

Effect of Using Pharmacological versus Alternative Therapy on Traumatic Nipples for Lactating MothersSoad Abd-Elsalam¹; Shadia Hamido²; Howyida, S. Abd el Hameed³¹Department Obstetric & Gynecological Nursing, Faculty of Nursing, Benha university, Egypt.²Department Obstetric & Gynecological Nursing, Faculty of Nursing, Ain shams University, Egypt.³Department of Community Health Nursing, Faculty Nursing, Benha University, Egypt.soad_abdelsalam@yahoo.com Dr_Shadia_hamido@yahoo.com Elmokhtar.Mohamed@yahoo.com

Abstract: Nipple pain and trauma as complications associated with breastfeeding, are considered amongst the most significant factors impacting on the uptake and continuance of breastfeeding in the first weeks of motherhood. Remedies for traumatic nipples have been written about since the 17th century when plasters, poultices, and ointments were applied topically to provide comfort for the mother. **The aim of this study** was to evaluate the effect of using pharmacological versus alternative therapy on traumatic nipple for lactating mothers. **Research hypotheses** was the positive effect of using pharmacological versus alternative therapy on traumatic nipple for lactating mothers. **Quasi-experimental study** was carried out at Obstetrics Gynecological hospital at Ain shams University, Benha University hospital and MCH center in Benha city. **Purposive sample** technique was used to recruit 200 lactating mothers suffering from traumatic nipples according to determined criteria lactating mothers with nipple pain diagnosed by doctors, and lactating mothers who free from any medical disorder. **Four tools** were used for data collections. **Tool 1:** A Structured interview sheet was developed to collect the information from the mother. **Tool 2:** Visual Analogue Scale was conducted to assess healed nipple pain. **Tool 3:** Nipple Soreness Rating Scale was conducted to assess soreness healed nipple. **Tool 4:** The Nipple Trauma Score (NTS) was conducted to assess healed traumatic nipple. **Results of the study** illustrated that the use of peppermint water in combination with an oily base could have some beneficial effects in reducing nipple crack. Furthermore, no moderate or severe pain or areola crack were observed in the lanolin or peppermint groups in the present study. However, the present cases, that uses tea bag, have moderate pain. The study **concluded** that peppermint water is effective in the prevention of nipple trauma, and less nipple pain compared to the application of tea bag or lanolin cream after feeding. So, alternative therapy is nearly as pharmacological therapy. Depending on the result of this study. **The recommendations** Teaching mothers for positioning and attachment of the baby to the breast for breastfeeding can prevent the incidence of traumatic nipples. Increasing the awareness regarding usage of alternative therapy as peppermint, tea is to reduce traumatic nipple. [Soad Abd-Elsalam; Shadia Hamido; Howyida and S. Abd el Hameed. **Effect of Using Pharmacological versus Alternative Therapy on Traumatic Nipples for Lactating Mothers**. J Am Sci 2011;7(11):485-496]. (ISSN: 1545-1003). <http://www.americanscience.org>. 61

Keywords: breastfeeding, nipple trauma, treatment**1. Introduction**

Breastfeeding is considered the ideal method of feeding and nurturing infants. Infants, who are not breastfed, have increased rates of mortality and increased risk of several chronic childhood diseases. ⁽¹⁾

Many factors are associated with the intention of breastfeeding. These factors include maternal age, mother's education level, family household income, number of children, mother's knowledge about the benefits of breastfeeding, previous breastfeeding experience, attitude towards breastfeeding, and the mother's social support network. Understanding factors associates with the intention of breastfeeding will allow health care decision-makers to plan and evaluate appropriate interventions to improve breastfeeding initiation and duration. ⁽²⁾

Sore nipples are common during early days of breastfeeding, physical findings include vertical or horizontal red or white lines on the breast; fissures, cracks, or bleeding from the nipples. Use of formula and pacifiers in the hospital have been associated with

nipples' pain at the time of discharge. Transient nipple pain usually peaks between the third and sixth days of postpartum, whether prolonged or severe soreness beyond the first week requires intervention. ⁽³⁾

Nipple trauma has been identified as being a disorder resulting from incorrect positioning and latching-on during breastfeeding. Therefore, the most important interventions to reduce its occurrence is the education of women on correct breastfeeding techniques, starting during pregnancy. ⁽⁴⁾

