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Colostrum Properties: Effect on Maternity Mother's Knowledge and Believes.

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Abstract: *Many mothers may not feed the baby immediately after birth. They neglect "colostrum" instead of it they will give sugar water, plain water, honey etc, all these practices lead to suppression of lactation and the newborn lacks immunity. Colostrum Feeding is best for the baby .It plays an important role in preventing the infant morbidity and mortality. Nurses should have enough knowledge and positive attitude regarding Colostrum feeding to identify and teach mothers the importance of colostrum.*
The aim *of this study was to evaluate colostrum properties: effect on maternity mother's knowledge and believes.*
The design *of this study was quasi- experimental research design.*
A sample *of 40 mothers were selected to carry out this study.*
The setting *of this study was postnatal Care department in Menoufia University Hospital and Shebin El-Kom Teaching Hospital.*
Tools *of this study were mothers knowledge structured questionnaire and a liker scale for assessing maternal and neonatal mothers believes regarding colostrum.*
The result *of this study showed that, there were statistical significant differences between pre and post- test for maternity and neonatal nurses' knowledge and believes.*
Conclusion, *this study concluded that Guideline education program about colostrum improved maternity and neonatal mothers knowledge and believes regarding colostrum. So, it was*
Recommended *that Guideline education program about colostrum should be performed to upgrade maternity and neonatal mothers knowledge and believes regarding colostrum.*

Keywords: *Colostrum feeding, Knowledge, believes, maternity and neonatal mothers*

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I. Introduction

Mother and children consider one fourth of the total national population. They are the most vulnerable group to ill health. The most causes of neonatal mortality and morbidity is inadequate breastfeeding, following faulty breastfeeding technique, ignorance of mother regarding feeding practices, lack of health education given by the health care providers**.(Liben,2017; Pandey, 2015).**

Breast feeding should be initiated within the first half an hour after birth. The first milk is the most suitable feed for the newborn. It is called Colostrum. It is the thick and yellow colored milk**(Rogers et al .,2011; Goyle et al .,2014).** For most of the children breastfeeding makes the difference between life and death and it is the infants "PASSPORT TO LIFE". Also, it can be considered as the first vaccine which needs a "warm chain". It made by mother-infant contact. It is secreted in very less amount (30-100ml), so the mothers need to be explained that this small amount of colostrum is adequate for infant and must not be denied**.(Mohamed et al., 2012; Duong et al.,2004).**

Colostrum is universally the perfect and the best first food for newborn. It is produced after the birth and lasts for 2-4 days after the lactation has started. It is source of fat, proteins, sugar and micronutrients in the form of vitamin and minerals. There are ninety known components in the colostrum. There are two main primary components of colostrum: immune factors and growth factors. Immune factors in Colostrum feeding are the source of passive immunity achieved by the mother and is transferred to the baby. It is help the baby to fight against viruses, bacteria, fungus and yeast. Also, it gives the newborn babies the following **(Gupta et al.,2013;Legesse et al.,2015)** a) Specific antibodies: there are around 20 specific antibodies in the colostrum to fight microbes like E. coli, Salmonella, Rotavirus, Candida, Streptococcus, Staphylococcus etc. b) Immunoglobulins: it is have role in both treatment and prevention of viral, bacterial, yeast and fungus infection and AllergiesColostrum rich with five types of immunoglobulins IgA, IgD, IgG and IgM that consider anti-viral and anti-bacterial. c) Protein Rich Polypeptide (PRP): it is stimulating the thymus to regulate the immune

system in the body. d) Lactoferrin: it is an iron binding protein that have important role against cancer cells and has antiviral, antibacterial and anti-inflammatory properties. e) Cytokines: regulate duration and intensity of immune response. f) Lymphokines: it is act in mediating the immune response. g) Glycoproteins and trypsin inhibitors: they protect the immune and growth factors in GIT. h) Leucocytes: it stimulate interferon production that inhibitors cellular wall penetration and slow down the viral reproduction **(Raina et al., 2012;Muluken,2015).**

