

▪ *Basic Research*

***Effect of Colostrum Application versus Dry Method on Cord Falling and Healing: An evidence-based practice.***

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**Abstract**

**Background:** Infection in the umbilical cord stump can be prevented by the application of colostrum which considers one of the topical agents for umbilical cord care in which some mothers apply colostrum to promote healing of the cord stump. **Aim:** To compare the effect of colostrum application versus dry method on cord falling and healing. **Subjects and Methods: Design:** A quasi-experimental research design was used. **Setting:** The study was applied in the Obstetrics and Gynecology Unit at Sohag University Hospitals. **Sample:** A Purposive sample of 120 newborns and their mothers were selected post-admission to the previously mentioned setting and assigned to two equal groups. The first group is named the colostrum group and the second group is named the dry method group. **Tools for data collection:** (I) A structured interview questionnaire and (II) newborn follow-up sheet. **Results:** The umbilical cord was earlier separated in the colostrum group than the dry method group. Majority of the colostrum group newborns their cord was fallen off at 5<sup>th</sup> to 6<sup>th</sup> day of age. A significant difference was found in all signs of Inflammation of the navel on the 3rd day. There were statistically significant differences that indicated the cord separation time mean score in the colostrum group was significantly shorter (p 0.001) than in the dry method group. **Conclusion:** Colostrum application was effective on cord falling and healing than dry method application. Colostrum application on umbilical cord shortens cord separation time than dry method application. **Recommendations:** Further studies are recommended to gain more insight into the effectiveness of colostrum and should be applied to the cord. Mothers must be educated about evidence-based practice in cord care by applying colostrum to promote healing and faster cord separation.

**Keywords:** Colostrum, dry method, umbilical cord falling and healing, evidence-based practice.

**Introduction:**

Umbilical infections are one of the main causes of neonatal morbidity and mortality in newborns in developing countries, where children are exposed to unhealthy practices with infection rates from 55 to 197 per 1000 live births. About 3.3 million neonatal deaths occur every year worldwide, causing infections among more than 30% of neonates (**Oestergaard et al, 2017**).

World Health Organization (WHO) recommends vital newborn care practices including promotion and support for the early beginning of exclusive breastfeeding, thermal protection including promoting skin-to-skin contact, hygienic and umbilical cord care to decrease neonatal mortality and morbidity rate (**Mohamed, 2018**).

Cord infections can be prevented in most cases by applying best cord care practices to reduce neonatal mortality and morbidity. Examples of such practices included using of traditional herbs mixed with cooking oil or breast milk, and fluid from pumpkin flowers that may be applied to the cord area and may be harmful. So, corrected and adequate umbilical cord care is very essential and important for infection prevention in the neonatal period (**Abbaszadeh, et al., 2016**).

Umbilical cord care practices and beliefs were diverse. There were multiple indications for cord application of breast milk. Some interviewees reported its use to prevent infection; others to treat an infection that is present, and some reported that it is used as a lubricating agent to soften the cord. If a mother is breastfeeding her baby, then breast milk would be the most accessible treatment with no associated cost and a mother could readily treat her baby (**Allam et al, 2015**).

Colostrum is contained large amounts of IgA antibodies that promoting muscle and cartilage repair and wound healing. It prevents skin infections effects. Also, it has general antibacterial and antiviral effects and providing excellent immune support (**Mousa et al., 2016**). It is always available and used as an easy, cheap, and non-invasive method for cord care, it is important to explore the possibility of using human milk topically to protect infants from umbilical cord infections in developing countries (**Abbaszadeh et al., 2016**).

This generated local evidence regarding which cord care practice sounds appropriately effective in minimizing cord separation time and preventing

omphalitis in communities where most of the delivery still continue to take place at home accompanied by potentially and largely unhygienic cord care practices **(Central Statistical Agency Ethiopia and ICF, 2018)** .

Effective evidence-based practice supports the continuity of quality of care between the healthcare setting and the community; it is described as “the critical link between treatment received in hospital by the patient, and post-discharge care provided in the community.” Nurses can help by involving the pediatric patient as much as possible in their health care decision, informing them of all treatment options and placing an emphasis on self-care. Sometimes nurses fail to adopt modern or recent nursing care for the children due to the lack of knowledge. Evidence based practice have been found to support nurses’ clinical decision-making skills with regard to assessment, treatment and supplementary prescription, therefore contribute to evidence-based nursing practice **(Voorneveld, 2018)**

A vital role of pediatric practical nurses is performing cord care at birth and in the day's subsequent birth which is effective in preventing cord infections. Clean cord-care practices comprise washing hands with clean water and soap before labor and wear sterile gloves before cutting the cord, cutting the cord with sterile equipment, protecting the cord stump from wetting or moist, exposed to air, or lightly covered with clean clothes **(Abd-Allah, 2017)**.

