

## Evidence Based Guideline Using to Alleviate Traumatic Nipple among Nursing Mothers

*<sup>1</sup>Eman Mostafa Sayed Ahmed, <sup>1</sup>Hanan Abd El fattah Mohamed  
and <sup>2</sup>Yasser Mohamed Abu-talib*

<sup>1</sup>Maternity & Gynecological Nursing Department,  
Faculty of Nursing –Ain Shams University, Cairo, Egypt

<sup>2</sup>Department of Obstetrics & Gynecology,  
Faculty of Medicine –Ain Shams University, Cairo, Egypt

---

**Abstract:** A comparative intervention study aimed to evaluate the effect of evidence based guideline for alleviating traumatic nipple among nursing mothers. The study was conducted at the Postnatal Maternity Unit & outpatient family planning clinic at Ain Shams University Maternity Hospital. Through purposive technique, 150 women were included in the study, based on the following criteria: newly nursing mothers medically diagnosed for traumatic nipples with different degrees, healthy women with healthy infants. Data were collected through three tools: a structured interview sheet developed to collect mothers' data and practices related to breast feeding; Visual Analogue Scale conducted to assess pre/post intervention nipple pain; and Nipple Trauma Score (NTS) conducted to assess pre/post intervention traumatic nipple, in addition to Arabic evidence based guideline. The results of the study showed that all mothers suffered from different degrees of traumatic nipple, most of the mothers had poor practices related to breastfeeding and didn't have any reaction toward nipple trauma. The results indicated positive effect of evidence based guideline on mothers' practices & degree of traumatic nipple and also showed that lanolin, tea bag compresses and expressed breast milk had the same effect of relieving nipple trauma. The study came up with the following recommendations: developing a counseling program for women during pregnancy and immediate postpartum period about prevention and treatment of traumatic nipple; conducting further prior research to determine the relation between pregnancy preparation for lactation & the occurrence of nipple trauma.

**Key words:** Breastfeeding • Nipple trauma • Postpartum

---

### INTRODUCTION

Breastfeeding reduces perinatal morbidity and mortality and protects the child against infections in the first year of life and against chronic diseases in adult age. Many complications hinder the success of this practice. One of these complications is nipple trauma, which represents one of the main reasons for early weaning. Inadequate child handling and positioning are among the factors that predispose the appearance of nipple injuries [1]. Nipple trauma has been identified as pain sensation in frictional and suction lesions of nipple ranging from uncomfortable feeling to severe

pain with physical trauma (cracked, sore, bleeding, oedematous, erythemic, blistered nipples that may have fissures present) associated with breastfeeding [2].

Nipple trauma can be classified into six grades as follows: grade 1 no microscopically visible skin changes; grade 2 with erythema or edema or a combination of both; grade 3 where there is superficial damage with or without scab formation of less than 25% of the nipple surface; grade 4 where there is superficial damage with or without scab formation of more than 25% of the nipple surface; grade 5 where there is partial-thickness wound with or without scab formation of less than 25% of the nipple

surface; and grade 6 where there is partial-thickness wound with or without scab formation of more than 25% of the nipple surface [3].

Women with sore or cracked nipples are also prompted to wean their babies, as the pain can be unbearable. The physical and psychological impacts of nipple pain can cause high levels of emotional distress and other complications related to cessation of breast feeding. They may also affect the mother child relationship though both will resolve once the pain is removed [4].

Nurses have many opportunities to influence the care of the mother and /or the baby and can assist in planning, providing services that will help in meeting the goals for improving women's health. Nursing must generally focus on health promotion rather than disease prevention as a key concept [5]. The best intervention for alleviating nipple trauma in lactating mothers is education on proper positioning and attachment of the infant according to a systematic review of randomized controlled trials. A midwife/nurse will be present at the first feed to help with attachment and provide reassurance and encouragement. It is important to get this correct from the first feed to assist in the prevention of incorrect attachment and associated problems. Encouraging frequent feeding during these first days will minimize engorgement and help baby to establish the best attachment that leads to prevention and management of nipple trauma [6].

On the other hand nurse play an important role to instruct mothers about different evidence methods as medications are compatible with breast feeding for nipple trauma, as soon as herbal and other "natural" treatments - herbs can be just as pharmacologically active as medications from the pharmacy. Before using any herbal treatment, investigate if it is safe for nursing mothers [7].