Also, the colostrum feeding is rich by vital growth factors that is important in stimulate growth, help in regeneration and accelerate the repair of aged original muscles, skin, collagen, bone cartilage and nerve tissue**(Liben et al., 2016;Yesuf and Liben, 2011)** There are various growth factors in the colostrum as a) Epithelial growth factor (EG.,F): it is protective and maintains the skin. This can stimulate normal skin growth and repair the cellular tissue. b) Transforming growth factor A and B (TGF AND TGF) that stimulates the proliferation cells in connective tissue and assists in formation of bone marrow and cartilage. C) Platelet derived growth factor (PDGF): it is help in cell division in connective tissue, smooth muscle and fibroblasts. It also helps neuron survival and regeneration. d) Vitamins and minerals: they are most important nutrients essential for the normal metabolism, growth and developmen e) Amino acids: they are the building blocks of proteins and required for growth and development of the newborn**.(Amini et al.,2013;WHO,2011)** Lack of knowledge regarding colostrum feeding is the major Couse for infant morbidity and mortality rates. So, Pediatric and maternity nurses are responsible for ensuring that they consistently deliver high quality of knowledge and positive believes for mothers about colostrum **(setegn et al.,2011; Abie and Goshu ,2019)**

Because there are limited pediatric and obstetric studies that acquisition the mothers adequate knowledge and the positive believes about importance of the growth and immune factors in colostrum and its role in newborn babies health, this study aims to evaluate the effect of Guideline education program about colostrum on maternity and neonatal mothers knowledge and believes.

Significant of study:

The first year of life is crucial in laying the foundation of good health. At this time certain specific biological and psychological needs must be met to ensure the survival and healthy development of the child into a future adult. Breastfeeding is the ideal method suited for the psychological and physiological needs of the infant. Breast feeding gives adequate warmth, affection and security as well as food protection to the baby.

Yet, statistics from around the world reveal that colostrum is frequently discarded. There is widespread lack of awareness of its qualities and its key role in contributing to the health and growth of the newborn. Feeding water or other liquids instead of colostrum deprives the child of a good start in life. The WHO Child Growth Standards show how all children should grow and babies fed colostrum within the first hour measure up well against these standards. There are 170 million underweight children around the world, 3 million of whom die each year as a result of being underweight. WHO recommends that all children should be exclusively breastfed for 6 months. Feeding colostrum in the first hour is the first step. It is imperative that every child receives colostrum to get ahead in the race against malnutrition.

Aim of study:

The current study was aimed to evaluate colostrum properities: effect on maternity mothers knowledge and believes.

Research hypothesis:

1. Maternity and neonatal mothers knowledge toward colostrum will be improved significantly after their participation in the guideline education program than before.
2. Maternity and neonatal mothers who would share in guideline education program would have strong positive belives related to colostrum feeding than before.

II. Material and Methods

Research Design:

Quasi-experimental research design (pre and post- test) was utilized to conduct this study.

Setting:

This study was conducted at postnatal Care department in Menoufia University Hospital and Shebin El-Kom Teaching Hospital.

Postnatal Care department in Shebin El Kom Teaching Hospital included two rooms in the 4rd floor. Each room contained six beds.

Postnatal Care department in Menoufia University Hospital included four rooms in the 3rd floor. Each room contained 8beds.

Sample
A purposive sample of 40 mothers who attended in the previously mentioned setting and met the study criteria were involved in the current study.

Inclusion Criteria:
mothers who are included in the present study should fulfill the following criteria:

- Should not receive previous education program on about colostrum.
- mothers accept to participate in the study

Tools
In order to achieve the purpose of the study, two tools were utilized for data collection:-
Tool (I): Interviewing Structured Questionnaire. It was developed by the researchers and it was divided into two parts;
Part (1): Personal characteristics of the studied mothers; It contained: Age in years ,Educational level, Residence, Type of family.
Part (2): **obstetrical history** to collect data about; gravidity, parity number of living children
Tool (II): Mothers' knowledge about colostrum. It was developed by the researchers based on review of related literature and it contained six essay questions about; meaning of colostrum, components, importance time of its initiation, reasons for not giving colostrum by mothers within the first hour of birth , duration of its' production after delivery.

Scoring system:
The scoring system for mothers' knowledge was follow; two scores were given for correct answer and one for partial correct answer and zero for incorrect answer. The scoring levels were arranged as follow; less than 50% for incorrect knowledge , (50% -≤75%) partial correct knowledge and (≥ 75%) for correct knowledge.
Tool (II): Mothers believes regarding colostrum: a likert scale used to assess mothers' positive and negative believes toward colostrum, to determine level of agreement to each question.
Scoring system:
Evaluation of the mothers believes about colostrum was categorized as follow: two score were given for agreement regarding positive believes, one score for disagreement regarding negative believes. The total score of mothers' believes were also classified as follows: less than 50% for negative believes, (50%- ≤75%) Neutral believe and ≥ 75% for positive believes.