When sore nipples are not treated adequately, tissue breakdown can progress rapidly and, in some cases, nipple's injury can be extensive. ⁽⁵⁾

Several methods have been suggested to prevent nipple crack. One of the agents is used for the prevention of nipple crack and pain is lanolin, using purified lanolin and finding it suitable for the prophylaxis and treatment of sore nipples. ⁽⁶⁾

Green tea poly phenols induce differentiation and proliferation in epidermal. Green tea poly phenols have been shown to stimulate aged keratinocytes,

energizing cell division and DNA synthesis, and potentially reducing healing time of epidermal wounds. This may make some mothers enjoy relief of their nipple wounds by using certain types of tea bags.⁽⁷⁾

Menthol, which is found in the highest concentration in peppermint oil, is pharmacologically active in relatively small doses. In small doses, it is safe for ingestion by babies and has been widely used over many years as a calming agent to soothe an upset stomach. As it is observed with numerous other volatile oils, peppermint water possesses antibacterial activity, because it has calming and numbing effects, and it has been used externally for skin anesthetic, burns, wounds, itching, and inflammation. Peppermint water is popularly used for the prevention of nipple pain and damage.⁽⁵⁾

The nurse caring for the breastfeeding mother should help the women achieve independence and success in her feeding efforts prepared with knowledge of the anatomy and physiology of the breast and lactation, the component and positive effects of breast milk, and the techniques of breastfeeding. The nurse can help women and their family by using their own resources to achieve a successful experience.⁽⁸⁾

Significance of the study

Nipple injury is a breast disorder with an incidence varying from 11 to 96% of women who breastfeed during the first week after delivery.⁽⁹⁾

It has also been observed that 80 to 95% of these women exhibit some type of nipple pain and that 26% exhibit extreme pain, which has a negative impact on breastfeeding duration.⁽¹⁰⁾

The degree of nipple pain ranges from an uncomfortable feeling to severe pain, which is associated with nipple trauma in both frictional and suction lesions. The incidence is reported to vary between 34% to 96% and it peaks at day 3 and decreases by day 7.⁽¹¹⁾

Aim of the study

Evaluate the effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers.

Hypotheses:

There is the positive effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers.

Subjects and Methods:

This study aimed at evaluating the effect of using pharmacological versus alternative therapy on traumatic nipple for lactating mothers. The methodology was to achieve the aim at elaborating under the following items:-

- i. Technical design
- ii. Operational design
- iii. Administrative design

iv. Statistical design

I-Technical design:-

The technical design includes four main categories: research design, setting, subjects, and tools for data collection.

Research design:

Quasi-experimental design was used to fit with the nature of this study.

Setting:

The study was conducted at the antenatal clinic in Obstetrics Gynecological hospital at Ain Shams University, Benha University hospital and MCH center in Benha city.

Subject:-

Sample type:

Purposive sample technique was used.

Sample size:

- One hundred women's to conduct pharmacological method. (Lanoline cream).
- One hundred women's to conduct alternative therapy divided to (two group) - Fifty women's to conduct tea.
- Fifty women's to conduct peppermint.

Sample criteria :

- Lactating mother's with nipple pain diagnosed by doctors.
- Lactating mother's free from any medical disorder.

Legal aspects for ethical consideration:-

Each participant woman in the study was informed that her rights would be secured, informed about the nature, process, and expected outcomes of the study, reassured that the study procedures would be harmless, reassured that all data would be confidential and would be used only for the research purposes, and informed about her rights to withdraw at any time throughout the study.

Tools of data collection:-

Four tools of data collecting were used in this study and included:-

First tool :- was structured interview questionnaire was developed by researcher to collect the information from the mother & It consists of :

- **Socio demographic** data such as (name, age, age at marriage, marital status, and level of education, occupation, incidence, residence) and obstetric data such as (gravidity, parity, and number of living children) and medical surgical history.
- **History of breast feeding** (frequency, period for feeding, problem with breastfeeding, treatment for relieve these problem, efficiency of treatment, position of breast feeding, care of breast during (pregnancy, postpartum, lactation)

Second tool: - Was Visual analogue scale **adapted from Abou-Dakn** ⁽⁵⁾ to assess healing of nipple pain. Visual analogue scale (VAS) is a reliable measure for a variety of subjective phenomena. The VAS is

usually scored from 0 to 10 and the participants are asked to place a mark through the line at the point best describing the characteristic being assessed (e.g. pain). Anchor words are used to describe the variable being measured, such as 0 representing no pain and 10 representing pain as bad as it could possibly be.