**Significance of the Study:** It is a dream for most mothers to have comfort in breastfeeding, but nipple trauma is still a common problem, for pain or cracks frequently occur after breastfeeding. When the nipples are hurt, breastfeeding is in jeopardy. It is estimated that 34 to 96 percent of breastfeeding women experience some nipple soreness and may resort to premature weaning [8]. Moreover, up to one third of mothers who experience these complications may change to alternate methods of infant nutrition within the first six weeks postnatal. [3] One of the significant consequences of this change in infant feeding practice has been an increase in infant mortality and morbidity which breastfeeding would have

helped to prevent. Breastfeeding plays a major role in public health, as it promotes health and prevents disease of both the infant and the mother in both the short and long terms. Evidence based methods guaranteed positive effect on relieving of nipple trauma. The current study tries to explore this issue among nursing Egyptian mothers.

**This Study Aimed To:** Evaluate the effect of evidence based guideline on alleviating traumatic nipple among nursing mother through:

- Assess the level of traumatic nipples before intervention.
- Implement of evidence based guideline for nursing mothers
- Evaluate the effect of intervention on degree of traumatic nipples.

**Research Hypothesis:** Evidence based guideline for nursing mothers will improve their practices related to breast feeding & measures to alleviate traumatic nipple

## MATERIALS AND METHODS

### Research Design

**A Comparative Intervention:** Study was used.

**Setting:** The study was conducted at the Postnatal Inpatient Maternity Unit & outpatient family planning clinic in Maternity Unit at Ain Shams University Maternity Hospital.

### Sample

**Sample Size:** According to formula statistics  $n = Z^2 \cdot \alpha / 2p(1-p) / d^2$  to calculate sample size; a sample of 150 women was included in the study, representing 10% of the total women diagnosed with traumatic nipple who attended at the previously mentioned setting in the previous year.

**Sample Type:** A purposive sample was used.

**Sample Criteria:** The sample was collected using the following criteria:

- Newly nursing mothers
- Medically diagnosed with traumatic nipples & don't use any medication to relieve it
- Healthy (free from medical disease) women.
- Delivering healthy infants (normal apgar score- free from medical or anomalies & genetic disease)

**Tools of the Study:** Three tools were used for data collection related to this study in addition to evidence based guideline about traumatic nipple.

**A Structured Arabic Interview Questionnaire Sheet:**

This was constructed by the researcher after reviewing the related literature. It assessed the necessary data which covered the aim of the study. The questionnaire was divided into 2 parts and consisted of open & closed ended questions.

**Part (1):** This part assessed women’s socio-demographic characteristics as age, educational level & occupation.

**Part (2):** This part assessed women's practices related to breastfeeding & how to deal with nipple trauma.

**A visual analogue scale in English Modified from Abou-Dakn & Fluhr [3]:**

Was used to assess women's degree of pain before and after intervention. The scale used in this study ranged from 1 to 10 with the following anchor-point descriptors:

Nipple pain scores	
Score	Nipple pain description
0	No pain, just the tugging feeling of the baby moving my breast
1-4	Mild
5-7	Moderate pain
8-10	Severe Pain

**Description of Nipple Trauma Score in English (Adapted from Abou-Dakn & Fluhr [3]):**

Was used to assess nipples trauma before and after intervention.

Score	Description of Nipple Trauma:
0	-No microscopically visible skin changes
1	-Erythema or edema or combination of both
2	-Superficial damage with or without scab formation of less than 25% of the nipple surface
3	- Superficial damage with or without scab formation of more than 25% of the nipple surface
4	-Partial-thickness wound with or without scab formation of less than 25% of the nipple surface
5	-Partial-thickness wound with or without scab formation of more than 25% of the nipple surface

A supportive evidence based guideline: it consisted of instructions about breast feeding benefits, causes of nipple trauma, best evidence practices related to breast feeding & treatment of traumatic nipple in terms of nonpharmacological methods (as breast milk & tea bag compres action, dose & route) and pharmacological method (lanolin cream :- action, dose & route).

**Ethical Considerations:** The research ethical considerations in this study included the following:

- The research approval was obtained from Scientific Research Ethical Committee in Faculty of Nursing at Ain Shams University before starting the study.
- The researcher clarified the objective and aim of the study to the subjects / patients included in the study.
- The researcher assured maintaining anonymity and confidentiality of the subjects data.
- The researcher tried to avoid injury to research subjects.
- Offer to answer all questions was made.
- Patients were informed that they were allowed to choose to participate or not in the study and that they had the right to withdraw from the study at any time.

