
Working	21	38.2	26	47.3	0.929	0.335
Educational Level						
Read &write	8	14.5	9	16.4		
Primary	14	25.5	20	36.4		
Secondary	27	49.1	19	34.5		
University or Higher	6	10.9	7	12.7	2.586	0.460
Family type						
Nuclear	25	45.5	22	40.0		
Extended	30	54.5	33	60.0	0.334	0.563
Residence						
Rural	32	58.2	33	60.0		
Urban	23	41.8	22	40.0	0.038	0.846

Table 2. Distribution of Parturient Women in Control and Study Groups According to Their Obstetric History N=110

Obstetric history	Control group (n=55)		Study group (n=55)		Chi – Square test	
	Frequency	%	Frequency	%	X^2	P
Gravidity						
One	11	20.0	11	20.0		
Two	20	36.4	24	43.6		
Three	12	21.8	8	14.5		
Four or more	12	21.8	12	21.8	1.164	0.762
Number of Abortions						
None	52	94.5	54	98.2		
Once	3	5.5	1	1.8	1.037	0.308
Parity	**(n=52)**		**(n=54)**			
One	14	26.9	14	25.9		
Two	19	36.5	22	40.7		
Three	10	19.2	8	14.8		
Four or more	9	17.3	10	18.5	0.456	0.928
Gestational age in weeks						
37 – 38	24	43.6	26	47.3		
39 – 40	31	56.4	29	52.7	0.147	0.702
Current pregnancy planning						
Planned	52	94.5	54	98.2		
Unplanned	3	5.5	1	1.8	1.037	0.308

Table 3. Distribution Outcomes of Parturient Women in Study and Control Groups N=110

Clinical Observations	Control group (n=55)		Study group (n=55)		Chi – Square test	
	Frequency	%	Frequency	%	X^2	P
Duration of the first stage of labor (hr)	15.0 ±2.4		14.8 ±2.4		0.565	0.573
Duration of the second stage of labor (min)	31.7 ±6.2		29.5 ±8.0		1.612	0.109
Duration of third stage of labor (min)	20.0 ±6.4		14.2 ±5.9		4.959	<0.001**
Method of placental delivery						
Spontaneous	53	96.4	54	98.2		
Manual	2	3.6	1	1.8	0.342	0.558
Presence of uterine contractions after delivery of the newborn						
Yes	50	90.9	54	98.2		
No	5	9.1	1	1.8	2.820	0.093
Augmentation of uterine contractions						
Yes	6	10.9	1	1.8		
No	49	89.1	54	98.2	3.814	0.051
Consistency of the uterus						
Firm	54	98.2	55	100.0		
Soft	1	1.8	0	0.0	1.009	0.315
Amount of blood loss during third stage of labor by BRASS-V drape	238.3 ±44.6		178.6 ±23.1		8.814	<0.001**
Fundal level after delivery of the placenta						
At the level of umbilicus	39	70.9	45	81.8		
One finger below umbilicus	2	3.6	10	18.2		
One finger above umbilicus	14	25.5	0	0.0	19.761	<0.001**
Time taken to initiate breast feeding (min)	62.2 ±20.1		12.7 ±6.2		17.423	<0.001**

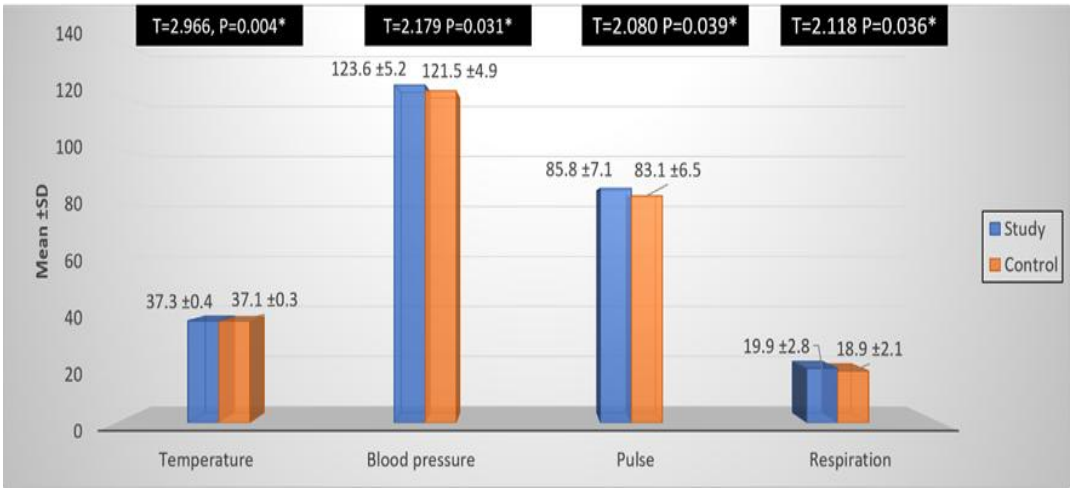

Figure 1. Distribution of Parturient Women in Control and Study Groups According to Vital Signs during Early Postpartum Period (N=110)