Modified visual analogue scale

Scale	Nipple pain description
0	No pain, just the tugging feeling of the baby moving my breast
1-2	Minor discomfort
3-5	Moderate pain
6-8	Severe pain
8-10	The worst pain I can imagine

Third tool:- Was nipple soreness Rating scale (NSR) Adapted from Storr⁽¹³⁾ to assess soreness healing of the nipple.

Nipple Soreness: Score nipple soreness(0, 1, 2, 3, 4, 5) after you have completed the treatment, according to the explanation below.

Description of nipple soreness score

Scale	Description of nipple soreness
0	-Nipple color, no tenderness
1	-Nipple slightly red and/or tender for first 5-10 seconds of feeding
2	-Nipple red and tender for longer than first 5-10 seconds of feeding
3	-Tender between feeding, makes me grimace when baby starts feeding
4	-Nipple beginning to crack, involuntary gasp of pain when baby starts feeding
5	-Nipple cracked, feels sore "down to my toes" when baby starts feeding

Fourth tool:- Was nipple trauma score (NTS) Adapted from Champion *et al.*,⁽⁵⁾ to assess Trauma healing of the nipple. The Nipple Trauma Score (NTS) was used to identify and score nipple trauma and to evaluate healing rates of both breasts separately in this study. The NTS is based on wound depth and the extent of tissue damage.

Description for nipple trauma score

Score	Description of nipple trauma
0	-No microscopically visible skin changes
1	-Erythematic 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

II - Operational design:-

The operational design included the preparatory phase, polite study, field work and limitation of the work.

Preparatory phase:

The preparatory phase is the first phase in the study. The researcher carried out through review of local and international related literature about the various aspects of the research problem. This helped the researcher to be acquainted with the magnitude and seriousness of the problems, and guided her to prepare the required data collection tools.

Pilot study:

A pilot study was carried out during three weeks on 20 women with traumatic nipples. It was done for evaluation of the applicability and clarity of the tools, assessment of feasibility of fieldwork, identification of a suitable place for interviewing women, and to detect any possible obstacles that might face the researcher, and interfere with data collection. Necessary modifications were done based on the pilot study findings. The sample of women included in the pilot study was not included in the main study sample.

Field work:

Data had been collected for fifth months started from beginning of June to end of October 2011. Data were collected from each setting as follow 3 days\ week from Obstetrics & Gynecological hospital At Ain Shams University, Benha university hospital and MCH center in Benha city. The researcher attends previous mentioned setting for data collection from 8am to 1 pm.

The time used for filling each sheet ranged between 20-30 minutes, throughout the interview relating information and recorded in the designed sheet depending upon the response of the participant, observational check list for (pain, soreness, trauma) were filled. A follow-up visit (two visit) was arranged for all groups one week after recruitment or telephone interview was conducted. Mothers were reassured that information obtained was confidential and would be used only for the purpose of the study.

Limitation of the study:

- Some mothers were worried about her infant's so they refuse to participate on the study about (20 cases) were excluded from the total study sample.
- Limited number of mothers attending to MCH center.
- Some mothers hadn't attention for traumatic nipple.

III - Administrative design:-

- An official permission will be obtained from authorized administration, faculty of nursing at the director of Benha university hospital and MCH center at Benha city and director of Maghagha hospital and MCH at Maghagha city to collect data.

- An oral permission will be obtained from participant to collect data.

IV - STATISTICAL ANALYSIS:-

The data which were obtained reviewed, 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. Using chi square to determine significance for non paretic's variables. Statistical significance difference was considered when P -value < 0.05 .

Chi square test (Chi2) is more appropriate and useful for testing the hypotheses in nominal data.