Other skills which the nurses should do that may decrease the hazard of cord infection are the use of 24-hours rooming-in in its place of nurseries in institutions and skin-to-skin contact with the mother at birth to promote colonization of the newborn with non-pathogenic microbes from the mother’s skin flora. Also, nurses should encourage initial and frequent breastfeeding that will provide the newborn with antibodies against infections **(Moyer et al., 2019)**. Pediatric nurses should be educated about umbilical cord care at home. Nurses normally provide umbilical cord care for newborn and mothers' care skills and discover new parents often complain about problems such as delay in umbilical cord separation, blood/serous secretions, odor, and umbilical cord infection **(Hassan & Nasr, 2017)**.

Educational programs with effective training strategies should be applied to encourage mothers to follow healthy practices in day-to-day life. The vital educative role of maternity/pediatric nurses should be emphasized. Furthermore, a healthy newborn is directly connected to healthy maternal and hence improving birth outcomes depends on also improving maternal health care throughout pregnancy through antenatal care, skilled delivery, and the postpartum period by

providing postpartum care. Mothers teaching should be included the normal appearance of the umbilical cord stump. It is important to ensure that mothers receive sufficient useful skincare information and evidence-based practices to give opportunity for mothers to make the right choice about how they care for their baby's skin (**Moyer et al., 2019**).

### **Significance of the study:**

Neonatal deaths that encountered about 75% occurred during the 1<sup>st</sup> week of life, with the majority in the 1<sup>st</sup> 48 hours due to infectious causes (**Elsobky et al., 2017**). Neonates die from diseases associated with a lack of quality care at birth or improper skilled care and management immediately after birth (**Jain et al., 2019**).

The infant mortality rate in Egypt was 14 deaths per 1,000 births (**Ministry of Health and Population, Egypt, 2018**). More than 30.0% result from infections such as umbilical cord infection (**Elsobky, et al., 2017**). Mother's education of neonatal care practices and the improvement of the role of maternity/pediatric nurses can lead to enhancements of the mother's outcome of care during the postnatal period.

The hospital cost of umbilical cord treatment varies with the method of application and length of hospital stay. There were a few studies in Egypt about colostrum versus umbilical cord in newborns. Therefore, it is very important to find inexpensive alternative cord care, e.g. colostrum; especially, in low developing countries (**Oestergaard et al, 2017**).

It is free and readily available, and it will shorten the cord separation time and improving cord care practices. Pediatric nurses can be highlighted and improve umbilical cord care according to evidence-based best practices. As a result, the new change in practice is based on the literature by approaching the topical application of the mother milk (**Capurro, 2018**).

### **Aim of the study:**

To compare the effect of colostrum application versus dry method on cord falling and healing through:

- Assessing mothers' knowledge regarding the evidence-based practices of umbilical cord care

- Comparing the effect of colostrum application versus dry method on cord falling and healing among neonates.
- Monitoring the effect of colostrum application versus dry method on quick umbilical cord stump separation time and its healing among newborns.

**Research hypothesis:**

H1: Application of colostrum and dry methods will promote healing of cord.

H2: Application of colostrum on the umbilical cord will exhibit faster healing than dry method.

H3: The application of colostrum on the umbilical cord will reduce the separation time of the cord than the dry method.

**Subjects and Methods:**

**Design:** A quasi-experimental design was used to achieve the aim of the current study. Quasi-experimental research is a study in which patients self-select or are selected into one of some different treatment groups to compare the real effectiveness and safety of non-randomized treatments (**Maciejewski, 2020**).

**Setting:** The study was applied in the Obstetric and Gynecological postpartum unit at Sohag University Hospital. It consists of 4 rooms (A, B, C&D) each room included 4 beds on the third floor of the hospital. This setting was selected due to the high prevalence of mothers in the selected setting and also it serves the biggest region of the population from both rural and urban areas.

**Sample:**

A Purposive sample of 120 newborns and their mothers have selected post-admission to the previously mentioned setting and randomly assigned to two equal groups. The first group was named the (colostrum group) and the second group was named the control group (dry group). Newborns that that fond in rooms A&C were assigned to the colostrum group while newborns that fond in rooms B&D were assigned to the dry group, with the following criteria:

**Inclusion criteria for mothers included:**

- Mothers accept to apply their colostrum to their newborn' umbilical cord.
- Mothers without maternal complications.
- Mothers that can provide breastfeeding.

**Inclusion criteria for newborns included:**

- Full-term newborns from 38-42 weeks.
- Newborns present with their mothers
- Newborns their Apgar score more than seven during the first five minutes.
- Newborns their weight from 2.5 to 3.5 kg.
- Free from medical diseases and congenital anomalies.