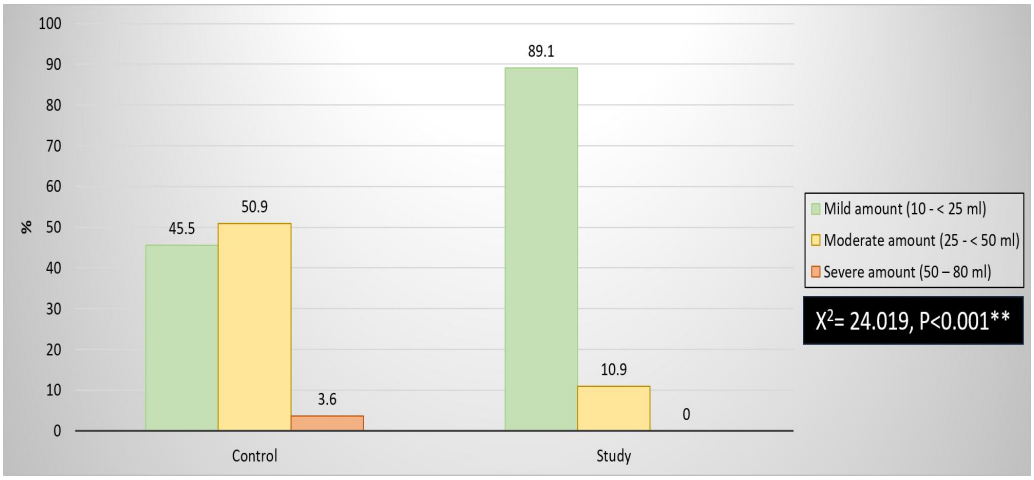

Figure 2. Distribution of Parturient Women in Control and Study Groups According to Amount of Blood loss during Early Postpartum Period (N=110)

Table 4. Distribution of The Parturient Women in Control and Study Groups According to Their Initiation of Breastfeeding Using Modified LATCH scale (N=110)

Initiation of breastfeeding	Control group (n=55)		Study group (n=55)		Chi – Square test	
	Frequency	%	Frequency	%	X^2	P
Worst (0 – 3)	29	52.7	0	0.0		
Better (4 – 6)	25	45.5	6	10.9		
Good (7 – 10)	1	1.8	49	89.1	86.725	<0.001**

Discussion

Early breast crawling gives a positive outcome and acts as a super natural power for both mother and newborn. The standard breast crawl technique, which is both innovative and readily accessible, serves as a remarkable means to initiate breastfeeding in a natural manner. This technique does not require extensive preparation or instructions, and it can be performed in all birth settings and units. Nevertheless, it is not universally practiced in all healthcare facilities **(Berde & Yalcin, 2016)**. So the present study determined the effect of the standard breast crawl technique on the initiation of breast feeding and maternal outcomes.

Consistent with the current study, it was reported that the mean and SD of the study group were lower than the mean and SD of the control group (related to the duration of the 3rd stage of labor (min) with a spontaneous separation of the placenta at the time of delivery). The current findings align with those of **Ahmed et al. (2023),** who reported that the mean duration of the 3rd stage of labor was 12.75 ± 4.858 min for the former group, compared to 20.25 ± 5.217 min for the latter group. Spontaneous delivery of the placenta was performed for all of the study groups, compared to most of the control groups. This result indicates that these findings may be due to the pressure of the infant's feet on the abdomen, which may also assist in expelling the placenta; standard breast crawling has a physiological effect on the uterus as well, causing it to contract. It has been demonstrated that oxytocin levels increase during the first 25 minutes and return to normal levels after 60 minutes. **Sarma, M., & Ridhwaanah, S. (2022)**.

Likewise, another relatively supportive study was undertaken by **Kaur & Kaur (2019).** In which the researchers reported that the breast crawl technique is successful in decreasing the third stage duration and enhancing early initiation of breastfeeding. The current findings also align with those of **Christena (2018), who** revealed that the mean duration of the

third stage of labor was 5.4 minutes in the study group and 13.56 minutes in the control group. It has been suggested that the act of sucking from the breast elicits the release of 19 different gastrointestinal hormones in both the mother and the infant. This release of hormones, in turn, leads to an increase in oxytocin levels in the brains of both the mother and the infant. The surge in oxytocin then stimulates the vagus nerve, resulting in an elevated production of gastrointestinal hormones and the spontaneous expulsion of the placenta with minimal blood loss **(Khadivzadeh et al., 2018).**