**Pilot Study:** Tools were reviewed for appropriateness of items through an expert panel to assure content validity and then a pilot study was conducted for 15 women (10 % of total sample) to evaluate the applicability and reliability of the constructed tools and the obtained results of the pilot study were used as a guide for the necessary modification needed in the study title, setting, subjects, resources or data collecting tools. No modification was done to the tools.

**Field Work:** The study started from, May 2014 to Mars 2015. The researcher visited data collection site (inpatient postnatal unit & outpatient family planning clinic in Maternity Unit at Ain Shams University Maternity Hospital from 9.00 am to 1.00 pm for three days per week until the sample size was completed.

**Phase 1:** At the beginning of the interview, the researcher explained to the women the aim of the study and then the oral consent of the woman was obtained. Confidentiality of the information was ensured to gain women confidence and trust. The questionnaire administered by the researcher in time ranging from 5-10 minutes. Then the researcher marking mother nipple pain level using visual analogue scale & nipple trauma score using nipple description of nipple trauma score within another 5 min.

**Phase 2:** The women included in sample were randomly divided into 3 groups (50 in each group) using different evidence based methods selected by researcher to alleviate nipple problems. *Group 1* (G1) used lanoline ointment, the most evidently effective ointment [9]. *Group 2* (G2) used Teabag Compres. *Group 3* (G3) used breast milk after each feeding, Teabag & breast milk [10].

**Phase 3:** Instructions were described to every woman individually through educational sessions about breast feeding benefits, causes of nipple trauma, evidence practices related to breast feeding, measures for management of nipple trauma, in addition to action, dose and route of *selected evidence based method* in time ranging from 10-15 minutes and a designed guide was distributed which was *reviewed by a gynecologist*.

**Phase 4:** After educational session; the researcher asked the women to rate the nipple pain they experienced during breastfeeding by marking their pain intensity level on a visual analogue scale (VAS) form that was given to them ranging from 0 (no pain) to 10 (most intense pain imaginable). Also nipple trauma score was assessed through description of nipple trauma score & by *assistance of a gynecologist*. Mother was asked to record these results on 7<sup>th</sup> & 14<sup>th</sup> day post intervention (using different evidence based measures).

**Evidence based measures: adopted from Amir [7] Dick [11] and Brien et al. [12]:**

- Wash your nipples with warm water only before each feeding
- Ensure correct positioning and attachment of your baby when feeding.
- Offer your baby the nipple that is less sore first.
- A breast pump can be used to express your milk until your nipples heal if it is too painful for you to breastfeed.

In addition to;

- *Use measures to relieve traumatic nipple by;*
- **G1 Ointments**, such as lanolin, may help to prevent nipple dryness and scabbing, 2 time/day after feeding
- **G2 Warm teabag compresses** placed on your nipples may offer relief, 4 time/day for 5-10min
- **G3 Expressed breast milk** placed on your nipples with every feeding

**Phase 5:** Follow-up telephone interviews were conducted in time of 7<sup>th</sup>&14<sup>th</sup> days of intervention in time ranging from 2-8 minutes to assess the women compliance to measures, signs of improvement and any problems arising.

Limitations of the study:

- There was drop out of 7 cases for lanolin, 3cases for tea bag and 2 cases for breast milk at day 14; these were excluded due to mother-related causes.

- There were some difficulties in data collection due to interruption of health worker team and client relatives.

**Statistical Design:** The data obtained were reviewed and prepared for computer entry, coded, analyzed and tabulated. Data entry and analysis were done using SPSS 17.0 statistical software package and Microsoft excel program. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means for quantitative variables. Chi square was to determine relation between qualitative data. Statistical significance difference was considered when  $P$ -value  $\leq 0.05$  and high significance when  $P$ -value  $\leq .001$  and no statistical significance difference was considered when  $P$ -value  $> 0.05$  and not highly significant when  $P$ -value  $> .001$ .

## RESULTS

Table (1) shows that the ages of mothers ranged from 18-42 years with a mean age of  $26.95 \pm 5.147$  years. Mothers who were illiterate or just read and wrote represented 14%, while those with secondary or university education represented 44.6 and 28.7% respectively. As far as mothers' jobs were concerned, the study revealed that 82.7% of women were housewives.