Validity and Reliability
A panel of five experts in the field of obstetric and pediatric nursing to test the face and content validity revised the data collection tools. According to their revision, few modifications in the face validity were carried out.
Regarding reliability, the reliability coefficients' alpha between questions about mothers' knowledge was 0.719. Meanwhile, the reliability coefficients' alpha between items about believes was 0.78

Ethical considerations:
The participated mothers were instructed by the researchers' about aim and benefits of the study and verbal agreement was taken before data collection. The participants were a'ssured that their participation was voluntary. The nature of commitment in terms of time and form of participation like filling a questionnaire was clearly indicated. Information obtained was treated with utmost confidentiality. The participants were informed that they have the right to withdraw from the study at any time without giving any reasons. No identifiers like name of the participant were indicated on the questionnaire.

Pilot study:
It was carried out on five mothers (10% of the sample) after the instruments were developed and before starting the data collection to test the practicability, applicability and to estimate the needed time to fill the instruments. No necessary modifications were done. Therefore, the pilot study was included in the total sample.

Procedure of data collection
An official permission was obtained from the dean of Faculty of Nursing, Menoufia University to conduct the study and collect the necessary data. Data collection started in the middle of January 2017 and lasted until the end of December 2017. Data collected three days per week. The researcher introduced herself to the mothers who will share in the study, explained the purpose of study and methods of data collection.
Each mother was interviewed individually to complete filling in the study tool, the interview took approximately 20-30 minutes for knowledge and 30-40 minutes for believes depending upon response of the

mothers. mothers were assessed three days per week during the morning and afternoon shifts. Before implementing the educational program, mothers knowledge and practice were evaluated. Areas of weaknesses of the nurses' knowledge and believes were identified and the objectives were set.

The researcher designed a health education program to implement protocol guidelines about colostrum on the basis of knowledge and practices obtained from collected data using instrument one, two and review of literature. To provide health education, mothers were divided into small groups. Each group contained 4-5 mothers. Each mother received two health education sessions. Each session lasted for an hour. The researcher conducted lectures, group discussion and distributed an explanatory related booklet. Sessions were conducted in postnatal department in previously mentioned settings.

- The first session was about knowledge related to colostrum such as definition of colostrum, time of initiation, duration of colostrum production after delivery, two primary components of colostrum, importance of immune factors in colostrum, various immune factor in colostrum, importance of growth factors in colostrum, various growth factors in colostrum, benefits of colostrum for baby and benefits of early initiation of breast feeding for mother
- The second session was about the mothers positive and negative believes about colostrum. The researcher provided summary about knowledge provided in the first session.
- After completion of the guideline educational program, mothers' knowledge and believes were re-evaluated by the same tools.

Data analysis:-

- Data was coded and transformed into specially designed form to be suitable for computer entry process. Data was entered and analyzed by using SPSS (Statistical Package for Social Science) statistical package version 21. Graphics were done using Excel program. Quantitative data was expressed as mean & standard deviation (X± SD) and analyzed and fisher test for comparison association between two groups. Qualitative data was expressed in the form of number and percentage. It was analyzed by using chi-square test (X^2). A statistical significant difference was considered if $P < 0.05$

III. Results

Table (1): Distribution of studied mothers according to their biosocial characteristics (n=40)

Biosocial characteristics of studied mothers	Frequency	Percent
Age (years):		
<20	5	12.5
20-	21	52.5
35+	14	35
Mean +- SD: 28.98+_6.58		
Education: Illiterate Primary-Preparatory Secondary University	 20 10 4 6	 50 25 0 15
Residence: Rural Urban	 14 26	 35 65
Type of family: **Nuclear** **Extended**	 29 11	 72.5 27.5
Total	40	100.0

Table 1 shows distribution of studied mothers according to their biosocial characteristics. Their age ranged between 16-40 years, with mean +_ SD30.4 ±5.2 Years. As regards educational level, It was obvious from this table that, half of studied mothers had illiterate (50%)while 15% had university education .Regarding Residence about one- third of the mothers (35%) were from rural area while slightly more than one-third of the mothers (65%)were from urban area. . Considering type of family , it was revealed that nearly to three- quarters (70%)of the studied mothers had nuclear family while more than one quarter(13%) of them had extended one.

