



Breast Feeding Knowledge and Practices Among Primiparous Women with Caesarean Section: Impact on Breast Engorgement in Upper Egypt

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ABSTRACT

Background: The benefits of breast milk are greatly enhanced if breastfeeding starts within one hour after birth. Human milk contains a host of dynamic and unique feeding properties. Breast engorgement is one of the most common minor discomforts confronting nursing women after delivery, especially Primiparous. *The aim of the study* was to investigate the breastfeeding knowledge and practices among primiparous women with a cesarean section and its impact on breast engorgement in Upper Egypt. The study was conducted in the postnatal unit of Beni-Suef University Hospital. *The study design* was a descriptive study. *The type of sample* was a simple random sample. *The study comprised* 90 Primiparous cesarean section mothers; suffer from breast engorgement. *Tools of Data Collection* were interview questionnaire sheet, knowledge assessment sheet, observational checklist, and engorgement assessment scale. *The study revealed* that the studied women's knowledge and technique of breastfeeding were not adequate among the whole study sample. Breast engorgement was more prevalent among the younger, less educated, housewives, low social class's women and those who were rural dwellers. **Recommendation:** Providing the mother with guidance and support on positioning and latching and modification of hospital practices are effective in reducing breast problems.

Key words: Primiparous, Knowledge, Caesarian Section, Breast engorgement.

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Introduction

Breast milk is the natural and optimal food for the newborn infant. It is superior to any alternative form of infant formula and is uniquely designed to meet the nutritional needs of the infant. The benefits are greatly enhanced if breastfeeding starts within one hour after birth. Early breastfeeding allows the baby to enjoy the benefits of Colostrum and prevent many infant feeding problems. Human milk contains a host of dynamic and unique feeding properties. Studies have demonstrated that the health benefits of breast milk are associated with how long an infant receive it and whether breast milk is given exclusively or supplemented with other feedings [1,2].

The advantages of breastfeeding are more than just the advantages of feeding a baby on breast milk. Breastfeeding protects a mother's health in several ways and can benefit the whole family, and society. Education of mother about breastfeeding will increase the like-hood of successful breastfeeding experience. Breastfeeding is not instinctive, it is learned. It is a natural process, but takes "Know-How". Ideally, each breastfeeding mother should have a breastfeeding evaluation to determine any knowledge deficit and acknowledge. For breastfeeding, teaching topics include comfortable position, appropriate techniques, feeding frequency, the letdown reflex, care of breast, and length of feeding [2,21,80].

Breast engorgement is considered among the most significant problems encountered in the 1st

week of motherhood [14]. Breast engorgement is stated as enlarged and filling of the breasts with milk. Lactation literature refers to engorgement as the physiologic condition characterized by the painful swelling of the breasts associated with sudden increase in milk volume, lymphatic and vascular congestion, and interstitial edema during the first two weeks following birth. Engorgement is a normal physiologic process with a progression of events, not a result of trauma or injury to tissues [108,42]

Breast engorgement is one of the most common minor discomforts confronting nursing women after delivery, especially Primiparous. As a result of increased blood supply to the breast, it causes swelling of the tissue surrounding the milk ducts. The duct may be pinched shut so that the milk does not flow [112,90]. The breasts are firm, tender, swollen & hot and they are throbbing. The skin is taut, shiny, or transparent and low-grade fever. The tenderness & swelling may extend into the axilla. The areola is firm and the nipple may flatten, and the areola is too hard to grasp, making it difficult for a newborn to latch on [112, 68]

Some degree of breast engorgement is normal. Minimal or no engorgement in the first week postpartum has been associated with insufficient milk, early supplementation, and a higher percentage of breastfeeding decline in the early weeks. Women with mild to moderate hypoplastic breasts with a wide intramammary space (>1 inch) and a tubular shape are at particular risk for producing less than 50 % of the milk necessary for the first week [76,74, 48]. Moderate to severe engorgement is of more concern. Rates of engorgement between 20 % and 85 % have been reported in the literature based on numerous definitions and are usually limited to the first few days postpartum. Such reports described engorgement as peaking between day 3 and day 6 and declining thereafter. However, data from two unpublished masters theses suggest that mothers experience more than one peak of engorgement and that engorgement may continue for as long as ten days or more [88,20]

If breast engorgement is not promptly treated, it may lead to some complications such as; Feeding problems or slow weight gain if the baby is unable to latch on the engorged breast [21] sore and cracked nipple due to the baby fumbling on/off as he tries to grasp hold of a too firm breast. [71], deep breast pain (in most cases this response to improvement of breastfeeding technique and is thus likely to be due to raised intraductal pressure caused by inefficient milk removal). [30], Thrush; a fungal infection can be formed on the nipple or within the breast (especially cracked nipple or congested breast), as they live on milk.

[4], Plugged ducts (some mothers experience plugging of one or more ducts, results from accumulation of milk or dead cells that have not been expelled from the breast) [82], Damage of the milk-producing cells which may in turn cause an overall decrease in milk supply [68], Mastitis (acute intramammary), and breast abscess [91,35, 94,42].

Significant of the study

Breast engorgement is considered among the most significant problems encountered in the first week of motherhood. Moderate to severe engorgement is of more concern. Rates of engorgement between 20% and 85% have been reported in the literature based on numerous definitions. The main importance lies in the fact that the engorged breast can prevent nursing, leading to a decrease in milk production [37]. One of the most important aspects of midwifery care is providing accurate and consistent advice on how to prevent breast engorgement and, if the problem occurs, how to overcome it, to reduce early cessation of breastfeeding. Therefore, this study was undertaken to assess women knowledge and practiced regarding breastfeeding. Assess the prevalence and severity of breast engorgement among a group of breastfeeding women delivered the caesarian section. Apply and find out the effect of some nursing measures that may relieve breast engorgement among a group of breastfeeding women with a cesarean section.

Aim of the Study

Investigate the breastfeeding knowledge and practices among primiparous women with cesarean section and its impact on breast engorgement in Upper Egypt. *The aims of this study achieved through:* Assess the women with breast engorgement among a group of breastfeeding women delivered the caesarian section.

Research Questions

1. What is the Knowledge adequacy regarding breastfeeding among primiparous women with cesarean section in Upper Egypt?
2. What is the competence of breastfeeding practices among primiparous women with cesarean section in Upper Egypt?
3. What is the prevalence and degrees of severity of breast engorgement among a group of breastfeeding women delivered the caesarian section?
4. Is breast engorgement among a group of breastfeeding women delivered the caesarian section will be affected by women's knowledge and practices of breastfeeding?

Subjects and Methods

Technical Design

Study design: This study is a descriptive study.

Setting: The study was conducted in postnatal unit of Beni-Suef University hospital.

Subjects

Samples size

Total study subjects of 90 primiparous parturient women who delivered by caesarian section and suffer from breast engorgement for a period of 6 months were included in the study from the previously mentioned setting with the following criteria; Free from medical disease which interferes with breastfeeding (infectious disease as active pulmonary tuberculosis), Initiate breastfeeding, Her baby is normal.

Sample type

Primiparous women who delivered by caesarean section randomly selected.

Tools of Data Collection

Three tools were used to collect the necessary data about the study subjects as the following:-

Tool (1):A specialized designed structured interview schedule was developed based on the review of currently related literature and used by the researcher to collect the necessary data about the study subjects. It comprised of two main parts:-

Part (A):- A structured interview questioner

1. Included the general characteristics of the study subjects such as name, age, residence, address, phone number, educational level, type of family, family income, occupation.
2. Antenatal assessment sheet to assess antenatal care during the last pregnancy.

Part (B):-Knowledge assessment sheet

1. It included questions related to women's Knowledge regarding breastfeeding.
2. Also, included questions related to women's Knowledge regarding breast engorgement concerning its definition, causes, signs & symptoms, complications as well as practices for its management.

Scoring System for women's Knowledge

Puerperal women's Knowledge about breast feeding and breast engorgement. The answers to

the questions were divided into two categories, these were a correct and incorrect answer.

- a. 0 = incorrect answer. \
- b. 1 = correct answer.

The correct answers were predetermined according to literature and the questions were coded accordingly. Each knowledge question was given a score and the total score for knowledge regarding breastfeeding and breast engorgement was obtained for each study subject. The possible range for the score was from zero to 100 for Knowledge regarding breastfeeding, while it was from zero to 30 regarding breast engorgement. Women's total score of knowledge was classified as follows:-

- If $\geq 75\%$ correct answer = Good Score.
- If from 50% & $< 75\%$ correct answer = Average Score.
- If $< 50\%$ correct answer = Poor Score.

Tool (2):Breastfeeding assessment: It comprised of two main parts:-

Part (A):- Observational checklist

It contains items related to proper breastfeeding technique as the initiation of breastfeeding, the technique used in breastfeeding, duration of breastfeeding, unilateral or bilateral breastfeeding, rooming-in, method of nipple withdrawal, and the number of breastfeeding per day.

Part (B):- Breast Feeding Assessment

During the birthing unit stay, the researcher, carefully, monitor the progress of the breastfeeding pair. A systematic assessment of several breastfeeding episodes provides the opportunity to teach the new mother about lactation and the breastfeeding process, provide anticipatory guidance, and evaluate the need of follow up care after discharge. Criteria for evaluating a breastfeeding session include maternal & infant cues, latch on, position, and let down, nipple condition, infant response, and maternal response. The literature provides a previous tool to guide the assessment and documentation of breastfeeding efforts [82]

<i>LATCH scoring table</i>			
	0	1	2
L Latch	* Too sleepy or reluctant * No latch achieved	* Repeated attempts * Hold nipple in mouth * Stimulate to suck	* Grasps breast * Tongue down * Lips flanged * Rhythmic sucking
A Audible sound	Non	A few with stimulation	*Spontaneous & intermittent hours old *Spontaneous & frequent<24 ho old
T Type of nipple	Inverted	Flat	diverted(after stimulation)
C Comfort (breast nipple)	* Engorgement *Cracked, bleeding, la blisters or bruises * Sever discomfort	* Filling * Reddened * Small blisters or bruises *Mild/ moderate discomfort	* Soft * No tender
H Hold (positioning)	Full assist (staff hold inf at breast)	*Minimal assist (e.g. elevate head bed, place pillows for support). * Teach one side; mother does ot * Staff holds and then mother ta over	* No assistant from staff * Mother able to position & h infant
A breastfeeding charting & documentation tool. (LATCH) was created to provide a systematic method for breastfeeding assessment and charting. It can be used to assist the newborn mother in establishing breastfeeding & define areas of needed intervention[21]			

Tool (3): Engorgement assessment scale: This tool was especially designed to provide the baseline data of the subjects regarding their signs and symptoms of the engorged breast. It was implemented by using an observational checklist which illustrated the breast current condition (redness, swollen or edema of the skin and pain) as well as pyrexia. This tool comprised four main parts:-

Part (A):-Modified Reeda Scale (RS) *

The modified Reeda Scale (RS, 1989) was used to provide the most objective means for evaluating the condition of the engorged breast after delivery concerning to redness (R). Mild redness was characterized by presence less than 0.25 cm of redness in the bilateral breasts or less than 0.5 cm of redness in the unilateral breast. Moderate redness was characterized by an increase of redness to 0.5 cm in the bilateral breasts or 1 cm in only one breast. Severe redness was characterized by an increase of redness to more than 0.5 cm in each breast or more than 1 cm in only one breast.