**Sample size:**

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

**Tools for data collection:**

***Tool I: A structured Interview Schedule:*** It was developed by the researchers after reviewing the related literature (**Abd-Allah, 2017 and Ministry of Health and Population, Egypt, 2018**). It was used for data collection demographic data related to the mothers and their newborns. It is included two parts:

**Part (1):** Demographic characteristics and obstetrical history of mothers, such as age, residence, educational level, working status, gravidity, and parity, type of delivery, and their sources of information.

**Part (2):** Demographic and general characteristics of newborns, such as gestational age, gender, and birth weight.

***Tool II: Follow up an observational checklist*** to monitor signs of umbilical cord healing, cord separation time, and signs of umbilical cord infection. It was developed by the researchers. It is included a checklist to identify the presence or absent the signs of cord infection such as high body temperature, warmth and mild redness, moderate or severe redness, severe redness with pus, foul odor of cord and cord exudate) and monitoring cord separation time till cord separation occurs.

## Methods of Data Collection

**Validity of Tools:** Tools were reviewed by five experts in neonatology field, maternity/obstetric, and pediatric nursing. Modifications were performed regarding the experts' judgment on the clarity of sentences, appropriateness of the content, and sequence of items.

**Reliability of the tools:** The reliability of tools was tested using Cronbach's alpha. The reliability coefficient for a tool I was (0.89), and tool II was (0.84) which means all tools were reliable.

### Pilot Study:

A pilot study was applied on 10% of the sample (12 newborns and their mothers) to test the feasibility and applicability of different items of the tool to establish the most practical and comprehensive way of obtaining necessary data. No modifications were done to the tools.

### Data Collection Procedure:

Approval of the Ethical Research Committee of the Faculty of Nursing was obtained before starting the study. After obtaining the administrative approval, data were collected from April to September 2019. Researchers attended the previously mentioned setting three days per week, from 9 am to 2 pm.

The researchers introduced themselves to the mothers. Clear and simple explanations were done by the researchers with mothers about the aim and nature of the study. The structured interviewing questionnaire was used to collect neonates and their mothers' characteristics.

Mother were interviewed for about 15 minutes for each one to assess her knowledge about cord care both groups either (group colostrum) about the evidence-practices application of their colostrum on the umbilical cord of their newborns or for the mothers in the group (dry group) of cord care.

The researchers informed the mothers about the importance of performing good hand washing before the application of both cord care methods. Researchers had given the mother the instructions about the way of the umbilical cord stump cleaning and the surrounding area of the skin 3 times per day.

In the colostrum group, mothers were informed that after washing hands with soap and water to squeeze breast milk drops (before lactation) on the umbilical cord till its edge and let the milk get completely dry. The researchers asked the mothers to apply colostrum drops from 4-6 drops 3 times per day until separation of the cord and 2 days after complete separation.

In the dry group, the researchers were taught the mothers to keep the cord clean and leave it to dry alone after cutting the umbilical cord until complete separation. The researchers were taught the mothers to leave the cord clean and dry alone after cutting the umbilical cord and clean it with sterile water, then allowing the cord to complete dryness and separate when it is ready.

The mothers were instructed to follow the same cord care instructions at home. Cotton and gauze sponges were given to the mothers at the time of discharge. The mothers were informed to preserve the newborn's diaper folded below the umbilical cord stump to prevent contamination with urine and stools and to keep the cord stump exposed to air and umbilical cord stump will change from yellowish green to brown to black as it dries out and eventually falls off within 10 days or less.

The mother informed about how to keep the umbilical cord stump and surrounding skin clean and dry, the way of a sponge bath, warning signs of cord infection. Mothers informed that it is normal to notice some oozing of fluid for two days after the stump fall off, and if any infections signs like (redness, hotness, swelling, pus, bad odor.) appear, she should refer to the hospital.

Follow up the compliance of mothers was done by the researchers concerning instructions of cord care using a checklist; the day of cord detachment by phone call was done daily until cord fall off. The duration for umbilical cord separation was measured from the date of birth to the date of complete separation. A home visit was done on the third day for cases of the parents enable to attend the newborns in the promised time at the hospital.

Researchers called mothers to get informed on the date and hour of cord separation as well as any complications that occurred after cord separation containing bleeding, secretions, and colonization of granuloma tissue, to ensure from cord fall off and record the duration of cord separation from the date of birth.



**Ethical consideration:**

An official permission was obtained from the director of the selected hospital and the head of the Postpartum Units in the selected setting. The researchers introduced themselves to mothers and explain to them the aim of this study to obtain their cooperation to participate in this study. Data collection was voluntary and was strictly confidential. The objective and methodology of the study for all neonatal mothers were explained by researchers. The right to refuse participation in the study was confirmed and the consent of the participants to participate in this study was secured orally.