Table (2): Distribution of studied mothers according to their obstetric history **(n=40)**

Obstetric history	Frequency	Percent
Gravidity:		
One	**12**	**30**
2-3	**17**	**42.5**
4+	**11**	**27.5**
Parity:		
One	**13**	**32.5**
2-3	**19**	**47.5**
4+	**8**	**20**
No of living children		
<3		
3+	**29**	**72.50**
	11	**27.50**

Table 2 shows distribution of studied mothers according to their obstetric history. About one third (30%) of the studied mothers were pregnant for the first time and About two fifths (42.5%) of them were pregnant for two or three times .The lowest Proportion (27.57%) of them got pregnant four times or more. Concerning number of living children it was observed that nearly to three quarter (72.50%) of the studied mothers had one or two living children, while one quarter of them (27.50) had three or more living children.

Table (3) Distribution of the studied mothers' according to their knowledge about colostrum.

Knowledge about colostrum						
	Correct		**Partial correct**		**Incorrect**	
	No	**%**	**No**	**%**	**No**	**%**
Meaning of colostrum	26	65	2	5	12	30
Initiation time	21	52.5	6	15	13	32.5
Duration of colostrum production after delivery	19	47.5	5	12.5	16	40
Colostrum components	8	20	12	30	20	50
Colostrum importance for baby:						
.Contains important nutrients	22	55	11	27.5	7	17.5
.Protect the baby from infection	24	60	13	32.5	3	7.5
.Can easily digest	16	40	10	25	14	35
.Decrease the chance of occurrence of neonatal jaundice	20	50	9	22.5	11	27.5
.Don't know						

Table 3 presents distribution of studied mothers 'according to their knowledge About colostrum. As regards meaning of colostrum and its initiation time 65%,52.5% of the studied mothers 'gave correct answer respectively, while 30%,32.5% of them gave incorrect answer respectively. Concerning duration of colostrum production after delivery it was illustrated that Less than one- half of the studied mothers 47.5% gave correct answer while about half of them 40% gave incorrect answer. Considering component of colostrum,20% of the studied mothers 'gave correct answer, while 30% of them gave partial correct answer, and 50% of them gave incorrect answer .Concerning Importance of colostrum for the baby the table also illustrated that 55%and 60% Of the studied mother reported that colostrum gives the baby important nutrients and it is protect the baby from infection respectively while 27.5% and 32.5% of them gave partial correct answer and17.5% ,7.5% of them gave incorrect answer. On the other hand it was found that 40%of the study subjects mentioned that colostrum easly digest while 25% of them Gave partial correct and 35%of them gave incorrect answer.Finally the table also illustrated that 5%of the study subject reported that colostrum decrease the chance of occurrence of neonatal jaundice while 22.5%of them gave partial correct and 27.5%of them gave incorrect answer.

Table (4): Distribution of studied mothers' according to their positive and negative believes toward colostrum on pre, post and follow-up.

Items	**Pre intervention**		**Post intervention**		**Follow up**		**$\chi 2$**	**P value**
	No	**%**	**No**	**%**	**No**	**%**		
Positive Believes:								
Early initiation of breast feeding has more benefits for mother and baby								