Redness was determined through four levels

*The Reeda Scale is a tool used to provide the most effective means for evaluating the condition of the skin in relation to 5 factors (redness, edema, ecchymosis and healing). "To assess the effect of comfort measures on the healing process by Hill (1989)".

- No redness = 0.
- Mild redness(if redness <0.25 cm bilateral or <0.5 cm unilateral) = 1.
- Moderate redness (if redness =0.5 cm bilateral or = 1 cm unilateral) = 2.
- Severe redness (if redness> 0.5cm bilateral or >1 cm unilateral) = 3.

Part (B):- Visual Analog Scale (VAS)

It is a subjective self-reported scale for description mother self-rating of pain. The scale was used to identify the three pain levels according to **La Foy and Geden (1989)** as the following:-

Mild pain was characterized by pinking and/or aching, moderate pain was characterized by pressing, sharp cramping, and burning, while severe pain was characterized by no tolerance to pain.

Pain was determined through four levels

- No pain = 0.
- Mild pain = 1.
- Moderate pain = 2.
- Severe pain = 3.

Part (C):- Newton's Scale (1951)

This scale entails measuring the chest circumference just above the nipple in the semi-recumbent position during the first 12 hours after delivery [53,101]. This measurement is considered to baseline measurement to assess breast edema as the following

No edema was characterized by an increase of chest circumference of less than 1.5 cm. Mild edema was characterized by an increase of chest circumference of 1.5 cm to less than 2.5 cm. Moderate edema was characterized by an increase of chest circumference of 2.5 cm to less than 4 cm. Severe edema was characterized by an increase of chest circumference of more than 4 cm.

Breast edema was determined through four levels

- No edema = 0.
- Mild edema = 1.
- Moderate edema = 2.
- Severe edema = 3.

Part (D):- Pyrexia Chart

A thermometer is used to measure body temperature (to determine pyrexia).

Pyrexia was assessed through four levels

- Nopyrexia (body temperature = 37°C to 37.4°C) = 0.
- Mild pyrexia (body temperature = 37.5°C to 37.9) = 1.
- Moderate pyrexia (body temperature = 38°C to 38.4) = 2.
- Severe pyrexia (body temperature \geq 38.5°C) = 3.

Total Scale of Breast Engorgement

The occurrence of breast engorgement was determined according to the collection of the total scores in Tool (3)

$$\text{Total (T)} = \text{redness} + \text{pain} + \text{edema} + \text{pyrexia}$$

The degree of breast engorgement was estimated according to the following:-

- ❖ No breast engorgement if $T < 4$
 - ❖ Mild breast engorgement if $T \geq 4$ & < 8
 - ❖ Moderate breast engorgement if $T \geq 8$ & < 12
 - ❖ Severe breast engorgement if $T \geq 12$
- No engorgement = 0.
 - Mild engorgement = 1.
 - Moderate engorgement = 2.
 - Severe engorgement = 3.

Operational Design

The study to be completed was passed through different phases as follows: Preparatory phase then the pilot study and the field work.

Preparatory Phase

Tools development:-The tools of data collection were developed by the researcher after extensive review of recent and related literature.

Ethical Considerations

- The researcher took consent from women included participating in the study.
- The researcher tools didn't embarrass of modesty and didn't cause any harm or pain for the participant women.
- The researcher tools didn't cause any physical, psychological and social risk.
- The participant has the right to withdraw at any time.

Pilot Study

A pilot study was carried out on 10% of women (18 cases) who were excluded from the sample to ascertain their clarity, estimated time, efficiency and applicability and the necessary changes were undertaken.

Field Work (Procedure)

The researcher selects lactating cesarean women who fulfilled the criteria. The researcher explained the purpose of the study to every woman, and then her consent to participate in the study was obtained. Each interview was conducted individually and in total privacy to assure that information to be obtained will be confidential and will be used only for research purpose.

Six days per week specified for data collection until the study sample completed for 6 months starting from January till June 2010. Women attended to the postnatal ward were interviewed. The average number of the interviewee was 1-3 per day and the time taken for each sheet to complete was 50-60 minutes, depending upon the response of interviewee.

The study proceeds as the following

The whole primiparous cesarean women were interviewed by the researcher during the first 12 hours after delivery to find out the general characteristics of the sample and assess their knowledge about breastfeeding and breast engorgement. Also, the condition of their breasts was assessed during the initial interview according to the pre-designed checklist which is used in Newton's Scale. This assessment was considered as the base-line measurement of chest circumference.

The whole sample (90 lactating women) that was suffered from breast engorgement. They were interviewed by the researcher in the 3rd postnatal

day to identify their current signs, symptoms and complain (base-line data of the participants).

Administrative Design

Official permission to conduct the study was obtained from responsible authorities after an explanation of the purpose of the study.

Statistical Design

The data collected were computerized, revised, categorized, tabulated, analyzed, and presented in descriptive and associated statistical form using the statistical software SPSS. The necessary tables were then prepared and statistical formulas were used. The following statistical measures were used:

Descriptive measures included percentages, arithmetic mean (\bar{x}), and standard deviation (SD).

Statistical tests included

Chi-square (χ^2) test for analysis of qualitative variables.

r test for analysis of correlation association.

Graphical presentation included Column-chart diagrams.

The level of significance selected for this study was P equal to or less than 0.05.

Results

Table 1 illustrates the distribution of the study subjects according to their general characteristics. It was found that the mean age was 23.25 ± 5.75 and the mean age of marriage was 21.62 ± 6.25 . Concerning their level of education, it was clear that those who had secondary or equivalent secondary education constituted 40.0% of the studied group. The majority of both the studied women (75.6%) were housewives. The same table shows that 52.2% of the studied women were from rural areas. Considering the type of family, it was observed that 51.1% of studied subjects had extended family. Concerning to family income, it was observed from the same table that 57.8% of the studied women didn't have enough family income.

As shown in **table 2**; 70.0% & 17.8% of the studied women did not have or had less than 4 visits for follow-up during their last pregnancy. No one of them performed breast preparation during their pregnancy. Moreover, a sizable proportion of the subject (92.2%) did not receive any information about breastfeeding and breast care and problems associated with breastfeeding during antenatal follow-up visits.

It was found in **table 3** that 26.7% of the studied women had no information about the benefits of breastfeeding for the mother. Moreover, regarding women's knowledge about the component of breast milk, it was found that

74.4% of them had no or incorrect information about it. As regards women's knowledge about suitable positions for breastfeeding, it was observed that only 3.4% of the women know the right positioning for breastfeeding and only 3.3% of them had complete knowledge about infant hunger cues, furthermore, and no one of them had a completely correct answer about infant satiety cues.

Table 4 presents the distribution of the samples according to their knowledge about the breast engorgement. It was found that a large percentage (57.8%) of the studied women reported correct but incomplete answer regarding signs & symptoms of breasts engorgement. It is noticed from the same table that 56.7% from the study sample had no idea about complications of breasts engorgement.

It was obvious from **Figure 1** that mothers' knowledge regarding breastfeeding and breast engorgement was very poor. The majority of them got an unsatisfactory score of knowledge regarding breastfeeding and breast engorgement, respectively, (87.8% & 86.7%). It is not worthy to mention that only 1.1% of the subject got a good score for knowledge about breastfeeding and breast engorgement.

Figure 2: Summarizes women's sources of information about their knowledge of the importance & practices of breastfeeding & breast engorgement. It was observed that the main source of information (59.5%) was the midwife or traditional birth attendance.

It is observed in **table 5** that only 3.3% of the studied women initiated breastfeeding in the first postpartum day, immediately after recovery from delivery. Furthermore, all babies for subjects (100%) took prelacteal feeds as glucose or sweetened water. Fortuity, all of the subjects in our setting reported the practice rooming-in for breastfeeding. When the method of nipple withdrawal was checked among the mothers, the result was that the majority and similar proportion of them (75.6%) usually pull the nipple out from the infant's mouth.

Figure 3 presents the distribution of the samples according to the severity degree of breast engorgement. It was observed that moderate engorgement scored the highest percentage (45.6%) for the studied group.

Figure 4: portrays the distribution of the samples according to the severity degree of signs & symptoms of breast engorgement. It was observed that moderate redness and pain scored the highest percentage (38.9% & 45.4%), while mild edema

and pyrexia scored the highest degree (38.9% & 33.4%).

Table 6 illustrates a strong significant negative correlation association was found between the degree of breast engorgement and the age ($r = -0.75$) & age of marriage ($r = -0.75$) for the studied women. The percent of women who were able to read & write, or had basic education (2.5 ± 0.65) had got a high level of engorgement. The same table illustrates that the level of breast engorgement increased in urban areas (2.3 ± 0.7) compared to rural ones (1.82 ± 0.65). Also, a strong significant negative correlation association was found between the degree of breast engorgement and family income for both the study and control sample, respectively, $r = -0.87$.

Table 7 illustrates a strong significant negative correlation association between the degree of breast engorgement and the numbers of antenatal visits for the studied sample, $r = -0.74$. In addition, Strong significant negative correlation association was found between the degree of breast engorgement and their knowledge about breast engorgement, $r = -0.86$.

Table 8 illustrates that the degree of engorgement increased with delaying initiation breast ($r = +0.75$). In addition, introducing nipple only into infant's mouth during feeding ($r = +0.82$), and unilateral lactation ($+0.76$) had a higher degree of engorgement.

Table 1: Distribution of the Samples According To Their General Characteristics

Variables	N	%
Age(in years)		
<20	26	28.9
20-	34	37.8
25-	18	20.0
30-	12	13.3
X̄ ± SD	23.25 ± 5.75	
Education:		
Illiteracy	11	12.2
Read & write, or Basic education	24	26.7
Secondary/technical education	36	40.0
University education	19	21.1
Occupation:		
Working	22	24.4
Housewife	68	75.6
Age of Marriage:		
< 20years	58	64.4
≥ 20 years	32	35.6
X̄ ± SD	21.62 ± 6.25	
Duration of Marriage:		
≤5 years	32	35.6
>5 years	58	64.4
Mean X̄ ± SD	4.05 ± 3.05	
Residence:		
Urban	43	47.8
Rural	47	52.2
Types of Family:		
Extended Family	46	51.1
Nuclear Family	44	48.9
Family Size:		
3- 5	44	48.9
> 5	46	51.1
Mean X̄ ± SD	6.025 ± 2.015	
Family Income:		
Not enough	52	57.8
Enough for living only	30	33.3
Enough & can save from it	8	8.9

Table 2: Distribution of the Samples According To Their Follow up Antenatal Care

Variables	N	%
Follow Up Antenatal Care		
Yes	27	30.0
No	63	70.0
Reasons For not Seeking Antenatal Care #		
Lack of awareness about antenatal care services	29	32.2
Financial factor	44	48.9
Have no decision making power	63	70.0
Long waiting & overcrowding center	11	12.2
Difficult transportation	42	46.7
For high risk cases only & Absence of health problems	23	25.6
Number Of Antenatal Visit		
Non	63	70.0
< 4 time	16	17.8
≥ 4 time	11	12.2
Breast Preparation During Pregnancy		
Yes	0	0
No	90	100
Is Woman Received Knowledge About Breast Feeding , Ca & Problem Associated With Breast Feeding		
Yes	7	7.8
No	83	92.2