Figure (1) shows that all mothers suffered from different degrees of nipple pain before intervention, (88%) of mothers suffered from severe nipple pain.

Figure (2) shows that all mothers suffered from different degrees of nipple trauma before intervention, (38%) of mothers suffered from Erythema and/or edema.

Table (2) reveals that highly significant difference on total nursing mothers' practices between before & after 14<sup>th</sup> day of using evidence based guideline.

Regarding using lanolin for nipple pain, Table (3) indicates that there is significant improvement on the pain degree between pre and post intervention by 7<sup>th</sup>& 14<sup>th</sup> day (p value  $< 0.001$ ).

Concerning using lanolin for nipple trauma, Table (4) shows that there is significant improvement on the trauma grade between pre and post intervention by 7<sup>th</sup>& 14<sup>th</sup> day (p value  $< 0.001$ ).

Regarding using tea bag for nipple pain, Table (5) indicates that there is significant improvement on the pain degree between pre and post using tea bag by 7<sup>th</sup>& 14<sup>th</sup> day (p value  $< 0.001$ ).

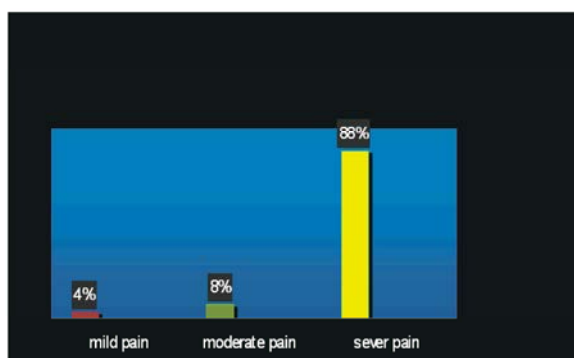


Fig. 1: Shows degree of nipple pain for mothers

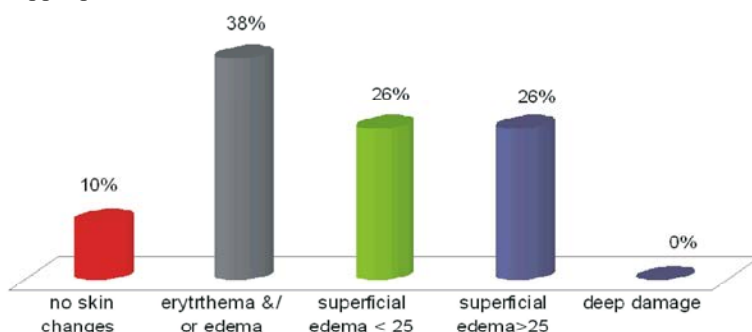


Fig. 2: Shows grade of nipple trauma for mothers

Table 1: Mothers' socio- demographic characteristics:

Items	NO=150	
	No	%
Age range	18-42 yr	
Mean ±SD	26.95±5.147	
Women's education :		
- Illiterate or just read and write	21	14
- Primary	19	12.7
- Secondary	67	44.6
- University	43	28.7
Women's occupation :		
-Working	26	17.3
- Housewife	124	82.7

Table 2: Mother's practices regarding breast feeding & traumatic nipple before & after using of evidence based guideline by 7<sup>th</sup> & 14<sup>th</sup> day

Practices	N= 150				*N= 138		Chi-square P-value
	Baseline		7 <sup>th</sup> day		14 <sup>th</sup> day		
	No	%	No	%	No	%	
Wash nipples with warm water before each feeding	48	32	130	86.7	136	98.5	92.9** <0.001
Ensure correct positioning & attachment of baby when feeding	25	16.6	135	90	138	100	59.6** <0.001
Offer baby the nipple that is less sore first	112	74.6	138	92	138	100	6.1* <0.05
A breast pump can be used to express milk until nipples heal	16	10.6	120	80	125	90.5	62.7** <0.001
Use measures to relieve traumatic nipples							
- Non-pharmacological	-	-	100	66.7	95	68.8	-
- pharmacological	-	-	50	33.3	43	31.2	-
Total Practices	40	26.7			113	81.8	69.1*** <0.001

\* NB: There was drop out of 12 cases at 14<sup>th</sup> day

\*\* Highly significant

\*significant

Table 3: Comparison between base line, 7<sup>th</sup> and 14<sup>th</sup> day for mothers using lanolin regarding pain degree