Agree	24	60%	34	85%	31	77.5%	$\chi^2$1= 17.72	P1=.000
Neutral	2	5%	6	15%	4	10%	χ^2 2=5.53	P2=.063
Disagree	14	35%	0	0%	5	12.5%		
Colostrum is the first nutrition given to the newborn immediately after birth than other fluids(sugared water, herbal fluids, glucose, others)								
Agree	24	60%	35	87.5%	32	80%	$\chi^2$1= 12.14	P1=.002
Neutral	6	15%	5	12.5%	2	5%	χ^2 2=7.42	P2=.024
Disagree	10	25%	0	0%	6	15%		
Colostrum is a gift from God								
Agree	35	87.5%	38	95%	38	95%	$\chi^2$1= 2.32	P1=.313
Neutral	3	7.5%	2	5%	2	5%	χ^2 2=.00	P2=1.000
Disagree	2	5%	0	0%	0	0%		
Colostrum is the best food for the baby during the first three days after birth								
Agree	16	40%	31	77.5%	25	62.5%	$\chi^2$1=20.28	P1=.000
Neutral	6	15%	8	20%	8	20%	χ^2 2=5.14	P2=.076
Disagree	18	45%	1	2.5%	7	17.5%		
Colostrum is nutritious because it is full of vitamins								
Agree	11	27.5%	33	82.5%	29	72.5%	$\chi^2$1= 25.75	P1=.000
Neutral	22	55%	7	17.5%	10	25%	χ^2 2=1.78	P2=.409
Disagree	7	17.5%	0	0%	1	2.5%		
Colostrum is easy to be digested								
Agree	18	45.0%	28	70%	25	62.5%	$\chi^2$1= 14.35	P1=.001
Neutral	10	25%	12	30%	10	25%	χ^2 2=5.35	P2=.069
Disagree	12	30%	0	0%	5	12.5%		
Colostrum protects the baby from disease								
Agree	5	12.5%	39	97.5%	29	72.5%	$\chi^2$1= 58.45	P1=.000
Neutral	21	52.5%	1	2.5%	5	12.5%	χ^2 2=10.13	P2=006
Disagree	14	35%	0	0%	6	15%		
Beneficial for mothers health								
Agree	10	25%	32	80%	24	60%	$\chi^2$1=25.78	P1=.000
Neutral	23	57.5%	8	20%	12	30%	χ^2 2=5.94	P2=.051
Disagree	7	17.5%	0	0%	4	10%		
Gives passive immunity for the baby								
Agree	3	7.5%	31	77.5%	24	60%	$\chi^2$1=43.85	P1=.000
Neutral	21	52.5%	9	22.5%	8	20%	χ^2 2=8.95	P2=.011
Disagree	16	40%	0	0%	8	20%		
Gives growth factor for the baby								
Agree	2	5%	28	70%	21	52.5%	$\chi^2$1= 41.47	P1=.000
Neutral	22	55%	12	30%	11	27.5%	χ^2 2= 9.04	P2=.011
Disagree	16	40%	0	0%	8	20%		
Negative Believes:								
Colostrum is insufficient for baby								
Agree	22	55%	3	7.5%	12	30%	$\chi^2$1=25.48	P1=.000
Neutral	8	20%	6	15%	4	10%	χ^2 2=6.69	P2=.035
Disagree	10	25%	31	77.5%	24	60%		
Colostrum is harmful for baby								
Agree	22	55%	8	20%	14	35%	$\chi^2$1= 20.13	P1=.000
Neutral	8	20%	2	5%	4	10%	χ^2 2=3.53	P2=.171
Disagree	10	25%	30	75%	22	55 %		
Colostrum is not white milk								
Agree	23	57.5%	5	12.5%	11	27.5%	$\chi^2$1= 23.57	P1=.000
Neutral	8	20%	5	12.5%	6	15%	χ^2 2=3.26	P2=.195
Disagree	9	22.5%	30	75%	23	57.5%		
Colostrum is dirty looks like pus								
Agree	32	80%	7	17.5%	15	37.5%	χ21= 31.32	P1=.000
Neutral	1	2.5%	3	7.5%	4	10%	χ2 2=4.64	P2=.098
Disagree	7	17.5%	30	75%	21	52.5%		
Colostrum should be squeezed from the breast and get rid								
Agree	19	47.5%	4	10%	13	32.5%	$\chi^2$1= 14.31	P1=.001
Neutral	6	15%	7	17.5%	4	10%	χ^2 2=6.27	P2=.043

Disagree	15	37.5%	29	72.5%	23	57.5%		
Colostrum causes diarrhea for baby								
Agree	22	55.0%	3	7.5%	10	25.0%	$\chi^2$1= 24.32	P1=.000
Neutral	5	12.5%	3	7.5%	3	7.5%	χ^2 2=4.57	P2=.102
Disagree	13	32.5%	34	85.0%	27	67.5%		
Colostrum causes vomiting for baby								
Agree	14	35.0%	3	7.5%	5	12.5%	χ21= 14.16	P1=.001
Neutral	9	22.5%	4	10.0%	8	20.0%	χ2 2=2.43	P2=.296
Disagree	17	42.5%	33	82.5%	27	67.5%		
Colostrum causes constipation for baby								
Agree	15	37.5%	3	7.5%	8	20.0%	χ21= 13.70	P1=.001
Neutral	11	27.5%	8	20.0%	7	17.5%	χ2 2=2.63	P2=.268
Disagree	14	35.0%	29	72.5%	25	62.5%		

Table 4 Shows distribution of studied mothers' according to their positive and negative believes toward colostrum on pre, post and follow-up.