Table 3: Women's Knowledge & Practices Regarding Breast Feeding

knowledge	N	%
Importance Of Breast Feeding For Infant		
Complete & Correct	16	17.7
Incomplete & Correct	50	55.6
Don't Know & incorrect	24	26.7
X̄ ± SD	1.6 ± 0.65	
Importance Of Breast Feeding For Mother		
Complete & Correct	9	10.0
Incomplete & Correct	44	48.9
Don't Know & incorrect	37	41.1
X̄ ± SD	1.7 ± 0.65	
Importance Of Breast Feeding For Society		
Complete & Correct	4	4.4
Incomplete & Correct	14	15.6
Don't Know & incorrect	72	80.0
X̄ ± SD	1.335 ± 0.45	
Importance Of Colostrum Milk		
Complete & Correct	26	28.9
Incomplete & Correct	63	70.0
Don't Know & incorrect	1	1.1
X̄ ± SD	2.25 ± 0.5	
Components Of Breast Milk		
Complete & Correct	23	25.6
Incomplete & Correct	35	38.8
Don't Know & incorrect	32	35.6
X̄ ± SD	1.9 ± 0.8	
Steps Of Breast Feeding		
Complete & Correct	0	0.0
Incomplete & Correct	67	74.4
Don't Know & incorrect	23	25.6

X̄ ± SD	1.76 ± 0.4	
Factors That Affect On Breasts Milk Flow		
Complete & Correct	6	6.6
Incomplete &Correct	59	65.6
Don't Know & incorrect	25	27.8
X̄ ± SD	1.75 ± 0.55	
Different Suitable Positions For Infant Breasts Feeding		
Complete & Correct	3	3.4
Incomplete & Correct	65	72.2
Don't Know & incorrect	22	24.4
X̄ ± SD	1.8 ± 0.5	
Indicators Of Their Infant Hunger Cues		
Complete & Correct	3	3.3
Incomplete &Correct	56	62.2
Don't Know & incorrect	31	34.5
X̄ ± SD	1.69 ± 0.55	
Standard Measured That Infant Get All Needed Of Breast Milk (Infant Satiety Cues)		
Complete & Correct	0	0.0
Incomplete &Correct	40	44.4
Don't Know & incorrect	50	55.6
X̄ ± SD	1.465 ± 0.5	

Table 4: Distribution of the Samples According To Their Knowledge about the Breasts Engorgement

Knowledge about the Breasts Engorgement	N	%
It is a one of the problems associated with Breast Feeding		
Yes	65	72.2
No	25	27.8
X̄ ± SD	1.7 ± 0.45	
Definition of Breast engorgement		
Correct answer	41	45.6
In correct answer	49	54.4
X̄ ± SD	1.45 ± 0.5	
Causes of Breast engorgement		
Complete & Correct	1	1.1
Incomplete &Correct	47	52.2
Don't Know & incorrect	42	46.7
X̄ ± SD	1.5 ± 0.5	
Symptoms of Breast engorgement		
Complete & Correct	1	1.1
Incomplete & Correct	52	57.8
Don't Know & incorrect	37	41.1
X̄ ± SD	1.55 ± 0.5	
Complications of Breast engorgement		
Complete & Correct	7	7.7
Incomplete & Correct	32	35.6
Don't Know & incorrect	51	56.7

X̄ ± SD	1.5 ± 0.5	
Preventive measures of Breast engorgement		
Complete & Correct	2	2.2
Incomplete & Correct	39	43.3
Don't Know & incorrect	49	54.5
X̄ ± SD	1.5 ± 0.55	
Management of Breast engorgement		
Complete & Correct	12	13.3
Incomplete & Correct	29	32.2
Don't Know & incorrect	49	54.4
X̄ ± SD	1.6 ± 0.75	

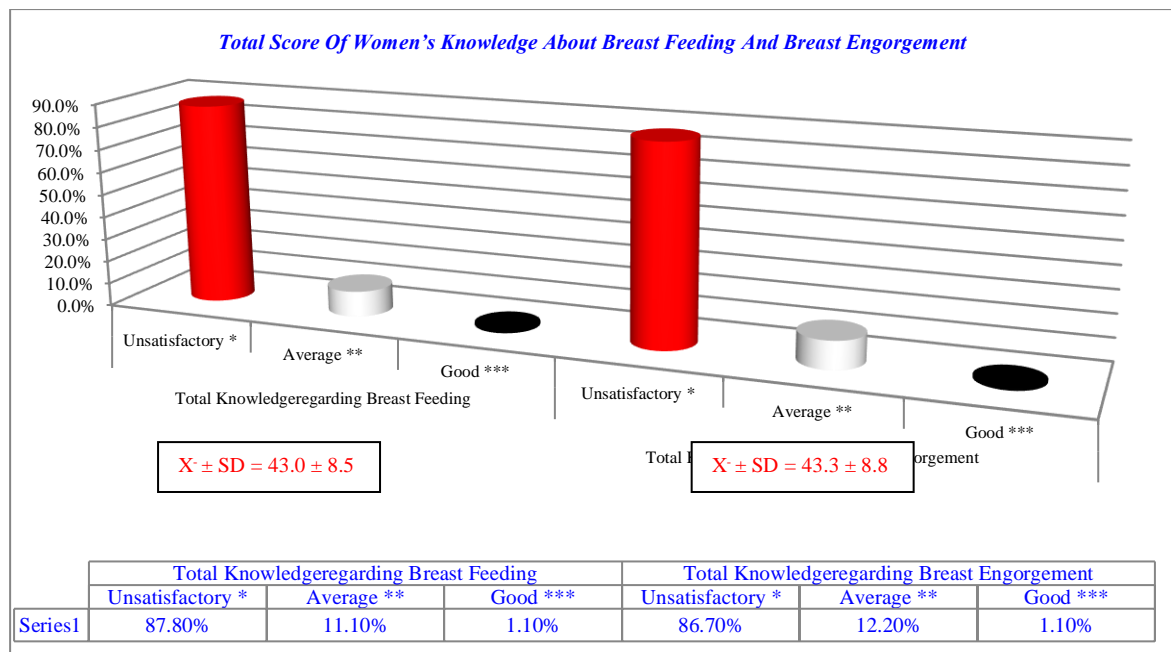


Figure 1: Total Score of Women's Knowledge About Breast Feeding And Breast Engorgement.
 Poor * < 50% of the total score, Average ** 50 - < 75% of the total score, Good *** 75 - 100% of the total score.

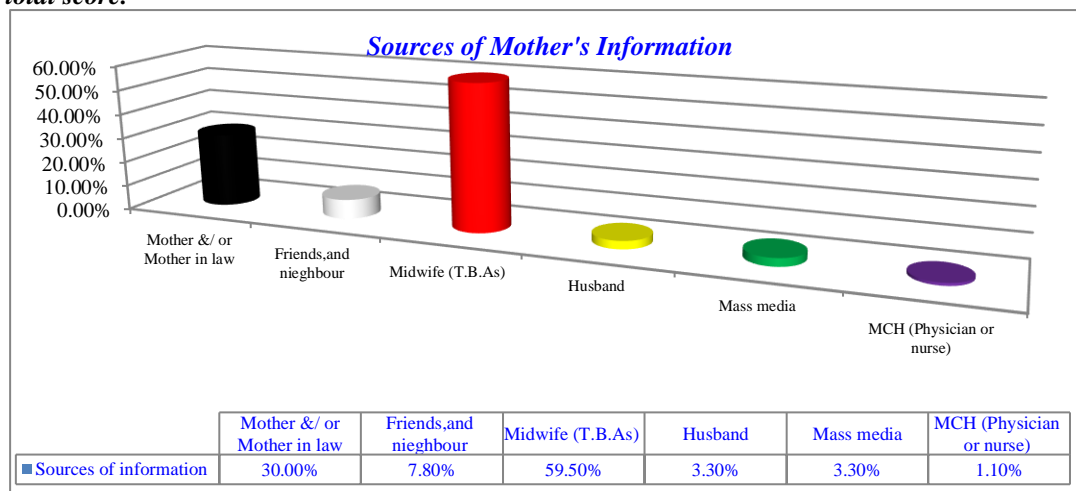


Figure 2: Women's sources of information about importance & practices of breast feeding & breast engorgement

Table 5: Distribution of the Samples According To Their Practices Regarding Breast Feeding

Variables	N	%
Initiation of Breast Feeding		
1 st postpartum day	3	3.3
2 nd postpartum day	43	47.8
3 rd postpartum day	44	48.9
Giving Prolacted Feeds		
Yes	90	100
No	0.0	0.0
Newborn Positions During Feeding		
Cradle position	20	22.2
Cross Cradle position	28	28.9
Lateral (sidling) position	44	48.9
Football position	0	0.0
Women Breasts & General Hygiene Before Feeding		
Yes	7	7.8
No	83	92.2
Parts That Introduced Into The Infant's Mouth During Feeding		
Nipple	68	75.6
Nipple and areola	22	24.4
Breast Feeding Is Practiced		
bilateral	29	32.2
unilateral	61	67.8
Did you practice rooming in		
Yes	90	100
No	0	0.0
Number Of Breast Feeding Per Day		
3 time / day	32	35.6
4-7 time / day	48	53.3
8-12 time / day	10	11.1
Mean X̄ ± SD	4.6 ± 2.05	
Duration Of Newborn Lactation (Unilateral)		
< 10 minutes	44	48.9
10- minutes	31	34.4
15- minutes	15	16.7
20- 45 minutes	0	0.0
Mean X̄ ± SD	11.88 ± 3.75	
Nipple Withdrawal From Infant Mouth After Feeding		
Spontaneously infant left	22	24.4
Grasp nipple from the infant's mouth	68	75.6