The results:-

Table (1): Number and percent distribution of lactating mothers according to their biosocial characteristics

Personal data	Characteristics	n = 200	
		Number	Percent
Age Range	18-36		
Mean \pm SD	25.2 \pm 4.9		
Education	Illiterate	76	38
	Read and write	16	8
	Primary	4	2
	Preparatory	22	11
	Secondary	64	32
	University	18	9
Marital status	Married	172	86.9
	Divorced	18	8.1
	Widow	10	5
Occupation	Cleric	48	23.2
	Housewife	100	50.5
	Farmer	52	26.3

Table (1) showed the socio demographic characteristics of the lactating mothers in the three group. The mean age of the mother was 25.2 \pm 4.9 and the majority of mother s' age between 18-36 years. In relation to educational level, it was found that more than one third (38%) of the studied women were illiterate and 21% of them had low education level, while 32% had secondary education, only (9%) had a high level of education.

In relation to Marital status, it was found that most (86.9%) of the studied women were married, while the minority (8.1%) of them were divorced and (5%) of them were Widow. In relation to occupation, 50.5% of the studied mothers were Housewives on the other hand 26.3% of them were farmer and 23.2% were cleric.

Table (2) showed that most (97 %,97 %, 72%) of the study sample reported that each of " problem after current delivery, take care about your breast and medical method of its treatment, " are the common problems *Influencing incidence of traumatic nipples For lactating mothers*. Also 49% of them reported that didn't know the right position for breast feeding. As well as less than 30 % Of them reported that each of " nipple problem during pregnancy, natural method of its treatment, work allow hours for breast-feeding, take their child to work, method of take care during pregnancy and Complete entrance of nipple into baby's mouth " are the other common problems *Influencing incidence of traumatic nipples For lactating mothers*.

Table (2) : Factors Influencing incidence of traumatic nipples for lactating mothers (n = 200)

Factors	Yes		No		P-value
	No	%	No	%	
Nipple problem during pregnancy	60	30	140	70	0.0001
Natural method of its treatment	18	9	182	91	0.0002
problem after current delivery	194	97	6	3	0.000001
Natural method of its treatment	30	15	170	85	0.00005
Medical method of its treatment	144	72	56	28	0.0002
Work allow hours for breast feeding	36	18	164	82	0.0002
Take your child to work	20	10	180	90	0.00007
Take care about your breast	194	97	6	3	0.000001
Right method of taking care during pregnancy	34	17	166	83	0.000009
Right method of taking care after delivery	30	15	170	85	0.00003
know right positions for breast-feeding	102	51	98	49	0.3
Complete entrance of nipple into baby's mouth	44	22	156	78	0.000005

Regarding using lanolin for nipple pain relieve, Table 3 showed that all mothers in the first day were suffering from nipple pain with different degrees compared to 22 % of them in the seventh day and 66 % of them in the fourteenth day have no nipple pain,

with significant difference between the first and the seventh day and between the first and the fourteenth day.

Regarding using tea for nipple pain reliever, Table 4 showed that all mothers in the first day were

suffering from nipple pain with different degrees compared to 34 % of them in the seventh day and 20 % of them in the fourteenth day have minor nipple pain, with significant difference between the first and the seventh day ($X^2 = 26.9^*$) and between the first and the fourteenth day ($X^2 = 26.1$).

Table (3): Comparison between the first, the seventh, and the fourteenth day for mothers using lanolin regarding to pain (n=100).

Levels of pain	Numbers of days		
	1 st	7 th	14 th
	%	%	%
No pain	0	22	66
Minor	30	48	34
Moderate	44	30	0
Severe	20	0	0
Wroth	6	0	0
Fisher Test	32.2**	33.8**	

Table (4): Comparison between the first, the seventh, and the fourteenth day for mothers using tea regarding to pain (n=50)

Levels of pain	Numbers of days		
	1 st	7 th	14 th
	%	%	%
No pain	0	0	26
Minor	14	34	20
Moderate	24	16	4
Severe	10	0	0
Wroth	2	0	0
Fisher Test	26.9 **	26.1**	

Table (5): Comparison between the first, the seventh, and the fourteenth day for mothers using peppermint regarding to pain (n=50)

Levels of pain	Numbers of days			Test of sig.	
	1 st	7 th	14 th	X ²	X ²
	%	%	%	1)	2)
No pain	0	8	34	15.5	6.2*
Minor	18	26	16	**	
Moderate	16	16	0		
Sever	16	0	0		

Regarding using *peppermint* for nipple pain reliever, Table 5 shows that all mothers in the first day were suffering from nipple pain with different degrees compared to 8 % of them in the seventh day and 34 % of them in the fourteenth day have no pain, with significant difference between the first and the seventh day ($X^2 = 15.5^*$) and between the first and the fourteenth day ($X^2 = 6.2$).