	Number of days						Test of sig.	
	Base-line n =50		7 <sup>th</sup> n= 50		14 <sup>th</sup> *(n =43)		Chi-square	P-value
	n	%	n	%	n	%		
Pain degree For lanolin group								
No pain	0	0	19	38	38	88.4	105.473	0.000
Mild pain	2	4	10	20	3	7		
Moderate pain	4	8	7	14	0	0		
Severe pain	44	88	14	28	2	4.7		

\*NB: there is drop-out of 7cases on 14 day

Table 4: Comparison between base line, 7<sup>th</sup> and 14<sup>th</sup> day for mothers using lanolin regarding trauma grade

	Number of days						Test of sig.	
	Base-line n =50		7 <sup>th</sup> n= 50		14 <sup>th</sup> *(n =43)		Chi-square	P-value
	n	%	n	%	n	%		
Trauma grade For lanolin group								
No skin change	5	10.0	25	50	41	95.3	72.965	0.000
Erythema and/or edema	19	38	10	20	1	2.3		
Superficial damage <25	13	26	5	10	0	0		
Superficial damage >25	13	26	8	16	1	2.3		
Deep damage <25	0	0	2	4	0	0		

\*NB: there is drop-out of 7cases on 14 day

Table 5 Comparison between base line, 7<sup>th</sup> and 14<sup>th</sup> day for mothers using tea bag regarding pain degree

	Number of days						Test of sig.	
	Base-line n =50		7 <sup>th</sup> n= 50		14 <sup>th</sup> *(n =47)		Chi-square	P-value
	n	%	n	%	n	%		
Pain degree for tea bag								
No pain	0	0	27	54	43	91.5	116.48	0.000
Mild pain	0	0	10	20	0	0		
Moderate pain	8	16	4	8	1	2.1		
Severe pain	42	84	9	18	3	6.4		

\*NB: there is drop-out of 3cases on 14 day

Table 6: Comparison between base line, 7<sup>th</sup> and 14<sup>th</sup> day for mothers using tea bag regarding trauma grade

	Number of days						Test of sig.	
	Base-line n =50		7 <sup>th</sup> n= 50		14 <sup>th</sup> *(n =47)		Chi-square	P-value
	n	%	n	%	n	%		
Trauma grade for tea bag								
No skin change	15	30	39	78	44	93.6	49.450	0.000
Erythema and/or edema	20	40	5	10	3	6.4		
Superficial damage <25	11	22	4	8	0	0		
Superficial damage >25	4	8	2	4	0	0		
Deep damage <25	0	0	0	0	0	0		

\*NB: there is drop-out of 3cases on 14 day

Table 7: Comparison between base line, 7<sup>th</sup> and 14<sup>th</sup> day for mothers using breast milk regarding pain degree

	Number of days						Test of sig.	
	base-line n =50		7 <sup>th</sup> n= 50		14 <sup>th</sup> (n =48)		Chi-square	P-value
	n	%	n	%	n	%		
Pain degree for breast milk								
No pain	0	0	28	56	43	89.6	105.302	0.000
Mild pain	1	2	9	18	1	2.1		
Moderate pain	8	16	8	16	0	0		
Severe pain	41	82	5	10	4	8.3		

\*NB: there is drop-out of 2 cases on 14 day

Table 8: Comparison between base line, 7<sup>th</sup> and 14<sup>th</sup> day for mothers using breast milk regarding trauma grade

	Number of days						Test of sig.	
	Base-line n =50		7 <sup>th</sup> n= 50		14 <sup>th</sup> *(n =48)			
	n	%	n	%	n	%	Chi-square	P-value
Trauma grade for breast milk								
No skin change	17	34	39	78	44	91.7	43.496	0.000
Erythema and/or edema	13	26	6	12	1	2.1		
Superficial damage <25	15	30	4	8	1	2.1		
Superficial damage >25	4	8	1	2	2	4.2		
Deep damage <25	1	2	0	0	0	0		

\*NB:-there is drop-out of 2 cases on 14 day

Table 9: Comparison between the pharmacological (lanolin) & non pharmacological (teabag - breast milk) for lactating mothers regarding nipple pain pre and post intervention