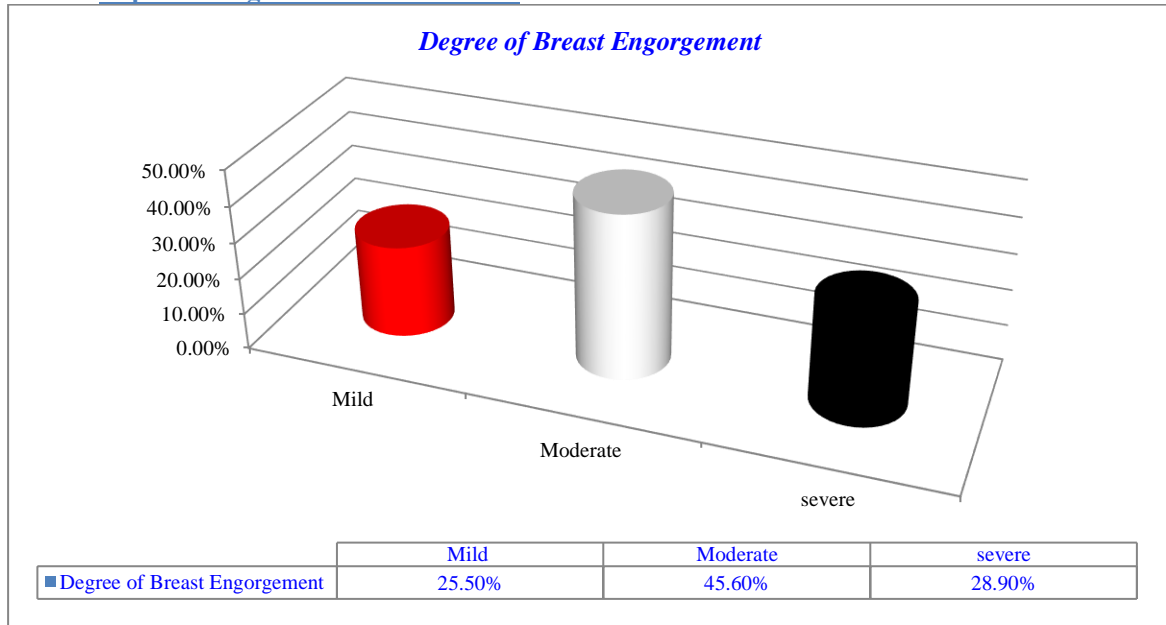


Figure 3: Degree of Breast Engorgement and Its Signs & Symptoms

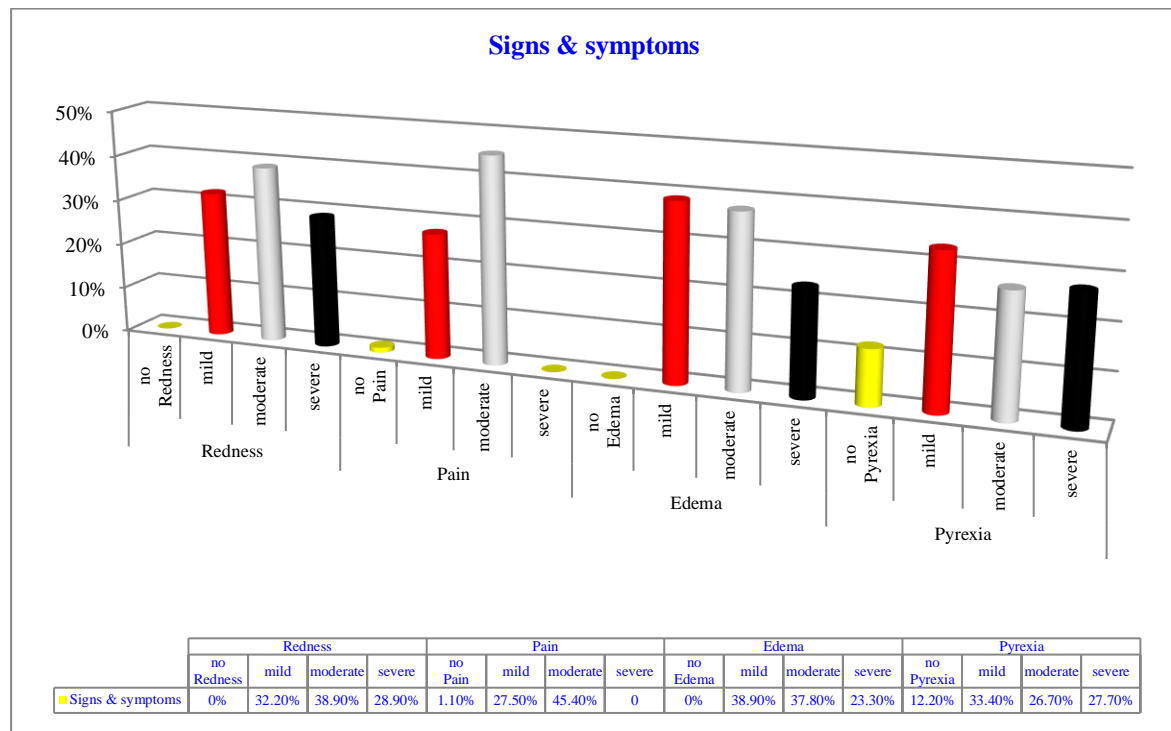


Figure 4: The severity degree of signs & symptoms breast engorgement

Table 6: Relationship between Degree of Breast Engorgement of the Studied Women and Their General Characteristics

Variables	Mean $\bar{X} \pm SD$
Age / Year	
<20	2.35 \pm 0.7
20-	2.25 \pm 0.65
25-	1.8 \pm 0.65
30-40	0.85 \pm 0.15
r Test	- 0.75*
Education	

Illiteracy	2.4 ± 0.4
Read & write, or Basic education	2.5 ± 0.65
Secondary/technical education	1.85 ± 0.65
University education	1.55 ± 0.5
r Test	- 0.78*
Occupation	
Working	2.3 ± 0.75
Housewife	1.95 ± 0.75
r Test	+ 0.78*
Age of Marriage	
<20years	2.2 ± 0.7
≥ 20 years	1.85 ± 0.7
r Test	- 0.75*
Residence	
Urban	2.3 ± 0.7
Rural	1.82 ± 0.65
r Test	
Family Income	
Not enough	2.6 ± 0.6
Enough for living only	1.8 ± 0.8
Enough & can save from it	1.1 ± 0.5
r Test	- 0.87*

* Significant Association

+ Positive Association

- Negative Association

Table 7: Relationship Between Degree of Breast Engorgement of the Studied Women and Their Antenatal Follow Up and Women Knowledge About Breast Engorgement

Variables	Mean $\bar{X} \pm SD$
Number Of Antenatal Visit	
Non	2.25 ± 0.65
< 4 time	1.95 ± 0.8
≥ 4 time	2.15 ± 0.25
r Test	- 0.74*
Women Knowledge About Breast Engorgement	
Complete & Correct	1.35 ± 0.5
Incomplete & Correct	1.85 ± 0.8
Don't Know & incorrect	2.5 ± 0.55
r Test	+ 0.86*

Significant Association

+ Positive Association

- Negative Association

Table 8: Relationship between Degree of Breast Engorgement of the Studied Women and Their Practices (Technique) Of Breast Feeding

Variables	Mean $\bar{X} \pm SD$
Initiation Of Breast Feeding After C.S	
First postpartum day	1.0 ± 0.0
2nd postpartum day	1.95 ± 0.75
3rd postpartum day	2.2 ± 0.7
r Test	+ 0.75*
Breasts & General Hygiene Before Feeding	
Yes	1.35 ± 0.5
No	2.5 ± 0.6
r Test	+ 0.81*
Parts That Introduced Into The Infant's Mouth During Feeding	

Nipple	2.5 ± 0.44
Nipple and areola	1.6 ± 0.65
r Test	+ 0.82*
Breast Feeding Is Practiced (lactation)	
bilateral	1.4 ± 0.55
unilateral	2.35 ± 0.6
r Test	+ 0.76*
Nipple Withdrawal After Feeding	
Spontaneously infant left	2.35 ± 0.55
Grasp nipple from the infant's mouth	2.75 ± 0.55
r Test	+ 0.97*
Number Of Breast Feeding Per Day	
3 time / day	2.5 ± 0.5
4-7 time / day	1.8 ± 0.7
8-12 time / day	0.89 ± 0.0
r Test	- 0.98*

* Significant Association

+ Positive Association

- Negative Association

Discussion

Breast engorgement during the early puerperium is one of the most common causes of morbidity affecting functions and experience of early motherhood [55]. Breast engorgement is a physiological condition that is characterized by painful swelling of the breasts as a result of a sudden increase in milk volume, lymphatic and vascular congestion, and interstitial edema during the first two weeks following childbirth. This condition is caused by insufficient breastfeeding and/or obstruction in the milk ducts. Breast pain during breastfeeding is a common problem. The occurrence of such condition faced by the mother adds to her apprehension and anxiety may lead to other severe breastfeeding problems for mother with consequent discontinuation of breastfeeding or addition of supplements of animal milk/ commercial infant formula. Besides, negligence of breast engorgement may lead to certain serious complication such as mastitis and breast abscess [30,37]

The present study was conducted to investigate the breastfeeding knowledge and practices among primiparous women with a cesarean section and its impact on breast engorgement in Upper Egypt.

The results of the study reveal that the socio-demographic and general characteristics of the subjects correlate, as expected, with the middle class of Egyptian society. Where the mean age of the participants was 23.25 ± 5.75 years, and the mean age of marriage was 21.62 ± 6.25 years old, and two fifths (40.0%) of them had secondary or

technical education, most of them were housewives and more than one half of them were rural dwellers and live within extended families as usual for rural communities. Besides, most of them had unsatisfied income. Analyzing these data may help to understand and/or justify the prevalence of forthcoming results of the present study.

Concerning the utilization of antenatal care (ANC) services, WHO (1997) reported that, in developed countries, 97% of women received antenatal care as compared to 65% or less in developing countries. The lack of an established convention for quantitative measurement of adequacy of ANC utilization and the paucity of research data addressing the comparability of available indices continued to hinder the ability of researchers and policymakers to conclude from ANC literature [102,7]

In Egypt, the literature review developed by Nour (2007)[78] also stressed the importance of follow up during pregnancy, and mentioned that pregnant women should visit the health care center according to the following schedule; the first or initial visit should be made as early as possible, the once every month through the first six months, then once each two weeks through the seventh and eighth months and every week during the ninth month until delivery. However, the expectant mother should attend the antenatal clinic if there is any abnormal variation [27].

Some traditional and cultural practices not only had prevented a large number of women from utilizing the maternity services but also had harmful effects on them, thus detracting from the value of ANC (Nylander&Adekunle, 1990). Although all literature had emphasized the importance of ANC, further analysis of the results of the present study indicated that only a minority of the studied subjects had utilized antenatal care services in their pregnancy. Yet, the majority of them didn't visit antenatal clinics or less than 4 times. A similar finding was reported in a study carried out in Egypt by Salem (2004). This study aimed to assess the pattern of utilization of antenatal care in Tanta. Another research in Egypt carried out by Hassan (2005) who investigates the traditional practices among pregnant women to overcome their common minor discomforts during pregnancy in rural areas. A third work done by Ahmed (2004) added that the most of women ignored the importance of antenatal follow up, and thus had lack of antenatal follow-up visits[38,44]

Regarding the relationship between utilization of ANC services by studied subjects in their last pregnancy and their degrees of breast engorgement, it was observed a significant strongly negative correlation between the number of antenatal visits done by mothers and their degrees of breast engorgement. All literature emphasizes the importance of antenatal education for pregnant women to avoid or decrease the incidence of complications during pregnancy, labor and the postpartum period. During the antenatal period, the maternity nurse should provide the necessary information to a pregnant woman about pregnancy, delivery, and postpartum care. The most important information that should be given to women during the third trimester of pregnancy includes information about puerperium; breastfeeding technique and breast care for lactating mothers. [103,19]

The results of the present study reveal an unacceptable finding where the majority of women did not receive any knowledge about breast care and breastfeeding problems. This may reflect the deficiencies in health institutions regarding their role in health education. Also, this is probably because the interest of antenatal clinic focuses mainly on serious cases and neglects health teaching about such subjects for pregnant woman, especially primiparae.

On investigation of women's knowledge about breastfeeding practices, the results of the present study revealed an overall lack of knowledge concerning the different variables that were studied. This is probably because primiparous usually lack knowledge and experience.

Moreover, more than half of the samples were rural citizens with limited educational background & inadequate income. The finding of the present study is supported by **Sallem&Mahzuz, 1998[95 ,87]**who mentioned that women with poor knowledge are vulnerable to reproductive health problems because of lack of information and access to health services. The information helps women to understand how their bodies work, dispel myths and correct inaccuracies.

More elaborate analysis of the knowledge components related to the baby's benefits of breastfeeding shows that 17.7% of the studied group mentioned correctly and complete answer. As regard value of breastfeeding for mother, only 10.0% of the studied group stated a correct and complete answer. Also, only 4.4% of them mentioned correct and complete answer regarding society's value of breastfeeding. This shows that not all of them were fully aware of the benefits of breastfeeding. **Grant (1992)** reported that breastfeeding saves lives, breast milk is ideal reflect food for infants, prevents diarrhea, confer immunity, helping to space births, lower the mother's risk of breast and ovarian cancer and reduces chances of fetal post-partum hemorrhage, promote bonding[34]. Many authors stated that women were choosing breastfeeding, not because of cultures influences, but because of knowledge on the benefits for both the mothers and the infant [77,98, 51].