Concerning comparison between the First, the seventh and the fourteenth days for mothers using lanolin regard to soreness grade. This table shows that the majority (92%) of mothers have nipple tenderness and these percentage reduced to 76% in the seventh day and reduced to 46% in the fourteenth day. Also

the table reveals that 8% of them suffered from cracked nipple in the first day and these percentage reduced to none in the seventh and the fourteenth day. There are significant difference between the first and the seventh day ($X^2 = 17.1^*$) and between the first and the fourteenth day ($X^2 = 18.5^*$).

Table (6): Comparison between the first, the seventh, and the fourteenth day for mothers using lanolin regarding to soreness (n = 100)

Soreness grade	Numbers of days			Test of sig.	
	1 st	7 th	14 th	X ²	X ²
	%	%	%	1)	2)
-Normal	0	24	54		
-Tender for 1st 5-10 minutes after feed	24	52	46		
-Tender more than 5-10 minutes after feed	40	20	0		
-Tender between feeding	28	4	0	17.1*	18.5**
-Begin to crack	4	0	0	*	
-Cracked	4	0	0		

Concerning comparison between the First, the seventh, and the fourteenth days for mothers using Tea regard to soreness grade. This table shows that the majority (92%) of mothers have nipple tenderness and these percentage reduced to 76% in the seventh day and reduced to 48% in the fourteenth day. Also the table reveals that 8% of them suffered from begin to cracked nipple in the first day and these percentage reduced to none in the seventh and the fourteenth day. There are significant difference between the first and the seventh day ($X^2 = 21.4^*$) and between the first and the fourteenth day ($X^2 = 16.2^*$).

Concerning comparison between the First, the seventh and the fourteenth days for mothers using peppermint regard to soreness grade. This table shows that the majority (92%) of mothers have nipple tenderness and these percentage reduced to 76% in the seventh day and reduced to 30% in the fourteenth day. Also the table reveals that 8% of them suffered from begin to cracked nipple in the first day and this percentage reduced to none in the seventh and the fourteenth day. There are significant difference between the first and the seventh day ($X^2 = 26.1^*$) and between the first and the fourteenth day ($X^2 = 21.9^*$).

Table 9 shows comparison between the first, the seventh and the fourteenth day for mothers using lanolin regard to trauma grade. This table shows that all mothers have nipple trauma [erythema (20%), damage less 25 % of nipple surface (58%) and damage more than 25% of nipple surface (22%)] and these percentage changed to 42% in the seventh day and 81% in the fourteenth day of them didn't have trauma. There are significant difference between the first and the seventh day ($X^2 = 14.3^*$) and between the first and the fourteenth day ($X^2 = 16.2^*$).

Table (7): Comparison between the first, the seventh, and the fourteenth day for mothers using tea regarding to soreness (n= 50):

Soreness grade	Numbers of days			Test of sig.	
	1 st	7 th	14 th	Fisher(1)	Fisher(2)
	%	%	%		
-Normal	0	12	26	21.4	16.2
-Tender for 1 st 5-10 minutes after feed	14	30	22		
-Tender more than 5-10 minutes after feed	22	8	2		
-Tender between feeding	10	0	0		
-Begin to crack	4	0	0		
-Cracked	0	0	0		

1) between 7th & 14th day 2) Between 1st & 14th day

Table (8): Comparison between the first, the seventh, and the fourteenth day for mothers using peppermint regarding to soreness (n= 50)

Soreness grade	Numbers of days			Test of sig.	
	1 st	7 th	14 th	Fisher(1)	Fisher(2)
	%	%	%		
-Normal	0	12	35	26.1	21.9
-Tender for 1 st 5-10 minutes after feed	17	31	15		
-Tender more than 5-10 minutes after feed	25	7	0		
-Tender between feeding	4	0	0		
-Begin to crack	4	0	0		

Table (9): Comparison between the first, the seventh, and the fourteenth day for mothers using lanolin regarding to trauma (n= 100)