Items		(n-150)						Chi-square	P-value
		Pharmacological			Non-pharmacological				
		Lanolin n =50		Teabag n =50		Breast milk n =50			
		No	%	No	%	No	%		
Nipple pain Pre-intervention	mild	2	4	0	0	1	2	3.604	0.434
	moderate	4	8	8	16	8	16		
	severe	44	88	42	84	41	82		
Nipple pain on 14 <sup>th</sup> day post intervention	No pain	38	88.4	43	91.5	43	89.6	5.92	0.372
	Mild	3	7	0	0	1	2.1		
	moderate	0	0	1	2.1	0	0		
	severe	2	4.7	3	6.4	4	8.3		

NB: there is drop-out of 7 cases in lanolin group&3cases in tea bag group and 2 cases in breast milk group on 14<sup>th</sup> day

Table 10: Comparison between the pharmacological (lanolin)&non pharmacological (teabag - breast milk) for mothers regarding trauma grade pre and post intervention

Items		(n-150)						Chi-square	P-value
		Pharmacological			Not-pharmacological				
		Lanolin n =50		Tea n =50		Breast milk n =50			
		No	%	No	%	No	%		
Trauma grade Pre intervention	No skin change	5	10	15	30	17	34	18.291	0.01
	Erythema and/or edema	19	38	20	40	13	26		
	Superficial damage <25	13	26	11	22	15	30		
	Superficial damage >25	13	26	4	8	4	8		
	Deep damage <25	0	0	0	0	1	2		
Trauma grade Post intervention on 14 <sup>th</sup> day	No skin change	41	95.3	44	93.6	44	91.7	4.876	0.568
	Erythema and/or edema	1	2.3	3	6.4	1	2.1		
	Superficial damage <25	0	0	0	0	1	2.1		
	Superficial damage >25	1	2.3	0	0	2	4.2		

\*NB: there is drop-out of 7 cases in lanolin, 3 cases in teabag and 2 cases in breast milk on 14<sup>th</sup> day post-intervention.

Concerning using tea bag for nipple trauma, Table (6) shows that there is significant improvement on the trauma grade between pre and post using tea bag by 7<sup>th</sup>& 14<sup>th</sup> day(p value <0.001).

Regarding using breast milk for nipple pain, Table (7) indicates that there is significant improvement on the pain degree between pre and post using breast milk by 7<sup>th</sup>& 14<sup>th</sup> day(p value <0.001).

Concerning using breast milk for nipple trauma, there is significant improvement on the trauma grade between pre and post using breast milk by 7<sup>th</sup> & 14<sup>th</sup> day (p value <0.001) Table (8).

Regarding using pharmacological (lanolin) & non pharmacological (teabag - breast milk) to relieve nipple pain, Table (9) indicates that there is no statistically significant difference between methods on pain degree pre and post intervention (p value>.05).

Regarding using pharmacological (lanolin) & non pharmacological (teabag - breast milk) to relieve nipple trauma, Table (10) indicates that there is no statistically significant difference between methods to improve trauma grades post intervention (p value >.05). Yet, there is statistically significant difference between groups of trauma grades pre intervention (p value<.05).

## DISCUSSION

National and international health-promotion strategies include increasing breastfeeding initiation and duration rates, as well as eliminating disparities in the care of women and infants in relation to breastfeeding. Policy makers, researchers and professional organizations have pointed to the irrefutable benefits of breastfeeding for babies, mothers, society and the environment. Unfortunately, many mothers experience damaged, painful nipples during breastfeeding and stop nursing before they intended [8]. So we should offer the mother the most up-to-date measures of symptomatic relief and accelerated healing. The current study was a comparative intervention study which aimed to evaluate the effect of evidence based guideline about best breast feeding practices beside different methods for alleviating traumatic nipples for nursing mothers.

The mothers of current study suffered from different degrees of nipple pain and different grades of nipple trauma. The present results showed the most of mothers had poor practices regarding breast feeding & didn't have any reaction toward nipple trauma pre intervention. This finding is consistent with Yanikkerem *et al.* [13], who studied breastfeeding knowledge and practices among mothers in Manisa, Turkey and found that more than half of the women did not know how to hold their breast during a feed in early postpartum period. On the other hand the result of *Indu et al.*, [14] mentioned that mothers' reaction toward sore nipples were breastfeeding cessation due to severe pain

The present study illustrated that the intervention had positive effect on mothers' practices e.g. correct position during breast feeding as there was highly significant difference between pre & post implementation of guideline. Compared with results done by Brien *et al.*, [12], it could be mentioned that participants in both studies raised strategies used to assist them in their efforts to cope with the challenges of breastfeeding and early motherhood. These strategies included increasing breastfeeding knowledge, staying relaxed and 'looking

after yourself', the use of positive self-talk, challenging unhelpful beliefs, problem solving, goal setting and the practice of mindfulness.