The American College of Obstetricians and Gynecologists (**ACOG, 2007**) encourages health professionals to support women in attempts to establish and continue breastfeeding. The American Academy of Pediatrics (**AAP, 2005**) recommends that infants are breastfed for at least the first 6 months of life. Obstetricians have unique access to women as they prepare for childbearing. During the months preceding birth, physicians may be able to influence breastfeeding practices by educating and encouraging patients [109]

Concerning the constitutions of colostrum and its value, more than one quarter (28.9%) of the studied group responded completely correct acknowledging about colostrum. The colostrum meets the newborn's total requirements for the first days and it is very rich in protective factors, rich in calories, contains more protein and vitamin A than mature milk, very rich in immunoglobulin as well as immune factors protecting against many bacteria and viruses and acts as laxative (**UNICEF/ WHO, 1993**).

Most nursing and midwifery texts reported that breastfeeding technique should be corrected, with an improved attachment of the newborn to the breast, otherwise may develop and breast become more firm, painful and hot, and fever is usually present "engorgement" [18]The results of the present study reveal that no one of the studied group had correct and complete knowledge about the steps of breastfeeding. Moreover, the majority of them did not have correct and complete knowledge about positions of breastfeeding. **Ministry of Health (2000)** and **Smith & Farces (2000)** reported the improper positioning of the neonate on the nipple also usually causes sore nipple. Correcting the baby's position on the breast is the most important tactic for prevention and relief of sore nipples[100].

Literature emphasized the importance of a mother to know infant hunger and satiety cues [21, 61, 8].The results of the present study illustrated that the majority of women did not have correct and complete knowledge regarding infant hunger cues. Moreover, no one of them had correct and complete knowledge of infant satiety cues. Again this is probably because all of the participants were primiparous with limited educational background

The present study indicates that women lacked basic knowledge regarding breast engorgement. Concerning women's knowledge about causes and signs & symptoms of breast engorgement after birth, the result of the present study revealed that the majority of women in the studied group were unaware of the causes and complications of breast engorgement. This finding may attribute to the fact that all of the participants were primiparous who usually lack knowledge and experience in motherhood crafts. This assumption has been supported by many literature reviews since they indicate that breast engorgement is one of the most common minor discomforts confronting nursing women after birth either because the lack of knowledge or because they were not properly prepared during antenatal period or early postpartum period. Moreover, this is probably because many of them were from rural areas that do not usually have good access to care and information [31]

Concerning breastfeeding knowledge, findings of the present study revealed many prevalent misconception and wrong believes among the sample. The majority of the studied women had unsatisfactory scores. This means that the sample does not know enough about breastfeeding. This is evident from the very poor knowledge demonstrated by mothers. On the other hand, although about one-fifth of women had a

university education, yet, this did not have an impact on their breastfeeding knowledge and practices. **Baumslag (1989)** reported that, generally, in developing countries, the rate of breastfeeding declines as socioeconomic status rises[12].However, **MC Kenzie et al. (2008)** stated that breastfeeding rates for women of all races have increased in the last decade. Breastfeeding rates were highest among women 35 years and older, those who are college-educated, and women participating in the Women, Infants, and Children (WIC) dietary supplemental program. Women least likely to breastfeed were those younger than 20 years of age, those not employed, those with low income, and those who were black (**Mckenzie et al., 2008**). **WHO/UNICEF (1999)** indicated that women's education, from earliest childhood, will influence their attitudes and performance concerning breastfeeding.

Another important part of knowledge is the women's sources of information about breastfeeding and its problems. The results of the present study showed that Traditional Birth Attendance (TBAs) was the first sources of knowledge, followed by mothers and/or mother-in-law, friends and/or neighbors and the least sources were the professional sources (doctor, nurses) and mass media. This was not amazing since all the studied subjects were from Upper Egypt and almost of them lived in rural areas, were housewives, had large and extended families, were married before the age of 20 years old and had not enough family income. So, they tended to consult older experienced women as well as friends and relatives. Also, this result may reflect how much peers and friends can affect or form one's knowledge regarding important health issues and/or practices such as breastfeeding. It is well known that receiving information from wrong sources is just as bad as ignorance (**WHO, 1997**).

Isabirye (1990) stated that a support group for breastfeeding mothers can provide valuable information and suggestions for breastfeeding. The mothers, commitment to breastfeeding and the support from her partner, family, and friends greatly increases the chances of success. **May (1990)** mentioned that a recent study of Mexican and Mexican-American women found that only significant interpersonal influence on feeding decision was that the husband and/or partner. If the grandmother is an important family figure, she also should be included in teaching. In this way, important people who may significantly affect the course of breastfeeding can gain information and confidence. This may

subsequently lead to more available support for nursing mothers.

Traditional Birth Attendance (TBAs) is considered a community leader and a trustful person for most women, especially in rural areas. They seek her advice in all matters related to reproduction, sexuality, family planning, and even marital problems. **Abd-el-Twab et al., (2000)** in RaedatRyfyate Project was activated and intended to train them to help them to provide helpful and sound care to their client as well as to equip them by the necessary and correct scientific knowledge regarding all related aspects of care. Also, a study in the United Kingdom by **Liburd (1998)** revealed that midwives had been identified as the highest sources of information.

On the other hand, it was striking to find out that health professionals (doctors, nurses) had the least rank as a source of knowledge to the participants in this study which explains the low level and unsatisfactory score of knowledge about breastfeeding and breast engorgement. Needless to say, those health professionals are the most important resource person within the reproductive health team. **Kharboush (1992)** reported that physicians and nurses were the most trustable source of breastfeeding information to mothers in Damanhour. In Ismailia, similar findings were obtained. They are qualified to provide women with the necessary knowledge and guidance that help them to accept the post-partum period with its physical and psychological changes as normal and non-pathologic events and to maintain healthy practices during this period to fulfill important objectives such as prevention of infection. Therefore, health education for women during maternity cycle is considered an important component of maternity care within all maternal and child health centers as well as rural health units. However, the role of mass media in different health issues especially reproductive health matters should always be highlighted stressed and activated.

Mass media is a very beneficial and effective way to disseminate correct awareness among the population at large and specific or targeted sectors of the community in particular. It plays a major role in shaping the development of the future generation. This important and key role should be used to provide the correct and the most needed information about pregnancy, childbirth, and postpartum care and to improve the level of awareness among people in the community. Health education campaigns are also effective channels for promoting the use of health care services and can contribute to healthy behaviors that prevent illness and improve the

quality of life and decrease the cost of illness. Such health education campaigns should pay special attention to peer groups since they have a great impact on the dissemination of knowledge (**Bonner, 2001**).

The second important part of the study deals with breastfeeding practices among breastfeeding mothers. In general, many researches indicate that the incidence of breast engorgement was not influenced by the duration, frequency, and technique of breastfeeding. Other interventions, such as providing the mother with guidance and support on positioning and latching, and modification of hospital practices may be more effective in reducing breast problems. Therefore, postnatal education is vital for new mothers and it may be supported by visual, written and verbal information covering, simplified breast anatomy, breastfeeding technique, various positions and attachment of the baby and the stage of suckling [83-85]

According to the results of the present study, it was observed that breastfeeding practices were worse than breastfeeding knowledge in both groups. Breastfeeding is recognized to be important for both mothers and baby. Effective breastfeeding is influenced by many factors which include antenatal care practices, the time of the first feed, positioning, timing and duration, supplements for babies and mothers and support for breastfeeding mothers. All of these factors can affect the establishment and maintenance of breastfeeding. Many of the above-mentioned breastfeeding problems that confront women trying to breastfeed their babies are avoidable through access to accurate information. Appropriate and practical help and support, when they need it, are effective [73,74]

Early initiation is important; **WHO (2001)** emphasized it within the first half an hour after delivery. The establishment and maintenance of breastfeeding should be one of the major goals of good postpartum care. It is recommended that the baby is given to the mother to hold immediately after birth, to improve skin-to-skin contact and for the baby to start suckling as soon as he shows signs of readiness-normally within 1/2 - 1 hour after birth. Spontaneous suckling may not occur until 45 minutes to 2 hours after birth, but skin-to-skin contact can start earlier. Numerous studies have demonstrated that a period of early mother-infant contact postpartum is effective in increasing the incidence and/or duration of breastfeeding.

Initiation rates for breastfeeding remain high in most developing countries and may not be decreasing as fast as has been feared (**Savage, 1990**). The present study indicated that the majority of mothers started breastfeeding after the first day. This is because women delivered by cesarean section usually postpone the initiation of breastfeeding as they have pain which interferes or limit them from the process. This is serious because all literature and researchers, **AL-Hussein (1992)**, **Alexandria (1991)**, and **Ismailia (1993)**, emphasized the importance of early initiation of lactation within 50–60 minutes after delivery to prevent the occurrence of breastfeeding problems.

The initiation and establishment of breastfeeding immediately following birth are crucial to increase breastfeeding. However, **Wahba (1991)** reported that almost all mothers initiated breastfeeding on the third day after delivery. **Agency for international development (1990)** stated that delayed initiation of breastfeeding is a common practice in both urban and rural areas worldwide. In urban hospitals, breastfeeding initiation is often delayed several hours after delivery, during that time glucose, water or infant formula may be given. There is a great need for health care providers to know more about the early initiation of breastfeeding.

It was observed from the study that, the degree of breast engorgement was higher among women who delayed initiation of breastfeeding than those who had initiated earlier. Furthermore, a significant strong positive correlation was observed between women's initiation of breastfeeding and their degree of breast engorgement. This result is in line with **Yamauchi (1992)** who mentioned that early initiation of breastfeeding reduces the occurrence of sore-cracked nipples and breastfeeding problems. Moreover, **Newton & Newton (1951)** reported that, mother's experience less severe form of engorgement with early feeding. Also, the results of the studies of **Artola & Jimenez (1990)** and **Essawy & Ahmed (1998)** revealed that most mothers who initiated breastfeeding early eventually protected themselves from breastfeeding problems. Ultimately, they continued lactation for up to one year of their infant's age compared to those who initiated breastfeeding at later times and thus continued breastfeeding for only 5-9 months of their infant's age.

Concerning hospital practices, the present study showed that many negative hospital practices regarding breastfeeding were prevalent in our Egyptian public hospitals. One of the most

common prevalent errors in hospital practices is the use of prelactated feeds. Glucose has been reported by previous studies as being common prelactated feeds (**Mishriky & Barrima, 1993**). In the present study, the findings reveal that all babies for subjects took prelactated feeds as glucose or sweetened water. **Kharboush (1992)** found that the most frequently using decoction includes sweetened water and glucose. To compare with health care providers practices **EL-Sahwi et al. (1991)** reported that the majority of physicians in their sample were using sugar and water as the prelactated feeds given to babies.

Brady (1990) indicated that prelactated feeds are physiologically unnecessary for either the nutrition or the hydration of normal babies because a healthy baby does not need extra fluid or foods before breastfeeding is established, and it may harmful because it will interfere with appetite and desire of the baby to suckle. Babies who have had their appetite satisfied with an artificial feed may lose interest in trying to breastfeed. Consequently, they may delay the onset of lactation. Prelactated feeds may also introduce infection because the baby is not protected by the anti-infective factors which are concentrated in the colostrum (**UNICEF UK, 1999**).