Concerning positive believes, it was illustrated that the study mothers' were more likely to agree with the believes that colostrum is a gift from god (87.5% pre-intervention, 95% post interventionan,95% follow-up; with X2 = 2.32 and P==.313), **early initiation of breast feeding has more benefits for mother and baby** (60% pre-intervention,85% post-intervention,77.5% ;with X^2 = 17.72 and P=.000) , **best food** for the baby (more than two quarters (40%) of mothers pre-intervention, less than three quarters (77.5%) of them post-intervention, more than half (62.5%) of them follow-up intervention ;with X^2 = 20.28 and P=.000) , **easy to be digested** (45% pre-intervention, 70% post -intervention,62.5% follow-up; with X^2 = 14.35 ; P=.001), whereas **protects the baby from disease** (12.5% pre-intervention,97.5% post intervention, 72.5% follow-up ; with X2 = 58.45 ; P==.000), **first nutrition given to the newborn** (60%pre-intervention, 87.5% post intervention, 80% follow-up; with X^2 = 12.14 ; P=.002), **nutritious for baby because it is full of vitamins** (57.5%pre-intervention,82.5% post-intervention, 72.5% follow-up ; with X2 = 25.75 and P==.000)

Moreover regarding negative believes, it was found that (55% in pre-intervention, 7.5% post-intervention; 30% follow-up) of the study mothers agreed with the believes that colostrum is insufficient for baby ; with X^2 = 25.48 and P=.000), also more than half of the studied mothers among pre-intervention agreed with the believe that colostrum is harmful for baby compared to one quarter of them in post-intervention; more than one third in follow-up (with X^2 = 20.13 and P=.000), 57.5% pre-intervention, 12.5% post intervention, 7.5% follow-up) of the study mothers agreed with the believe that colostrum is not white milk ;with X^2 = 23.57;P=.000), correspondingly (80% pre-intervention,17.5% post-intervention, 37.5% follow-up) of the study mothers agreed with the believes that the colostrum is dirty looks like pus ; with X^2 = 31.32 and P=.000) , (47.5% in pre-intervention, 10% post-intervention, 32.5% follow-up) of the study mothers agreed with that colostrum should be squeezed from the breast and get rid ;with X^2 = 14.31;P=.001), furthermore (55% pre-intervention,7.5%) post-intervention, 25% follow-up) of the study mothers agreed with that believe the colostrum causes diarrhea for baby ;with X^2 = 24.32 ; P=.000), (35%,pre-intervention,7.5% post –intervention, 12.5% follow-up) of the study mothers agreed with that colostrum causes vomiting for baby ; with X^2 = 14.16 ; P=.001), it was founded that (37.5% pre-intervention, 7.5% post- intervention, 20% follow-up) of the study mothers in agreed with that colostrum causes constipation for baby ;with X^2 = 13.70 ; P=.001)

Disagree	14	35.0%	29	72.5%	25	62.5%		

Table (5): Distribution of studied mothers according to first nutrition given to newborns by the mothers (n=40)

Nutrients	Frequency	Percent
Sugared water	**13**	**32.5**
Herbal fluids	**9**	**22.5**
Plain water	**3**	**7.5**
glucose	**5**	**12.5**
Breast milk	**8**	**20**
Other	**2**	**5**

Table 5 shows the first nutrition given to newborns. Most of the mothers (32.5) gave sugared water upon the birth of their babies. They gave these nutrients until the production of white milk. Usually for up to 3 days. Usually for up to 3 days. Some mothers gave different kinds of nutrients in the first day of life. Nearly one quarter (22.5%) gave herbal fluids especially were regarded as having curative effects on indigestion and

stomach ache. Additionally herbal fluids were consider to cleanse the stomach of the baby. About one quarter (20%) of studied mothers gave breast milk.

Table (6): Reasons for not giving colostrum by mothers who did not give breast milk to their infants within the first hour of birth (n=40)

Reasons	Frequency	Percent
I had no white milk	**12**	**30**
First milk dirty looks like pus	**8**	**20**
Every body says it should not be given	**3**	**7.5**
Baby did not like it	**5**	**12.5**
Because I had cesarean section	**10**	**25**
I do not know	**2**	**5**

Table 6 Illustrate the reasons for not giving colostrum as cited by some mother. Who did not give Table their infants breast milk within the first hour of birth. Mothers believe that colostrum is always produced within the first three days of birth and that it should not be given to newborns. Mothers report that colostrum causes stomach ache and infant dislike this milk. Mothers squeeze their breast to get rid of this first milk until white milk is produced.