Breastfeeding problems can be avoided if the mothers understand the basics of breastfeeding techniques. Proper Breastfeeding techniques (positioning, latching and sucking) and "let down" of milk are crucial to exclusive breastfeeding and long term breastfeeding success. 99% of all mothers around the world can make enough breast milk to feed one baby, or multiple babies, if they learn how. It is all in the techniques [15].

With testing the effect of evidence based methods as lanolin, tea bags and breast milk on current nursing mothers, they were divided into 3 different groups, the study results revealed that there was significant improvement on the pain degree & trauma grade between pre and post intervention by 7th& 14th day among 3 groups.

This finding is supported by Joanna Briggs Institute [10] and Dick [11], who mentioned that many women with sore nipples had also found it is helpful to apply a thin coat of medical-grade anhydrous lanolin (Pure Lan or Lansinoh are good brands) after feeding according to breastfeeding guideline. The previous results can mean that lanolin is highly purified and medical-grade lanolin has no allergic components and has environmental impurities removed by a proprietary process rendering it safe to use during breast feeding.

The above finding of present study is in disagreement with *Melli et al.*, [16] "in which they mentioned that prophylactic peppermint gel in breastfeeding lactating women was associated with fewer nipple cracks and was more effective than lanolin and placebo and that it could be recommended for preventing nipple crack along with teaching better breastfeeding technique at the initiation of breastfeeding. This may be due to the fact that lanoline must be used with other measures to prevent or treat nipple trauma.

On the other hand; results done by Morland- Schulz and Hill [17], who mentioned the positive effect of tea bags on prevention and therapies for nipple pain. Abd-Elsalam *et al.*, [18] showed a significant reduction in the frequency of nipple pain and soreness in breastfeeding mothers where tea bags were applied after breastfeeds.

Other study done by *Mohammadzadeh et al.* [19] suggested and recommended breast milk for the treatment of sore nipples, for it is better for healing the sore nipple, it is available, safe and without payment. This agrees with *Page et al.* [9] who reported that expressed breast milk reduces the duration of cracked nipples.



Comparing between 3 methods, the results showed that Lanolin, tea bag compress and expressed breast milk had the same effect of relieving nipple trauma. It indicates that there is no statistically significant difference between 3 methods on pain degree pre and post intervention. This finding is consistent with Jennifer *et al.* [20], they mentioned that using lanolin to relieve nipple pain was equivalent to expressed breast milk, warm water compress and tea bag compress, as well.

Morland- Schulz and Hill [17], studied prevention of or treatment of nipple pain. These treatments included warm water compresses, tea bag compresses, heat, application of expressed mother's milk, lanolin, vitamin A, collagenase, dexpanthenol, hydrogel therapy, glycerin gel therapy, moist occlusive dressing, as well as education regarding proper latch-on and positioning and no treatment. They concluded that no one topical agent showed superior results in the relief of nipple discomfort. The most important factor in decreasing the incidence of nipple pain was the provision of education in relation to proper breastfeeding techniques and latch-on as well as anticipatory guidance regarding the high incidence of early postpartum nipple pain.

Comparing these results with those of the present study, it was indicated that using topical agent (tea bag compress - breast milk - lanolin) in combination with using self learning brochure (about breast feeding benefits & techniques, causes of nipple trauma, its prevention and its treatment) were effective in reducing nipple trauma.

Finally, we can say that prevention is better than cure. It is worth highlighting that the baby's positioning and attachment to the breast during breastfeeding are fundamental aspects towards the occurrence of different sorts of trauma. So, the most important intervention for reducing its occurrence is the education of women on correct breastfeeding techniques, starting during pregnancy or immediately during postnatal period.

### CONCLUSIONS & RECOMMENDATIONS

The study arrived at the conclusion that all mothers suffered from different degrees of traumatic nipple. The most of mothers had poor practices related to breastfeeding & didn't have any reaction toward nipple trauma. Evidence based guideline had positive effect on mothers' practices & degree of traumatic nipple. Comparing between 3 methods, the results showed that Lanolin, tea bag compress and expressed breast milk had the same effect of relieving nipple trauma. It indicates that there is no statistically significant difference between 3 methods on pain/trauma degree pre and post intervention.