**Statistical analysis:**

Data were entered into the Statistical Package for Social Science (SPSS) software (version 17). Data were presented using descriptive statistics in the form of frequency and percentage of qualitative variables, arithmetical averages, and standard deviations of quantitative variables. A person's relationship is used to determine the importance of variables in the same group.  $P > 0.05$  was considered statistically non-significant,  $P < 0.05$  was considered statistically significant, and  $P < 0.001$  was considered statistically highly significant.

**Results:**

**Table (1)** illustrated that the mothers' mean age in the colostrum group was  $28.33 \pm 3.6$ , (58%) of the mothers were living in rural areas, (42%) of them were educated to the secondary level. In the dry group, the mean age of the studied mothers was  $27.87 \pm 3.4$ , (63%) of the mothers were living in rural areas, it is cleared that (35%) of the mothers were at university level education. Regarding parity, (36%) of the mothers in the colostrum group this newborn is the 3<sup>rd</sup> child, and also the mothers in dry group (40%) of them this newborn is the 3<sup>rd</sup> child.

It is cleared from **figure (1)** that, type of delivery among (55%) of the mothers was by cesarean in the dry group, while 62% of them were delivered normally in the colostrum group.

**Figure (2)** illustrated that the main source of gaining information among the studied mothers was doctors (53%) followed by friends (20%), then, family (17%), T.V (6%), and the least source was mass media (4%).

**Table 2** presented the newborns' characteristics; it was observed that the mean of gestational age in the colostrum group was  $38.51 \pm 1.41$ , while in the dry group, the mean gestational age of the newborns was  $38.59 \pm 1.40$ . In the same

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table, it was noticed around two-thirds of newborns female (62% and 65%) of the colostrum and dry group. In addition, it was noticed that the mean birth weight of the newborns in the colostrum group was  $3251.6 \pm 158.10$ , while in the dry group; the mean birth weight was  $3252.42 \pm 138.10$ . In comparison between all two groups, no significant difference was found regarding characteristics as gestational age, gender, and birth weight ( $p > 0.05$ ).

It was noticed from **table (3)** that most of the mothers in colostrum group, said were using alcohol (90%) in caring for the umbilical cord. About (35%) reported that they sometimes using warm cloth water and only (5%) reported that breast milk can be used in caring for the umbilical cord. On the other hand, most of the mothers in the dry group, reported that they always using alcohol (92%) and (20%) using warm cloth water in caring for the umbilical cord. In addition, (35%) reported that they sometimes using plain water and no one reported that breast milk can be used in caring for the umbilical cord.

From **table (4)** it was noticed that umbilical cord separation was earlier among mothers who used colostrum group than dry group, where the majority 83% of colostrum group newborn their cord had fallen off at the 5<sup>th</sup> to 6<sup>th</sup> day of their age and only (17%) of them their cord had fallen off 4<sup>th</sup> to 5<sup>th</sup> day of their age. On the other hand, no one of the newborn in dry group had their cord fallen off at the 5<sup>th</sup> to 6<sup>th</sup> day of age while the majority 89 % of them their cord had fallen off on the 7<sup>th</sup> day and more.

**Table (5)** It was observed that statistically significant differences between the mean scores of separation time of the cord in the colostrum group and dry group with ( $p < 0.001$ ). The data confirmed that the mean scores of cord separation time in colostrum group was significantly shorter ( $p < 0.001$ ) than in dry group. The cord separation time was 140 hours among the colostrum group and 180 in the dry group. On the other hand, the bleeding continued after separation (one day) which was significantly shorter ( $p < 0.001$ ) between the colostrum group than in the dry group.

**Figure (3):** Showed that (100%) of the colostrum group' mothers were satisfied with the results of the early level of separation of the umbilical cord after colostrum application. On the other hand, (70%) of the dry group mothers were satisfied with the results of umbilical cord separation after application dry cord care.

**Figure (4):** Illustrated that the (90%) of mothers were happy with the results of new way of care they follow to the first time. More than two thirds of