Table (7): Distribution of studied mothers according time of initiation of Breast feeding

Time of initiation	Frequency	Percent
Within the first 1h	22	55.00
Between the 1st and 24th hours	3	7.50
Later then the second day	15	37.50

Table 7 shows distribution of studied mothers according to their time of initiation of breast feeding , it was illustrated that more than half (55.00)of the studied mother initiate breast feeding within the first 1h. While about one third of the studied mother initiate breast feeding between the 1st and 24th hours, the lowest proportion of them initiate later then the second day.

Table (9): Distribution of studied mother's total knowledge about colostrum on pre, post and follow-up (n=40)

Items	Pre intervention		Post intervention		Follow up		χ^2	P-value
	No	%	No	%	No	%		
Poor knowledge	31	77.5%	0	.0%	9	22.5%	$\chi^2$1= 50.61	P1=.000
good knowledge	9	22.5%	40	100.0%	31	77.5%	χ2 2=10.14	P2=.001
Total knowledge about colostrum	13.20 ± 1.99		18.42 ± 1.35		16.62 ± 2.88		59.780	.000

Statistically significant at P< .001

Table 9 shows distribution of studied mother 's total knowledge about colostrum on pre, post and follow-up. It revealed that the majority of mothers (100.0%, 77.5% respectively) had more knowledge about colostrum on post and follow up tests than on pre intervention. Therefore, there were highly statistical significant differences between mothers' knowledge (p=<0.001).on other hand, there was a statistical significant difference between mothers regarding total mean mothers knowledge (p=<0.001).

Table (10): Distribution of studied mothers total positive believes and total negative believes on pre, post and follow-up (n=40)

Items	Pre intervention		Post intervention		Follow up		χ^2	P-value
	No	%	No	%	No	%		
Total believes							$\chi^2$1= 39.43	P1=.000
Negative	28	70.0	1	2.5	3	7.5		
Positive	12	30.0	39	97.5	37	92.5	χ^2 2=9.80	P2=.002

* Statistically significant at P< .001

Table 10: shows distribution of studied mothers total positive believes and total negative believes on pre, post and follow-up. It displayed that, there were statistical significant differences in relation to mothers total positive believes and total negative believes on pre, post and follow-up (P< .001).

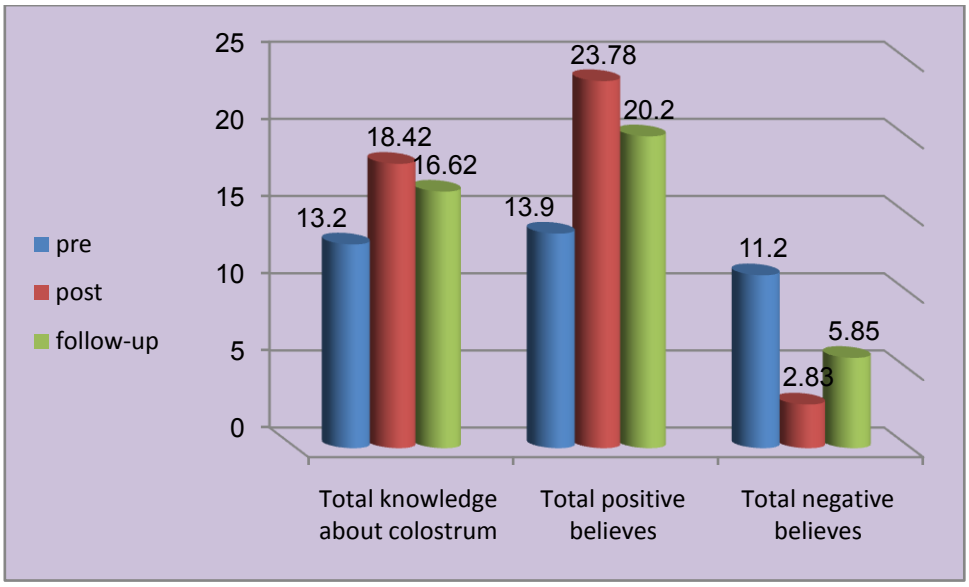

Figure (1): Mean of total mothers knowledge, positive believes and negative believes about colostrum on pre, post and follow-up

Figure 1 shows Mean of total mothers knowledge, positive believes and negative believes about colostrum on pre, post and follow-up. It revealed that, mean total mothers knowledge, positive believe and negative believe pre- implementation of program were 13.2, 13.9 and 11.2 about colostrum respectively, while, mean total mothers knowledge, positive believe and negative believe post and follow up - implementation of program were 18.4, 16.6, 23.7, 20.2 and 2.8, 5. 8 about colostrum respectively .