In the light of the results of the study the researcher recommends:

- Developing a counseling program for women during pregnancy and immediate postpartum period about prevention and treatment of traumatic nipple.
- Establishing education center at inpatient postnatal unit in the hospital to facilitate the follow-up of cases.
- Conducting further researches to determine the relation between pregnancy preparation for lactation & the occurrence of nipple trauma.

### REFERENCES

1. Shams, S., 2011. Breast Feeding and Motherhood. Aga Khan University, School of Nursing, Pakistan. Pakistan Journal of Nutrition, 10: 599-601.
2. Page, T., C. Lockwood and K. Guest, 2012. Management of nipple pain and/or trauma associated with breast-feeding Issue1(4) JBI Reports, pp: 127-147.
3. Abou-Dakn, M., J.W. Fluhr, M. Gensch and A. Wöckel, 2011. Positive Effect of HPA lanolin versus expressed breast milk on painful & damaged nipples during lactation, Skin Pharmacol Physiol., 24(1): 27-35.
4. Henderson, C., 2004. Mayes Midwifery a text book for midwives, 30<sup>th</sup>, Elsevier, London, pp: 604-609.
5. Clark, M.J., 2008. Community Health Nursing, Fifth edition, Prentice hall Company, California, USA, pp: 95-98.
6. Australian Breastfeeding Association, 2009. Breastfeeding information. Victoria: ABA. available at: [www.breastfeeding.asn.au/bfinfo/index.html](http://www.breastfeeding.asn.au/bfinfo/index.html)
7. Amir, L., 2011. Breastfeeding, Evidence based guidelines for the use of medicines, Reprinted from Australian Family Physician, 40(9): 684-90.
8. Brent, N., 2010. Sore nipples in breast-feeding women, American Medical Association Journal of Clinical Nursing, 10: 1564-1552.
9. Page, T., C. Lockwood and K. Guest, 2009. The management nipple pain and/or trauma associated with breastfeeding: a systematic review. JBI Reports 1(4), Blackwell Publishing Asia.
10. Joanna Briggs Institute, 2009. The management of nipple Pain and trauma associated with breastfeeding. Best Practice evidence-based information sheet for health Professionals, 7: 1-6.
11. Dick, G., 2012. Breastfeeding Guide, Mount Carmel, pp: 24-25: [www.breastfeedinginc.ca](http://www.breastfeedinginc.ca).

12. Brien, M., E. Buikstra, T. Fallon and D. Hegney, 2013. Strategies for success: a toolbox of coping strategies used by breastfeeding women., *Journal of Clinical Nursing*, 11(18): 1574-1582.
13. Yanikkerem, E., R. Tuncer, K. Yilmaz, M. Aslan M. and G. Karadeniz, 2009. Breast-feeding knowledge and practices among mothers in Manisa, Turkey, 25(6).
14. Indu, B., B. Morro and J. Hsia, 2005. Why do women stop breastfeeding? Findings from the pregnancy risk assessment and monitoring system pediatric, 6(116).
15. Giugliani, E.R., 2004. Common problems during lactation and their management by Sociedade Brasileira de Pediatria. *J Pediatr (Rio J)*. 2004/Nov; 80(5): 147-54. :URL: <http://www.pubmed.com>
16. Melli, M., D. Rashidi, A. Delazar, E. Madarek, M. Hassan, K. Maher, A. Ghasemzadeh, K. Sadaghat and Z. Tahmasebi, 2007. Effect of peppermint water on prevention of nipple cracks in lactating primiparous women: a randomized controlled trial. *International Breastfeeding Journal*, 2:7.
17. Morland- Schulz, K. and P. Hill, 2005. Prevention of and therapies for nipple pain: a systematic review. *J. ObstetGynecol Neonatal Nurs*, 34: 428-437.
18. Abd-Elsalam, S., S. Hamido and H. Abd el Hameed, 2011. Effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers, *Journal of American Science*, 7(11): 485-496.
19. Mohammadzadeh, A, A. Farhat and H. Esmaily, 2005. The effect of breast milk and lanolin on sore nipples, *Saudi Med J.*, 26(8): 1231-4.
20. Jennifer, E., C.J. Lochner, Atherine, Livingston and D.Z. Judkins, 2009. Which interventions are best for alleviating nipple pain in nursing mothers, *Oregon Health & Science University, Portland, J. Fam Pract.* 58(11): 612a-612c.