Another important part of breastfeeding practices is managing the system of feeding properly. On-demand feeding program facilitates each baby's rhythm and may be less traumatic to the mother's nipples while not causing excessive weight gain (**Nikodem, 2006; Davidson et al., 2008**). Demand feeding is critical for the establishment of good breast milk supply. This has been called responsive feeding, or breast on request. **May (1990)** indicated that rigid feeding schedules, substitutions of other liquids of breast milk, and delaying feeding will gradually decrease the supply of milk.

Regarding the frequency and duration of breastfeeding, times/day, the finding of this study revealed that, more than one third (35.6%) of the study sample breastfeed their infants less than 3 times/day, and about one half (48.9%) of them feed their infants less than 10 minutes/day. This disappointing observation is serious because all literature reviews emphasized the importance of nursing "on-demand". Newborns need to nurse frequently at least every two hours, and not on any strict schedule, this will stimulate the mother's breast to produce plenty of milk. Later, the baby can settle into a more predictable routine. However, because breast milk is more easily digested than the formula, breast-fed babies often eat more frequently than bottle-fed babies

(Aarts, 2004; Nikodem, 2006). Baumslag (1989) reported that most research findings showed higher rates and longer duration of breastfeeding in rural areas. Kharboush (1992), Henagel (1989) and Okhasha (2000) supported the same findings. In brief, most infants born at term feed 8-10 times a day for approximately 20 minutes [23,58]

It was observed that the degree of breast engorgement was less among women who breastfed 8-12 times/day. A strongly negative correlation was observed between the frequency of breastfeeding and degree breast engorgement. This result is not incongruence with Newton & Newton (1951) who stated that, mother's experience less severe form of engorgement with frequent, self-demand feeding and unlimited suckling times. Short frequent feeds were shown to increase engorgement in a study performed by Moon & Humenick (1989), probably because abbreviated feeds (as short as two minutes) did not allow sufficient drainage of the breast as preventing milk accumulation.

Hospital practices such as rooming-in have been shown to improve breastfeeding success. However, it has been a common practice in many hospitals to separate mothers and babies and put the babies in a nursery, to allow the mothers to rest and to be observed. No advantages have been proven and outbreaks of infection in nurseries are associated with these practices. The results of this study illustrated that all of the subjects in our setting reported the practice rooming-in. This result is in accordance with all literature which focuses on room-in [58-60] Furthermore, Shiau (1997) demonstrated significantly less engorgement on day three in mothers who participate in the skin to skincare of their full-term babies rather than standard nursery care. Fortunately, most of our general & public hospitals, especially in rural areas are not equipped by available separate room for newborn babies. Rooming-in practices varied from one place to another. Another study reported that the majority of mothers 89.35% and babies were rooming in confirmed by Kharboush (1992) in Damanhour. Rooming-in has several important advantages. It facilitated bonding, permits breastfeeding on demand and allows for closer contact with other family members. Restricted mother-infant contact after delivery results in significantly more frequent discontinuation of breastfeeding at 1-3 months (pediatric advisor, 2009). It is also in line with Salhan (2007) who mentioned that more Prolactin is produced at night, so breastfeeding at night is especially helpful for keeping up milk supply.

Breastfeeding is not supposed to hurt. Poor positioning and latch-on are the most common causes of breast problems in the early weeks of nursing. Sometimes only a minor adjustment of positioning and latch-on are all that is needed. Correct position of the baby during breastfeeding plays a crucial role in both the prevention of sore nipples and the successful establishment of breastfeeding. Professionals must understand the underlying mechanisms of suckling and acquire the skill and experience to help a mother to position her baby correctly before they can be a real value to the mother (Hahn, 2006; Kramer et al., 2001). A proper latch-on is crucial to successful breastfeeding. Unfortunately, too many mothers are being "helped" by people who do not know what a proper latch-on is. The trick of breastfeeding is getting the baby to latch-on well. A baby, who latches-on well, gets milk well. A baby who latches on poorly has difficulty getting milk, especially if the supply is low. A poor latch baby will not get much milk. When a baby is latching on poorly, he may also cause the mother nipple pain. And if he does not get milk well, he will usually stay on the breast for long periods and may lead to engorgement of breasts, which become heavier, firmer inconsistency, thus aggravating the pain. Unfortunately, the results of the present study reveal that almost all of the subjects introduce the nipple only into the infant's mouth during breastfeeding. This result completely contradicts the literature review which emphasizes that correct positioning of the nipple is essential to prevent sore nipples: the whole areola should be well into the mouth, above the tongue, so that the gums can perform the essential driving action. A proper latch is key to easy breastfeeding (ILCA, 2000). Shea (1998) attributed to lack of knowledge of the basic skills concerning breastfeeding in some cultures to decades of public bottle feeding. The International Lactation Consultant Association (ILCA 2000) recommends that to prevent problems, women need sensitive and skilled assistance in learning to breastfeed, and follow up care should continue until their infants are breastfed effectively. It was observed from the study that, the degree of breast engorgement was higher among women who introduced nipple only to their baby during breastfeeding than those who introduced both nipple and areola. A significant strong positive correlation was observed between breast engorgement degree and part of the breast which introduced to baby's mouth. This comes in agreement with Righard & Alade (1992) who mentioned that, mother's experience less form of engorgement with babies who demonstrate correct sucking technique [89]

Looking into the technique of breastfeeding, the finding of the present study showed that most of the mothers did not know about alternating both breasts during each feeding. Around two-thirds of them use only one side to breastfeed their infant (unilateral). This means that mothers need to be aware of the importance and technique of breastfeeding. Similar results were drawn out from **Damanhour (1992)** study. **Leifer (2003)** and **Davidson et al. (2008)** indicated that both breasts should be used in each feed so that they could receive adequate stimulation. The mother should start on the breast that she ended with during the last feed. It was observed from the study that, the degree of breast engorgement was higher among women who introduced only one breast to their baby during breastfeeding than those who introduced both breasts. Furthermore, a significant strong positive correlation was observed between breast engorgement degree and breastfeeding practices (unilateral or bilateral). This result is in conceding with **Livingstone (1996)** who stated that milk stasis magnified if infants consume less milk, if less milk is pumped, as result, it may place a mother at high risk of engorgement.

When the method of nipple withdrawal was checked out among the subjects, the results revealed that the majority of women stated that they usually pull the nipple out of the infant's mouth. This result is incongruent with the literature review which indicates that the baby should be removed from the nipple either by pressing on his chin or by inserting a finger between his lips and the breast, so gradually releasing the vacuum. Roughly Pulling out the nipple from the baby's mouth especially before the end of a feed, would lead to nipple damage and crack (**Nikodem, 2006; Davidson et al., 2008; Leifer, 2003**). A strongly positive correlation was found between breast engorgement degree and the method of nipple withdrawal from the infant's mouth after feeding.

Concerning the preparations for breastfeeding, **Bobak (1993)** stated that most women are motivated by the sixth or seventh month of pregnancy during ANC to learn about breast preparation and breastfeeding.[15]

Fikry (1980) reported that nurses should educate mothers about the importance of antenatal breast care and motivate them to do so. It is important to guide them to adopt the correct technique of breastfeeding[28]. During the last two months of pregnancy, women should be taught that the nipples and areola should be washed, dried, and anointed each day. The same routine may be continued after the baby starts suckling [117]

Kenner (1996) does not recommend nipple preparation technique for mothers with a history of preterm labor. Preparation should be done in the third trimester.

Every postpartum woman needs to care for her breasts and keep them clean. The breasts should be washed at the beginning of the shower each day. Women who are breastfeeding use no soap on the nipples, to prevent drying and cracking. The woman can use disposable pads in her bra to absorb the excess moisture. These should be changed frequently to prevent infection (**Mustafa, 2005**). Keeping the nipples clean between feeding helps prevent tissue damage, and wearing a good bra provides necessary support as the breast size increase (**WHO, 1999**). Results of the present study illustrated that all and the majority of the studied sample had no idea either about breast preparation or breast care during pregnancy. It was not amazing as most of the subjects never visited antenatal clinics or follow up on their pregnancy. Also, their main source of information was TBAs. **Kenner (1996), Bobak (1993), and UNICEF (1993)** mentioned that usually, the breasts require no care other than daily cleaning with clear water. The mother should avoid using soap on her nipples because of its drying effect. Advise the mother to leave a drop of milk at the end of feed on the nipple. It was observed from the study that, the degree of breast engorgement was higher among women who didn't perform general and breast hygiene before feeding. A significant strong positive correlation was observed between breast engorgement degree and non-performance of general and breast hygiene before feeding.

The present study clearly illustrates that all women suffer signs and symptoms (redness, pain, edema, and pyrexia) of breast engorgement. The results of the present study illustrate the degrees of breast engorgement. Studies have shown that 20%-85% of breastfeeding women experienced moderate and severe breast engorgement. The degree of engorgement usually lessens with each child. First-time mothers often suffer more from engorgement than women who are nursing their second or third child, because the time it takes for the mature milk to "come in" seems to shorten with each child.

When the relationship between certain characteristics of puerperal women and the degree of breast engorgement was investigated, it was revealed that younger women were less likely to develop high degree breast engorgement than older ones. Furthermore, a strongly negative correlation was observed between women's degree of breast engorgement and their age. This

may be due to the fact that older primiparae are more likely to be concerned about their babies, thus they followed instructions more accurately and breastfed their babies appropriately. Lactational failure, however, leads to the absence of suckling and failure of ejection which may lead to engorgement and stasis of milk [69]

It was also evident from the results that better-educated women had less breast engorgement degree, while women with limited educational background had more breast engorgement degree. A strongly negative correlation was observed between women's degree of breast engorgement and their education. This was expected since educated women are more likely to have better access to the community health care services and source of information that help in early detection and proper management of minor discomforts during puerperium. These results were in line with **Hassan (2000)**. It was also mentioned that women who had been educated were open-minded to new ideas (**Biennial report, 1996**). In addition, this finding went hand with **El-Sherbeni (1998)** who emphasized on the importance of education in the prevention and control of maternity health problems[25] Moreover, education should be a mean that enables women to gain access to knowledge. The more educated women received a better contribution to their empowerment. Education of women could also improve the health of the entire family. Women with more education should also be able to control many events in their lives. Thereby, access to education had to be a fundamental human right and a prerequisite to social, cultural and economic well-being [92]

The results of the present study also revealed a strong positive correlation women's degree of breast engorgement and their occupation. It was no wonder to find housewives and rural women are less likely to develop a higher degree of breast engorgement. This was expected since housewives and rural citizens accept their role as lactating mothers and practice it accurately as they are guided. This is opposite to urban working ones who prepare themselves in the wrong way for employment. **Salhan (2007)**, reported that to help the mothers to maintain breastfeeding while working, the nurse should emphasize to the mother that she must establish a good milk supply, plan how and where she will pump the breast at work as well as planning baby feeding during the mother's working time[94]

Regarding age at marriage of the studied subjects, the results of the present study presented that about two-thirds of the studied group married at age less than 20 years. Furthermore, a strongly

negative correlation was noticed between women's age at marriage and women's degree of breast engorgement. It was not surprising to find that younger women tend to have a higher degree of breast engorgement than older ones. This might be due to the fact that day by day life enhances women's experience and improves their knowledge. This result was considered by **Ghulam (1979)** who stated that early marriage could have a negative effect on the mother's education, and also her understanding of how to relieve the minor discomforts during pregnancy[32]. This result was supported by the other researches which indicated the fact that early marriage and pregnancy had hindered women to finish their education and to get a good job and had become financially dependent on their family. Therefore, teen mothers were more likely to live in poverty than women who were in delayed childbearing age [86,99]delaying age at marriage was a key to improving women's status and maybe a way of increasing their leverages in the decision-making process [49]

The results of the present study had also revealed a strongly negative correlation between women's degree of breast engorgement and their family income. Degree of breast engorgement was more prevalent among poor women as most women were likely lived in large and extended families. This increased family size might reduce the per capita income and amount of care the mother gained especially during her puerperium. This would affect badly on the mother's health and her health practices. This was in accordance with **Abrams & Gordon (1961)**[33, 111]Moreover, poverty, type, and size of the family might increase the burden on women caring for many persons and striving hard for a living (**WHO, 1995**)[113] These results were supported by the **fourth world conference (1995)** which denoted that statistics about women and poverty were all too familiar, where women were the majority of 1.3 billion people living in extreme poverty. Those poor women were more likely to live in crowded houses.