Table (11): Pearson Correlation between total mothers knowledge, positive believes and negative believes about colostrum

Items	Total mothers knowledge about colostrum	
	r	P -value
Total positive believes	.848**	.000
Total negative believes	-.802**	.000

** Correlation is significant at the 0.01 level (2-tailed).

Table 11 shows Pearson Correlation between total mothers knowledge, positive believes and negative believes about colostrum. There were a positive correlation between total mothers knowledge, positive believes and negative believes about colostrum.

IV. Discussion

Colostrum, a nutrient-rich fluid produced by female mammals immediately after giving birth, is loaded with immune, growth and tissue repair factors. It is a complex biological fluid, which helps in the development of immunity in the newborn. It contains significant quantities of complement components that act as natural anti-microbial agents to actively stimulate the maturation of an infant's immune system**(Yimer and Liben, 2018).**

Human milk is the best form of nutrition for newborn. It is produced by women universally. In the first three days of newborn life mother should initiated breast feeding. It is very important because in this period colostrum is start for secreted **(Bierew et al.,2016).** Colostrum has positive role in fighting infection.it provide newborn by strong health and immunity factors. It promotes children growth and development and protect their from many diseases.. nurses believes and practices of colostrum are very important. They would help the nurse to provide specifically tailored health education regarding breast feeding .furthermore ,it would help the nurse to provide proper knowledge that they may counteract erroneous believes regarding colostrum. **(Amelie et al., 2019).**

The current study hypothesized that Maternity and neonatal mother's knowledge toward colostrum will be improved significantly after their participation in the guideline education program than before. It also hypothesized that Maternity and neonatal mothers who would share in guideline education program would have strong positive believes related to colostrum feeding than before.

In relation to hypothesis one: Maternity and neonatal mothers knowledge toward colostrum will be improved significantly after their participation in the guideline education program than before. The present

study illustrated that regarding mothers knowledge about colostrum on pre intervention and posttests maternity and neonatal mothers had more knowledge about colostrum on posttest than on pretest. the findings showed that the overall level of mothers knowledge was significantly improved with the intervention.

However, it could be inferred that the program helped mothers to improve their knowledge about colostrum that confronted them during their attendance in postnatal department. This could be rationalized as the researcher used different educational strategies (oral presentations , group discussion, feedbacks and explanatory booklets) .

This result was in line with Wiryo and. Hakim, (2012) which conducted a study about "Implementation of Health Education, Based on Ethnographic Study, to Increase the Colostrum and Decrease Early Solid Food Feeding". They demonstrated that mothers participation in educational sessions regarding colostrum and breast feeding have improve their awareness and they have acquire necessary knowledge about the breast feeding and colostrum.

Several studies documented these findings and reported that women's

education and other important factor may affect their believes toward breast feeding.

In addition, these results were also supported by Somane S(2016) which conducted a study about" A descriptive study to Assess the Knowledge and Attitude of Third Trimester Antenatal Mothers regarding Colostrum Feeding". It highlighted the health team should be aware of the need of observing , supervising , teaching and imparting the knowledge on colostrum feeding.

Also, these results were consistent with Lewis and Reynolds (2014) which conducted a study about "The colostrum is the first defense for neonates". mentioned that a significant improvement in mothers about colostrum following education and training. The educational strategies included classroom presentations, class discussion, and videotapes. The participants were provided with hard copies of the presentation's slides. Also, booklets about colostrum. they found that health education programs about breastfeeding and importance of colostrum by the health professionals should be made as ongoing process in the outpatient departments, maternity wards and in the community settings.

According to the present study findings total score of believes regarding colostrum is significant affected by educational level , mother's age, residence and type of their families .

V. Conclusion:

This study concluded that Guideline education program about colostrum improved most of maternity mothers knowledge and believes regarding colostrum.

VI. Recommendation

- Guideline education program about colostrum should be performed to upgrade maternity mothers knowledge and believes regarding colostrum.

-Engaging social and family decision makers involving men to motivate and support mothers.

-Establishing peer support social network.

-Creating awareness through mass media about the benefits of the early and timely initiation of breast feeding.

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