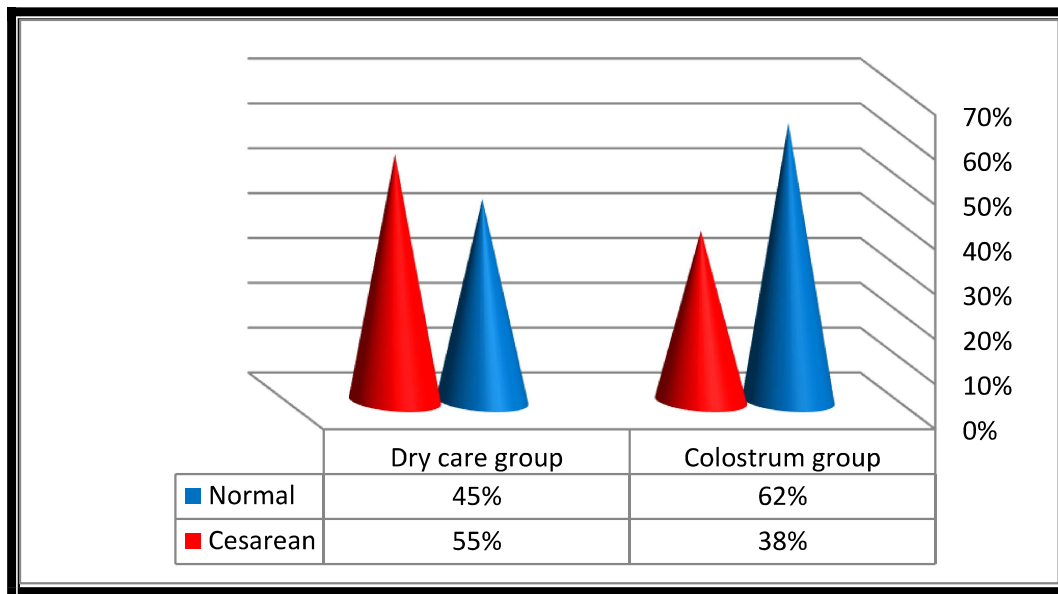
mothers (67%) in dry group were happy with the dryness results of the cord without application of any traditional substance.

**Table (1): Studied mothers' distribution regarding their demographic and obstetrical characteristics (n= 60 each group)**

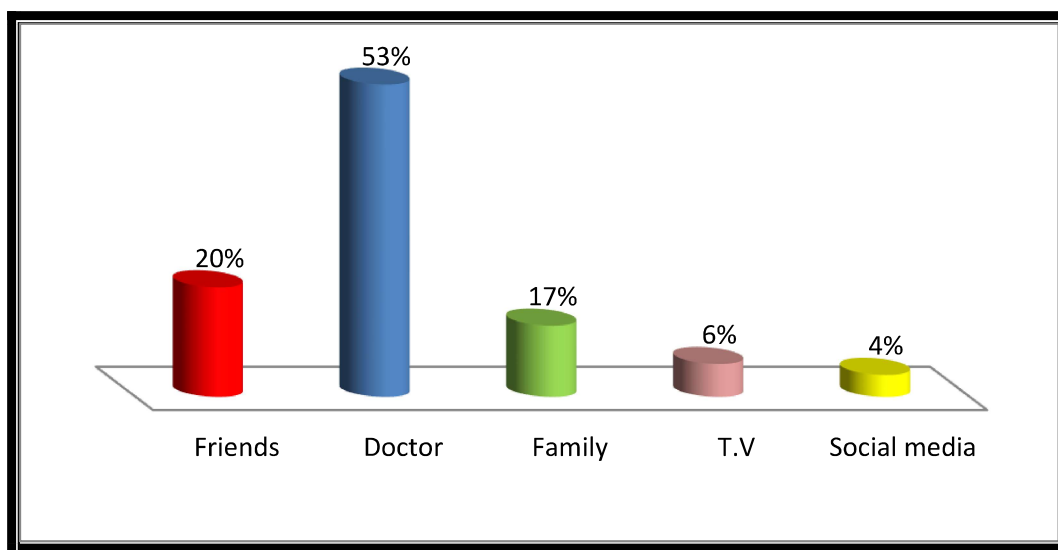
Items	Colostrum group (n=60)		Dry group (n=60)		x <sup>2</sup>	P
	No.	%	No.	%		
<b>Age</b>	28.33 ± 3.6		27.87 ± 3.4		> 0.05	
<b>Residence</b>						
Urban	25	42%	22	37%	0.241	> 0.05
Rural	35	58%	38	63%		
<b>Educational level</b>						
Illiterate	3	5%	6	10%	0.241	P > 0.05
Primary	23	38%	15	25%		
Secondary	25	42%	18	30%		
University	9	15%	21	35%		
<b>Occupation</b>						
Working	20	33%	29	49%	2.03	P > 0.05
Housewife	40	67%	31	51%		

<b>Parity:</b>							
Primipara	9	15%	15	25%	0.31	P	> 0.05
2 <sup>nd</sup>	14	23%	12	20%			
3 <sup>rd</sup>	22	36%	24	40%			
Multipara	15	26%	9	15%			