Conclusion

Based on the findings revealed by the present study, it can be concluded:

The studied women's knowledge about breastfeeding was not adequate among the whole study sample. Moreover, a sizable proportion of them lacked the basic knowledge regarding breast engorgement; they also lacked the experience in relation to the proper technique of breastfeeding, duration and number of feeding times/day. Their main sources of information were their family, friends, TBAs whereas the least sources of

information were physician, nurse and mass media which explain the low level of knowledge. The degrees of severity of breast engorgement was higher with younger, less educated, working, urban, lower social classes women and those who had limited visits to antenatal clinic, who had limited knowledge about breast engorgement than others and, those who had an improper technique of breastfeeding.

Recommendations

In light of the results of the present study, the following recommendations are suggested:

- Small, informal group health education classes, delivered in the antenatal period, to provide women with accurate information about the importance of breastfeeding for the mother and baby, early initiation and proper technique of breastfeeding, and how to prevent the problem that may arise during the breastfeeding process.
- Providing the mother with guidance and support on positioning and latching, and modification of hospital practices are effective in reducing breast problems.
- Prevention is a key element in reducing breast engorgement potentially among nursing mothers. So, mothers should learn about preventive measures for breast engorgement.
- Correct the negative hospital practices regarding prelactated feeds, especially with C.S delivery, which are prevalent in our Egyptian public hospitals.
- Traditional birth attendants already form a considerable part of the basic core of primary health workers for the majority of the rural population in many developing countries. Therefore they should be trained and prepared in the field of health education to carry out effective health practices.

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References

1. Aarts C., During Breastfeeding and Breastfeeding Problems in Relation to Length of Postpartum Stay: A longitudinal cohort study of a national Swedish sample. *ActaPaediatr.*, 2004;93(5): 669-76.
2. Abd-Allah N., Nasr E., Hassan H. Impact of a Breast Feeding Educational Program for Mothers Having Pre-Term Infants in General Hospitals in Port Said. *International Journal of Novel Research in Healthcare and Nursin*; 2017;4, (3): 215-225.
3. Abdel- Tawab N. Nawar L., Youssef H., Dala H., (2000): Integrating Issues of Sexuality into Egyptian Family Planning Counseling, *Frontiers in reproductive health*. Population Council, Cairo, Egypt.
4. Agam
<http://www.Fedo.net/MedicalEncyclopedia/womanhealth/womanmarrage/pregnancyanddelivery/problemsofbreastfeeding.htm>.
5. Agency for International Development. Breast Feeding for Child Survival Strategy, 1990.
6. Ahmed S., (2004): Factors Associated with Using of Episiotomy during Labor and Its Effect on Perineum. A thesis submitted to Faculty of Nursing, Sin Shams University.
7. Alexander G. and Kotelchuck M., Quantifying the Adequacy of Prenatal Care: A comparison of indices, *public health reports* 1996;111 (5): 408 – 18.
8. American Academy of Pediatrics (AAP), Section on Breastfeeding. Policy statement: Breastfeeding and the use of human milk. *Pediatrics*, 2005;115(2); 496-506.
9. American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women, ACOG Committee Opinion 361: Breastfeeding: maternal and infant aspects. *Obstetric Gynecology*, 2007;109 (2 Pt 1): 479-80.
10. Artola RC and Jimenez V., The Effect of Early Postpartum Mother-Infant Contact and Breastfeeding Promotion on the Incidence and Continuation of Breastfeeding. *Int J Nurs Stud*, 1990;27(3): 179-89.
11. Baby Friendly Hospital Initiative, Report on clinical surveys upon the KAPS of health professional and mothers. AL-Hussein Hospital. Al-Azhar University, UNICEF, 1992.
12. Baumslag N., (1989): Breast Feeding Trends Influencing Factors. A report

- prepared for the Asia/Near East Bureau, USAID. Washington (DC): USAID, 39-46.
13. Biennial report, (1996): The Empowering women. Geneva. WHO, 24 - 6.
 14. Blck A., Borer W., Bruce B., et al., (2007): Dorland's Illustrated Midical Dictionary. 31st ed., Philadelphia: Sanders Elsevier Co., 603
 15. Bobak, Jensen, (1993): Maternity and Gynecologic Care. The nurse and family.5th ed. Mosby Co., St. Louis, 1993623-47.
 16. Bonner J., (2001): Recent Advances in Obstetrics and Gynecology. Toronto: Churchill Livingston Co., 50-61.
 17. Brady CN., (1990): The Commitment of Breast Feeding. Int J GynObs, 31.
 18. Burroughs A. and Leiffer G., Maternity Nursing. 8th ed. USA: Sanders Co., 2001;128-35:188-97.
 19. Churchill H., Perceptions of Childbirth: are women properly informed, Nursing times, 1995;91 (43): 31-3.
 20. Csar N., (1991): Breast Engorgement: What is the incidence and pattern? Unpublished master thesis.University of Illionis, Chicago, IL.
 21. Davidson M., London M. &Ladewig P., (2008): PLDS, Maternal-Newborn Nursing & Women's Health across the Lifespan. 8th ed. USA: Person prentice Hall, 894,902-12, 1122-27.
 22. Duffy EP., Positive Effect of an Antenatal Group Teaching Session on Postnatal Nipple Pain, Nipple Trauma and Breastfeeding Rate. Midwifery, 1997;13(4): 189-96.
 23. Eglash A., Montgomery A., Wood J., Breastfeeding. DisMon, 2008;54 (6): 343-411.
 24. EL-Sahwi S., Abbassy A., Gumiei M.,(1991-1992): Assessment of Knowledge, Attitudes and Practices Regarding Breast Feeding among Health Service Providers and Mothers as well as Hospital Practices with Respect to Breast Feeding at Shatby Maternity and Children Hospitals in Alexandria, UNICEF: Cairo Office.
 25. El-sherbeni F., (1998): A study of knowledge and practices of women related to self care during puerperium in Kuwait, A thesis submitted to high institute of public health , Alexandria university.
 26. Essawy M. and Ahmed M., (1998): Relationship between Initiation of Breastfeeding and Its Continuation. Journal of Medical Research Institute, 19(1): 154-7.
 27. Farg D. and Hassan H.: Obstetric Outcomes for Teenage and Adult Pregnancy: A Comparative Study of Nursing & Care Open Access Journal:2019;7(1): 1-16.
 28. Fikry F., (1980): The Effect of Implementing A Domiciliary Post Partum Nursing Care Program on the Knowledge and Health Practice of Mothers, A Thesis Submitted To High Institute Of Nursing, Alexandria University.
 29. Ford A. & Simpson L., Breastfeeding. Postgraduate Obstetrics & Gynecology,2008; 28 (23), 1-8.
 30. Fraser D., Cooper M. & Fletcher G., Myles Textbook for Midwives. 14th ed. Edinburg: Churchill Livingstone, 2004;217-9: 625-50: 750-64.
 31. Friel JK and Hodson NI., (1991): The Effect of Promotion Campaign on Attitudes of Adolescent Female toward Breastfeeding. Can Journal of Public Health, 80: 195-99.
 32. Ghulam, L.J., (1979): Early teenage childbirth consequences of this on mother and child. Report presented at the seminar on traditional practices affecting the health of women and children. Khartum 10 – 15 February; (WHO / EMRO technical Publication. (2): 137.
 33. Gordon M., (1961): Social determinates of health practices .AM J. Ph; 51.
 34. Grant P., (1992): Baby Friendly Hospitals toward a Baby Friendly World. Int. child health, 1 (III).
 35. Gregory K., Update on nutrition for Preterm and Full-term Infants. Journal of obstetrical, gynecological, and neonatal nursing, 2005;34(1), 98-108.
 36. Hahn D., (2006): Overcoming Breastfeeding Problems. www.nlm.nih.gov/medlineplus/002452.htm.
 37. Hanretty K., Ramsden I. &Callander R., (2003): Obstetrics Illustrated. 3rd ed. Edinburgh: Churchill Livingstone Co, 341-2.
 38. Hassan H. Call for psychosocial well-being among pregnant women associated with medical disorder in Beni-Suef governorate. IOSR Journal of Nursing and Health Science. 2016; 5(2): 81-94. doi: 10.9790/1959-0502048194
 39. Hassan H. Traditional Practices Among Pregnant Women to Overcome Common Pregnancy Minor Discomforts in Rural Areas. Commendation number 978-3-659-86232-8,LAMBERT: Academic Publishing. 3/2016.
 40. Hassan H. Traditional practices among pregnant women to overcome common pregnancy minor discomforts in rural areas. A thesis submitted to Faculty of Nursing, Tanta University, 2005.
 41. Hassan H., (2005): Traditional Practices Among Pregnant Women to Overcome Common Pregnancy Minor Discomforts in