Furthermore, it is worth noting that the current study results indicate that the entire study group had a firm uterus in consistency, and the majority of the study group had a fundus at the level of the umbilicus after delivery of the placenta compared to the control group. Two matchings were reported by **Al Sabati and Mousa (2019),** who disclosed from their studies that there were statistically significant differences between the former and latter groups in relation to the consistency and level of the uterus as well as the need for performing uterine massage after expulsion of the placenta. This can be explained by the emotional interaction between the mother and baby, which, coupled with cutaneous, visual, and auditory stimuli, triggers the release of oxytocin. This release of oxytocin facilitates uterine contractions, the expulsion of the placenta, and the constriction of uterine blood vessels, thereby preventing excessive blood loss **(Cunningham et al., 2014).**

Moreover, when the infant is positioned on the mother's abdomen to initiate crawling, it establishes skin contact with the mother, which in turn acts as an abdominal massage, stimulating uterine contractions and facilitating the separation and early expulsion of the placenta. Consequently, the efficacy of infant crawling in reducing postpartum hemorrhage has been acknowledged **(Christena, 2018; Widström et al., 2019; Essa & Ismail, 2015)**. Supporting the current results, **Pang et al. (2023) reported that** early breastfeeding facilitated by breast crawling has a physiological impact on the uterus. This process induces uterine contractions, as evidenced by an increase in oxytocin levels during the initial 25 minutes, followed by a return to baseline levels within 60 minutes. Furthermore, it has been observed that suckling and hand touching by infants contribute to the release of oxytocin, which is crucial for uterine contractions.

The current study noticed that the mean and standard deviation related to the time taken to initiate breast feeding (min) were lower in the study group compared to the control group. This result is in harmony with the findings reported by **Hublikar and Bhore (2021)**. They concluded that the mean score of time of initiation of breast feeding in the experimental group was almost half, which was significantly lower than the control group, which was less than two thirds. Therefore, the breast crawl technique demonstrates effectiveness in promoting the initiation of breastfeeding.

The results of the current study discovered that the mean +SD related to the amount of blood loss during the third stage of labor by BRASS-V drape in the study group was 178.6 ±23.1 compared to 238.3 ±44.6 in the control group. Also, the majority of the study group had a mild amount of blood loss during the early postpartum period, compared to less than half of the control group. These findings match the results of a study conducted by **Anto and Dash (2018),** who concluded that the mean difference in blood loss between the control and experimental groups was 104.34 ml, and early breast crawl in the third stage of labor had a significant reduction in the amount of blood loss in the experimental group. In addition, in another supporting study performed in the Kingdom of Saudi Arabia by **Al Sabati and Mousa (2019),** the researchers observed that the mean of vaginal blood loss among the control group was higher (260.58 ml) compared to the experimental group (194.1 ml), which was relatively low, and the difference was statistically significant.

In the current study, the initiation of breastfeeding using the modified LATCH scale was found to be good among the majority of the study group, compared to the minority of the control group. Likewise, another relatively supportive study undertaken by Ahmed et al. (2023) revealed that breastfeeding was also significantly actively initiated through breast crawl when assessed by the modified LATCH

scale, where the majority of the study subjects had a latch score of 8–10, which entails a good initiation of breastfeeding. The findings of the present study were similar to those of **Sarma and Ridhwaanah (2022),** who concluded that the breast crawl technique was successful in facilitating the early initiation of breastfeeding in newborns immediately after birth. Kaur & Kaur (2019), who elaborated that the initiation of breastfeeding was effective in the majority of breast crawl groups while it was moderately effective in the control group.

The current findings also align with those of **Prajapat (2018),** who revealed that the newborns on breast crawl had a high average latching score and breast feeding rate. Furthermore, the standard breast crawl also helps to attain the fourth step of ten steps for successful breastfeeding given by the Global Criteria for the WHO/UNICEF Baby Friendly Hospital Initiative recommended (BFHI) by starting breastfeeding within thirty minutes of birth **(WHO, 2023).**

Limitations

The sample size is not sufficiently representative of the population of interest, and the generalizability of the findings may be limited.

Conclusion

Based on the results of the current study, it can be deduced that a standard breast crawl significantly shortened the duration of the third stage of labor with spontaneous separation of the placenta. Maintained firmness of uterine consistency as well as a reduced amount of blood loss and enhanced good breastfeeding initiation.

Recommendations

- The standard breast crawl procedure should be included in the written policies of all baby-friendly hospitals and be strictly followed to the best of their ability.
- Arranging training programs for all labor room staff, pediatric residents, interns, obstetric residents, and community midwives.
- Providing counseling about breastfeeding and breast crawling during antenatal visits as a routine practice is an important factor for successful breast crawling after delivery.

Further studies:

- A similar study may be conducted on a larger population for generalization of findings.
- A study can be conducted in different settings to strengthen the findings.
- A study can be done on breast crawling in cesarean-section mothers.

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