Statistical significant at  $p \leq 0.05$



**Figure (1): Studied mothers distribution concerning their type of delivery (n= 60 each group)**



**Figure (2): Studied mothers' distribution regarding their sources of information (n= 120)**

**Table (2): Studied newborns' distribution regarding their demographic characteristics (n= 60 each group)**

Items	Colostrum group (n=60)		Dry group (n=60)		x <sup>2</sup>	P
	No.	%	No.	%		
<b>Gestational age in (weeks)</b>	38.51±1.41		38.59±1.40		> 0.05	
<b>Gender</b>						
Male	23	38%	21	35%	χ <sup>2</sup> = 53	> 0.05
Female	37	62%	39	65%		
<b>Birth weight</b>	3251.6 ± 158.10		3252.42 ± 138.10		t-test > 0.05	

Statistically significant at  $p \leq 0.05$

**Table 3: Umbilical cord Care methods described by mothers' pre the study implementation.**

Items	Colostrum group (n=60)						Dry group (n=60)					
	Always		Sometimes		Never		Always		Sometimes		Never	
	No	%	No	%	No	%	No	%	No	%	No	%
Warm cloth water	18	30	21	35	21	35	12	20	18	30	30	50
Gentian violet	9	15	15	25	36	60	12	20	9	15	39	65
Alcohol	54	90	6	10	0	0.0	55	92	5	8	0	0.0
Olive oil	0	0.0	0	0.0	60	100	0	0.0	0	0.0	60	100
Beta dine	11	19	4	6	45	75	9	15	12	20	39	65
Plain water only	1	2	2	3	57	95	12	20	21	35	27	45
Breast milk	3	5	2	3	55	92	0	0.0	0	0.0	60	100

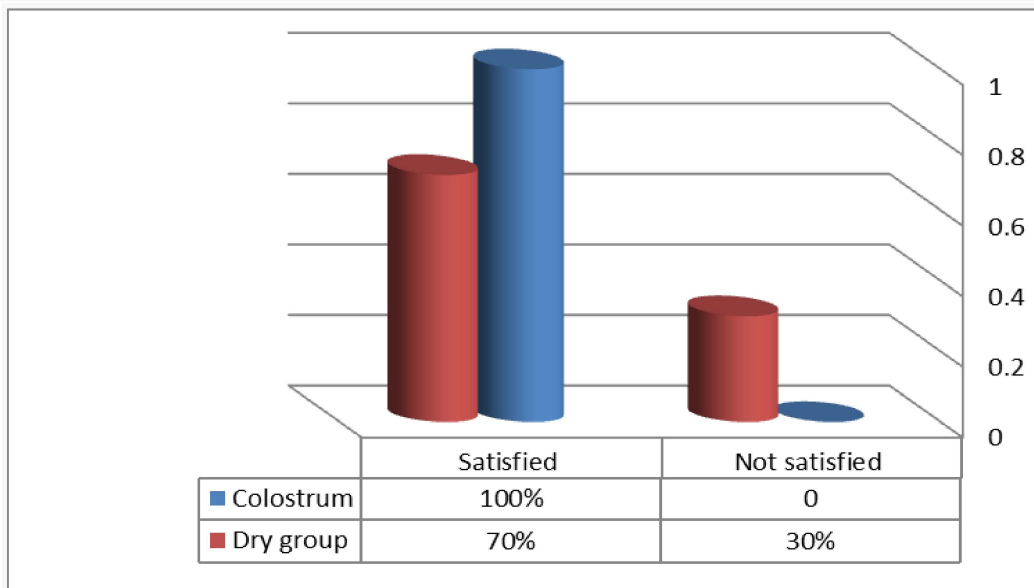
**Table 4: Comparison of the cord separation time per day among the colostrum group and the dry group (n= 60 each group)**

Items	Colostrum group (n=60)		Dry group (n=60)	
	No	%	No	%
Between 4-5 Days	10	17	0	0.0
From 5 to 6	50	83	7	11
7and more	0	0.0	53	89

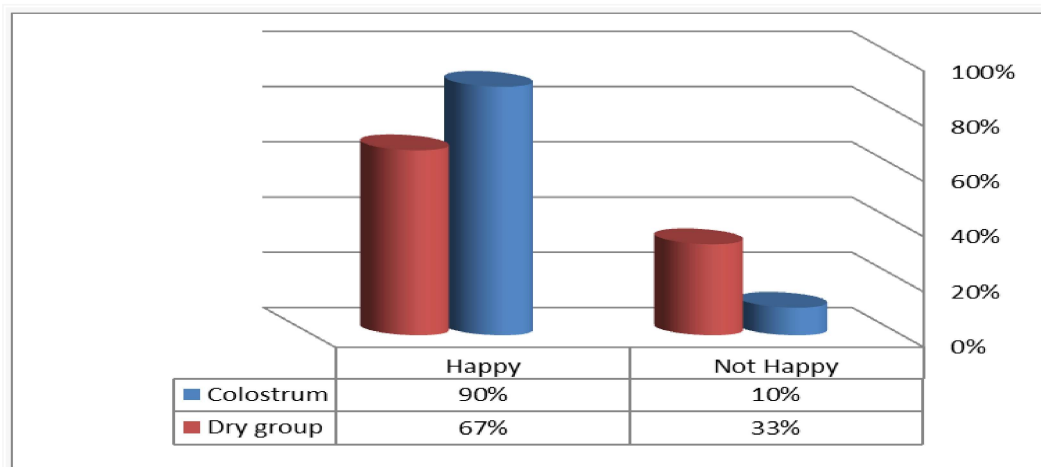
**Table 5: Differences in cord separation median time separation and bleeding after separation among the colostrum group and the dry group (n= 60 each group)**