- Rural Areas. A thesis submitted to Faculty of Nursing. Tanta University.
42. Hassan H., (2011): Impact of Nursing Intervention on Relief of Breast Engorgement among Women with Caesarean Section. A Thesis Submitted To Faculty of Nursing, Benha University.
 43. Hassan H., Ahmed W., Mahmoud A.: Impact of Tailored Educational Program on Primigravida Anxiety and Knowledge Regarding Minor Discomforts in Upper Egypt. *International Journal of Studies in Nursing*; 2019;5(1): 1-16.
 44. Hassan H., Nady F., Youns E., Zahran K. Call for Change Level of Knowledge, Awareness and Attitude to Follow A High Folate Diet Among Pregnant Women. *IOSR Journal of Nursing and Health Science*; 2016;5(1): 93-100. doi: 10.9790/1959-051293100
 45. Hassan L., (2000): Assessment of pregnant women's knowledge and practices towards minor discomforts during the third trimester of pregnancy at Port Said city. A thesis submitted to faculty of nursing, Suez Canal University.
 46. Hassan M., (1991): The Relationship between the Beliefs of The Pregnant Women ang Their Initiation of Antenatal Care in Alex. A thesis sumitted to Faculty of Nursing, Alexandria University.
 47. Henagel AO., (1989): Study of Concepts and Behavior of Lactating Mothers in A Civilized Village toward Breast Feeding and Diarrhea. *Lights on Breast Feeding*. First year, 3.
 48. Huggins K., Petok E. & Mireles O, (2000): Markers of Lactation Insufficiency: A study of 34 mothers. Current issues in clinical lactation. Boston: Jones & Bartlett publishers, 25-35.
 49. Ibrahim B, Mensch B, El Gibaly O., (1998): Transitions to man head : Socialization to gender roles and marriage among Egyptian adolescents boys. *International union for the Scientific study of population and CENEP, Buenos Aires , Argentina , 13-15 May; 16-7 .*
 50. International Lactation Consultant Association (ILCA), (2000): Position Paper for Infant Feeding.
 51. Ip S., Chung M., and Raman G, et al. ,(2008): Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries: Evidence report/ technology assessment no. 153. (Prepared by Tufts-New England Medical Center Evidence-based practice center.) AHRQ publication No. 07-E007.
 52. Isabirya KM., The Mother, s Support Group Role in the Health Care System. *Int J GynObst*,1990; 31 suppl.1: 85-90.
 53. Jacob A., (2005): A Comprehensive Textbook of Midwifery. New Delhi; Jaypee brother, 450-60.
 54. Jane M., Donna O. & Ruth A.: Breastfeeding and Use of Human Milk. *American Academy of Pediatrics*, 2002;115(2)496.
 55. Jelovesk FR., Postpartum Health. *J ObstetGynecoNurs*, 2006;92(8): 852. @<http://www.wdxcyber.com/npreg09.htm>.
 56. Kenner K., Labbok M. and Van Look P., (1996): Lactation Amenorrhea Method for Family Planning. *International Gynecology Obstetric*, 54-7.
 57. Kharboush IF., (1992): Survey of Knowledge, Attitude and Practice Regarding Breast Feeding in Behera Governorate General Hospital. *Damanhour, UNICEF: Cairo Office*; 5-80.
 58. Komara C., Simpson D., Teasdale C, Whalen G., Bell S., Giovanetto L., Intervening to Promote Early Initiation of Breastfeeding in the LDR. *American Journal Maternal Child Nurses*, 2007;32(2):117-123.
 59. Kramer Ms., Chalmers B. Hodnett ED., etal, (2001): Promotion of Breastfeeding Intervention Trial (POBIT): A randomized trial in the Republic of Belarus. *Journal of American Medical Association (JAMA)*, 285.
 60. La Foy J. & Geden E., Post Episiotomy Pain: warm versus cold. Sitz bath. *Journal of obstetrical, gynecological, and neonatal nursing*, 1989;September / October, 399-403.
 61. Leifer G., (2003): Introduction to Maternity & Pediatric Nursing. 4th ed. Philadelphia: Saunders Co., 226-31.
 62. Liburd A., The Use of Complementary Therapies in Midwifery in the UK, *J. Nurse Midwifery*, 1998;44(3): 325-9.
 63. Livingstone V., Too Much of Good Things: Maternal and infant hyper lactation syndromes. *Can fame physician*, 1996;42:89-99.
 64. May KA. & Mahlmeister LR., (1990): Comprehensive Maternity Nursing: Nursing process and the child bearing family. 2nd ed. Philadelphia, New York: JB Lippincott Co., 1048-63.
 65. Mckenzie J., Pinger R. & Kotechi J., (2008): An Introduction to Community Health. 6th ed. London: Jones & Bartlett publishers, 195.
 66. Ministry of health and population (MOHP), (2000): United States Agency for

- International Development. Essential Obstetrical Care. Postpartum Guidelines. MOHP, USAID, Cairo, Egypt.
67. Mishriky AM., Barrima EE., (1993): Knowledge, Attitude and Practice of Mothers and Health Care Providers about Breast Feeding in Ismailia. Suez Canal University, Faculty of Medicine, UNICEF: Cairo Office.
 68. Mohrbacher N, IBCLC & Stock J., (1997): The Breastfeeding Answer Book. La Leche League, s, <http://www.Mother-2-Mother.com.mht>. 2/2/2010.
 69. Moon J. & Humenick S., Breast Engorgement: Contributing variables and variable amenable to nursing intervention. Journal of obstetrical, gynecological, and neonatal nursing, 1989;18: 309-15.
 70. Moon J. and Humenick S., Breast Engorgement Contribution Variables and Variables Amenable to Nursing Intervention. Journal of obstetric Gynecological Neonatal Nursing, 1989;18 (4): 258-68.
 71. Morland Schultz K. & Hill P., Prevention of and Therapies for Nipple Pain: A systematic review. Journal of obstetrical, gynecological, and neonatal nursing, 2005;34(4), 428-37, 247-75.
 72. Mustafa N., (2005): Design, Implementation, and Evaluation of Health Practices Informational Guide for Post Partum Women, A thesis submitted to Faculty of Nursing, Alex. University.
 73. Neifert M., Clinical Aspects of Lactation. Promoting Breastfeeding success. Clin Prenatal, 1999;26(2): 281-306.
 74. Neifert M., De Marzo S. Seacat J., etal., The Influence of Breast Surgery, Breast Appearance, and Pregnancy-Induced Breast Changes on Lactation Sufficiency as Measured by Infant Weight gain. Birth, 1990;17:31-8.
 75. Newman J., (2006): Breastfeeding-Starting out Right. www.breastfeeding.com.
 76. Newton M. & N. Newton., Postpartum Engorgement of the Breast. American journal of obstetric & gynecology, 1951;61: 664-7.
 77. Nikodem V., (2006): Advice about Breastfeeding. www.cyberparent.com/bfeed2/index.htm.
 78. Nour S., (2007): Maternal and Newborn Health, Labor and Delivery. Faculty of Nursing, Zagazig University, Egypt, 98-9.
 79. Nylander P. and Adekunle A., Antenatal Care in Developing Countries, Bailliere's Clin Obstet Gynecology, 1990;4 (1): 69-86.
 80. Oddy W., The Impact of Breast Milk on Infant and Child Health. Breastfeeding review, 2002;10(3); 5-13.
 81. Okasha MS., (2000): Study of Incidence of Lactational Amenorrhea, Its Relationship to Infant Feeding Patterns and Its Adoption as A Contraceptive Method among Urban and Rural Women. Ph.D. Dissertation. High Institute of Nursing, Alexandria University, 13-21.
 82. Orshan S., (2008): Maternity, Newborn, and Women's Health Nursing: Comprehensive care across the lifespan. Philadelphia: Lippincott Williams & Wilkins Co., 710-15, 777-93.
 83. Pavan C and Davanzo R., Nipple Care, Sore Nipples, and Breastfeeding: A randomized trail. Journal of human lactation, 1999;15(2): 125-30.
 84. pediatric advisor, (2009): Postpartum breast engorgement. <http://www.pediatricadvisor.com>.
 85. Pillitteri A., Maternal & Child Health Nursing. 4th ed. Philadelphia: Lippincott Williams & Wilkins Co., 2003;512-16: 596-615.
 86. Princess Basma Women's Resource Center (PBWRC), (2000): Qualitative research on reproductive health knowledge and needs among Jordanian youth. Market Research organization, August; 1 - 12.
 87. Reghab S., (1996): Thematic paper on Reproductive Health including Family Planning and Sexual Health in Egypt. Egypt, 12.
 88. Riedel L., (1991): Breast Engorgement: Subjective and objective measurements and patterns of occurrence in primiparous mothers. Master thesis, Department of nursing, University of Wyoming, Laramie, Wyoming, 118.
 89. Righard L. & Alande M., Sucking Technique and Its Effect on Success of Breastfeeding. Birth, 1992;19: 185-9.
 90. Riordan J. & Hoover K., (2005): Perinatal and Intrapartum Care. In J. Riordan (Ed.), Breastfeeding and Human Lactation. 3rd ed. Boston: Jones & Bartlett Co., 185-216.
 91. Riordan J., (2005a) Breast-related Problems. In J. Riordan (Ed.), Breastfeeding and Human Lactation. 3rd ed. Boston: Jones & Bartlett Co., 247-75
 92. Rowley J., (1992): Empowering women. Planned Parenthood challenges toward 2000. IPPE, London, 10 - 8.
 93. Salem S., (2004): Patterns of Utilization of Antenatal Care in Tanta, A thesis submitted to Faculty of Nursing, Tanta University.
 94. Salhan S., (2007): Textbook of Obstetrics. New Delhi: Jaypee brothers Co., 612-22.

95. Sallem S., Mahzuz A., (1998): Reproductive Health of Adolescent Married Women in Squatter Area in Alexandria. National Population Council, 5-7.
96. Savage F., Breastfeeding in 1990s. The National Medical J of India, 1990;3:155-9.
97. Shea K., (1998): An Evaluation of Breastfeeding Promotion Literature: does it really promote Breastfeeding? Can J Public Health, 84(2): 24-2. Shiau S., (1997): Randomized Control Trial of Kangaroo Care with Full term Infants: Effects on maternal anxiety, breast milk maturation, breast engorgement, and Breastfeeding status. Doctoral dissertation, case Western Reserve University, Cleveland, Ohio.
98. Singh, GK, Kogan MD, Dee DL., (2003): Nativity/Immigrant Status, Race/ Ethnicity and Socioeconomic Determinants of Breastfeeding Initiation and Duration in the United States. Pediatrics, 2007; 119: S28-46.
99. Smith C , Maurer F.,(2000): Community health nursing : theory and practices . 2nd ed. W.B .Saunders Com. Philadelphia, 651-2.
100. Smith C. and Farces A., (2000): Community Health Nursing. Theory and Practices: postpartum care. 2nd ed. USA: Sanders Co., 658-60.
101. Snowden H., Renfew M. & Woolridge M., (2005): Treatment of Breast Engorgement during Lactation (Review). The Cochrane database of systemic reviews, Issue 3.
102. Stewart M. and Hunts, (2004): Pregnancy, birth and maternity care: feminist perspectives. BFM Com., Edinburgh, 46.
103. Symonds E., Symonds I., (1998): Essential Obstetrics and Gynecology. 3rd ed. New York: Personal professional limited Co., 129-36.
104. UNICEF UK baby friendly Initiative, (1999): The Baby Friendly Initiative in The Community: an implementation guide. UNICEF UK baby friendly Initiative UNICEF, London.
105. UNICEF/ WHO, (1993): Breastfeeding Management and Promotion in Baby Friendly Hospitals, an 18 hours course for maternity staff, UNICEF/WHO, 4-127.
106. Waddell A. women's health , improve our health , improve the world , Geneva : WHO ,1995; 6-8 .
107. WahbaSaneya A. et al., Mothers Perception and Practices toward Breast Feeding in an Egyptian Rural Village. Child Health Department. National Research Center. Cairo, Egypt: Journal of Arab Child, 1991;2.
108. Walker M., Breastfeeding and Engorgement. Breastfeeding, 2010;20(2), 11-2.
109. Wambach K., Campbell SH., Gill SL, Dodgson JE, Abiona TC, Heinig MJ. , (2005): Clinical Lactation Practice: 20 years of evidence. Journal of human lactation, 21:245.
110. WHO, (1997): Coverage of Maternity Care: A Listing of A valuable Information, 4th ed., Geneva.
111. Williams S.,(1967): From an address delivered at the annual meeting of the national academy of engineering , Quoted in public health services world . December; 2-32.
112. Wilson W., Lowdermilk P., (2006): Maternal Child Nursing Care. USA: Mosby Co., 596,777-85.
113. World Health Organization, (1995): Women's Health Today: Fourth World Conference on Women. Geneva: WHO September, 21-105.
114. World Health Organization, (1999): Safe Motherhood Managing Complications in Pregnancy and Child birth, Health Home. www.who.org., Geneva, 6-7.
115. World Health Organization, (2001): Postpartum Care of Mothers and Newborn. Geneva: WHO.
116. Yamauchi Y., Breastfeeding Frequency during the First 24 Hours after Birth in Full Term N. Pediatrics, 1992;86: 171-5.
117. Ziemer MM and Pigeon JG., Skin Changes and Pain to the Nipple during the First Week of Lactation. JOGNN Nurs, 1995;22(3): 223.

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