Variables	Colostrum group	Dry group	P-value
Cord separation time (hour)	140	180	<0.001*
Continuation of bleeding after cord separation (day)	1	4	<0.001*

**Figure (3): Mothers' satisfaction regarding colostrum and dry group application**



application for the first time as a new way of care



### Discussion:

Care of the umbilical cord stump after birth focused on some interventions such as umbilical cord clamping time and using of topical antimicrobials agents on the stump, and attention should be given to practices that are “natural” and cultural. Cord injuries lead to increase morbidity and mortality among newborns in developing countries where newborns are exposed to unhealthy practices (Vural, & Kisa, 2016). Hence, the researchers aimed to compare the effect of colostrum application versus than dry method on cord falling and healing.

The finding of the current study revealed that most of mothers said that they only (5%) reported that colostrum can be used in caring for umbilical cord in the colostrum group. In the dry group, no one reported that colostrum can be used in caring for the umbilical cord. From the researchers' point of view, this is reflected that mother did not have enough knowledge about the positive effect and importance of colostrum application as an antimicrobial agent.

The results of the current study indicated that umbilical cord separation was earlier among mothers who used the colostrum group than the dry group. From the researchers' point of view, it's indicated the good effectiveness of using colostrum in umbilical cord care. Also, reflected its important role in cord separation

These results are in the line with Yonis, (2010) who studied "The Effect of Topical Application of Human Milk Compared with 70% Ethyl Alcohol on Umbilical Cord Separation Time" in Hospital affiliated to Minia University among newborns and observed that separation time of cord stump in human breast milk group was shorter than in alcohol group.



The current study results revealed that the majority of the colostrum group their cord had fallen off at the 5<sup>th</sup> to 6<sup>th</sup> day of age while in the dry group, the majority of newborns their cord had fallen off at the 7<sup>th</sup> day and more. From the researchers' point of view, this is reflected the positive effect and benefits of colostrum application in cord care as an antimicrobial agent.

These results are matched with the results conducted by (**Mahrous et al., 2017**) titled " Topical Application of Human Milk Reduces Umbilical Cord Separation Time and Bacterial Colonization Compared to Ethanol in Newborns" they found that less time speeded in cord separation among the newborn group who applied breast milk versus application of ethanol group.

The results of the current study revealed that the mean scores of cord separation time in colostrum group was significantly shorter ( $p < 0.001$ ) than in dry group. A similar result is done by **Ahmadpour et al., (2017)** titled "The Effect of Topical Application of Human Milk, Ethyl Alcohol 96%, and Silver Sulfadiazine on Umbilical Cord Separation Time in Newborn Infants" and reported that separation time of the cord was in the colostrum group significantly shorter than of the ethanol.

These results are also similar with the results of **Aghamohammadi, et al (2018)** who "Comparing the Effect of Topical Application of Human Milk and Dry Cord Care on Umbilical Cord Separation Time in Healthy Newborn Infants" and **Golshan & Hossein, (2017)** about " Impact of Ethanol, Dry Care and Human Milk on The Time for Umbilical Cord Separation" who noticed that time of umbilical cord separation was significantly shorter when treated with breast milk. The current study found that the cord fallen after 140 hours in colostrum group, compared with 180 hours for dry care.

The results of the current study indicated that the continued bleeding after separation was significantly shorter (one day) in the colostrum group than the dry group with ( $p < 0.001$ ). From the researchers' point of view, this is indicted that colostrum application in cord care causes less bleeding which reflected its positive effects.

This result is supported by a study conducted by **Kelly & Coutts, (2018)** about " Early Nutrition and The Development of Immune Function in The Neonate " found statistically significant differences between the time of separation of the cord in the colostrum group ( $p < 0.001$ ) and the group of

alcoholics. On the other hand, the bleeding continued after separation (two days) much shorter ( $p < 0.001$ ) between the colostrum group of alcoholic group.

The results of the current study revealed that all colostrum group' mothers were satisfied with the early time of umbilical cord separation after colostrum application. From the researchers' point of view, this reflected the positive effect of evidence-based practice. This finding agrees with **Allam et al., (2015)** who conducted a study about "Effect of Topical Application of Mother Milk on Separation of Umbilical Cord for Newborn" and reported that the same results of separation time of the umbilical cord after application of breast milk.

The study results indicated that the majority of the studied mothers were happy with the results, and it is the first time to follow this new way of care. And about two thirds of mothers in dry group observed they are happy with the result and the dryness of the cord without the application of any traditional substance. From the researchers' point of view, this is indicated the success of recent evidence and the happiness of applying a new way of care for the first time, and high percentage among women in colostrum group confirmed the successful effect of colostrum application on cord healing and separation. The result is in the line with **Allam et al., (2015)** who reported that the majority of mothers found to be happy with the results they follow in this way of care.

### **Conclusion:**

Based on results of the current study, aim, and hypotheses, it was concluded that only five percent reported that breast milk can be used in caring for the umbilical cord and showed that all of the colostrum group' mothers were satisfied with the results of the early level of separation of the umbilical cord after colostrum application. Colostrum is considered the best method used for cleaning and caring for newborns' umbilical cord as safe, cheap, and easy to follow guidelines for cord care. Colostrum application was effective on cord falling and healing than dry method application. Colostrum application on umbilical cord shortens cord separation time than dry method application.

### **Recommendations:**

- Replication of the current study on a larger probability sample is recommended to achieve generalizability.
- Mothers must be educated about evidence-based practice in cord care by applying colostrum to promote healing and faster cord separation to minimize cord infections.

- **Further studies are recommended:**  
To gain more insight into the effectiveness of colostrum and should be applied to the cord.
- To investigate the association between neonatal cord care and the incidence of their morbidity.

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### الملخص العربي

## تأثير تطبيق اضافة لبن السرسوب مقابل الطريقة الجافة على سقوط الحبل السري والتناميه: ممارسة قائمة على الأدلة

**المقدمة:** يمكن الوقاية من عدوى الحبل السري عن طريق تطبيق اضافة لبن السرسوب الذي يعتبر أحد العوامل الموضوعية للعناية بالحبل السري حيث تقوم بعض الأمهات اضافة لبن السرسوب لتعزيز التنام الحبل السري. **الهدف من الدراسة:** لمقارنة تأثير تطبيق اضافة لبن السرسوب مقابل الطريقة الجافة على سقوط الحبل السري والتناميه. التصميم: تم استخدام تصميم بحث شبه تجريبي. **اماكن جمع العينة:** أجريت الدراسة في وحدة أمراض النساء والتوليد بمستشفيات جامعة سوهاج. العينة: تم اختيار عينة هادفة من 160 وليد وأمهاتهم بعد القبول في المكان المذكور سابقاً وتم توزيعهم على مجموعتين متساويتين. المجموعة الأولى تسمى مجموعة لبن السرسوب والمجموعة الثانية تسمى مجموعة الطريقة الجافة .

**أدوات جمع البيانات:** (1) استبيان مقابلة منظم و (2) ورقة متابعة حديثي الولادة.

**النتائج:** تم فصل الحبل السري في وقت أقصر في مجموعة تطبيق اضافة لبن السرسوب عن مجموعة الطريقة الجافة. اغلب حديثي الولادة من في مجموعة تطبيق اضافة لبن السرسوب سقط الحبل السري لديهم في اليوم الخامس إلى السادس من العمر. تم العثور على فرق كبير في جميع علامات التهاب السرة في اليوم الثالث. كانت هناك فروق ذات دلالة إحصائية تشير إلى أن متوسط زمن فصل الحبل السري في مجموعة تطبيق اضافة لبن السرسوب كان أقصر بكثير ( $p < 0.001$ ) منه في مجموعة الطريقة الجافة .

**الخلاصة:** كان تطبيق اضافة لبن السرسوب فعالاً في سقوط الحبل السري والتناميه أكثر من تطبيقه بالطريقة الجافة. تطبيق اضافة لبن السرسوب على الحبل السري يقصر وقت فصل الحبل السري عن التطبيق بالطريقة الجافة.

**التوصيات:** يوصى بإجراء مزيد من الدراسات لاكتساب المزيد من التبصر في فعالية تطبيق اضافة لبن السرسوب ويجب تطبيقها على الحبل السري. يجب تثقيف الأمهات حول الممارسة القائمة على الأدلة في رعاية الحبل السري من خلال تطبيق اضافة لبن السرسوب لتعزيز الشفاء وفصل الحبل السري بشكل أسرع.

**الكلمات المفتاحية:** لبن السرسوب ، الطريقة الجافة ، سقوط الحبل السري والتناميه, ممارسة قائمة على الأدلة