Trauma grade	Numbers of days			Test of sig.	
	1 st	7 th	14 th	Fisher(1)	Fisher(2)
	%	%	%		
-No change	0	42	81	14.3**	16.2**
-Erythema	20	38	19		
-Damage less 25% of nipple surface	58	20	0		
-Damage more than 25 % of nipple surface	22	0	0		

Concerning to comparison between the first, the seventh and the fourteenth day for mothers using Tea regard to trauma grade. Table 10 shows that all mothers have nipple trauma [erythema (16%), damage less 25% of nipple surface (52%) and damage more than 25% of nipple surface (28%)] and these percentage changed to 16% in the seventh day and 76% in the fourteenth day of them didn't have trauma. There are significant difference between the first and the seventh day ($X^2 = 19.2^*$) and between the first and the fourteenth day ($X^2 = 27.3^*$).

Concerning comparison between the first, the seventh, and the fourteenth day for mothers using *peppermint* regard to trauma grade. Table 11 shows that all mothers have nipple trauma [erythema (40%), damage less 25% of nipple surface (44%) and damage more than 25% of nipple surface (8%)] and these percentage changed to 36% in the seventh day and 86% in the fourteenth day of them didn't have trauma. There are significant difference between the first and the seventh day ($X^2 = 28.5^*$) and between the first and the fourteenth day ($X^2 = 35.8^*$).

Table (10): Comparison between the first, the seventh, and the fourteenth day for mothers using tea regarding to trauma

Trauma grade	Numbers of days			Test of sig.	
	1 st	7 th	14 th	X ²	X ²
	%	%	%		
-No change	0	8	38	19.2	27.3
-Erythema	8	30	12		
-Damage less 25% of nipple surface	26	10	0		
-Damage more than 25 % of nipple surface	14	2	0		
-Thickness less than 25% of nipple surface	2	0	0		

Table (11): Comparison between the first, the seventh, and the fourteenth day for mothers using peppermint regarding to trauma (n= 50)

Trauma grade	Numbers of days			Test of sig.	
	1 st	7 th	14 ^h	Fisher1)	Fisher2)
	%	%	%		
-No change	0	18	43		
-Erythema	20	24	7	28.5	35.8
-Damage less 25% of nipple surface	22	8	0	<0.05	<0.001
-Damage more than 25% of nipple surface	4	0	0		
-Thickness less than 25% of nipple surface	4	0	0		

Table (12): Comparison between tea, lanolin, and peppermint for lactating mothers regarding to pain at first day(n=200)

Group	(levels of pain for First day)				Total	Fisher test
	Minor	Moderate	Sever	Worth		
• Pepper	18 36.0%	16 32.0%	16 32.0%	0 .0%	50 100.0%	7.6 > 0.05
• Tea	14 28.0%	24 48.0%	10 20.0%	2 4.0%	50 100.0%	
• Lanolin	30 30.0%	44 44.0%	20 20.0%	6 6.0%	100 100.0%	
Total	62 31.0%	84 42.0%	46 23.0%	8 4.0%	200 100.0%	

This table revealed that minor pain was (36%) in peppermint group, (28%) in tea, and (30%) in lanolin. Worth pain was (0%) in peppermint, (4%) in tea, and

(6%) in lanolin. There were no statistically significant found. The percentage of minor pain in peppermint group was higher than other groups.

Table (13): Comparison between tea, lanolin, and peppermint for lactating mothers regarding to pain at fourteen day. (n=200)

Group	(levels of pain for Fourteen day)			Total	Fisher test
	No pain	Minor	Moderate		
• Pepper	34 68.0%	16 32.0%	0 .0%	50 100.0%	13.8 > 0.05
• Tea	26 52.0%	20 40.0%	4 8.0%	50 100.0%	
• Lanolin	66 66.0%	34 34.0%	0 .0%	100 100.0%	
Total	126 63.0%	70 35.0%	4 2.0%	200 100.0%	

This table revealed that no pain was (68%) in peppermint group, (52%) in tea, and (66%) in lanolin. Moderate pain was (0%) in peppermint, (8%) in tea,

and (0%) in lanolin. There were no statistically significant. The percentage of no pain in peppermint group was higher than other groups.

Table (14): Comparison between tea, lanolin, and peppermint for lactating mothers regarding to soreness at first day(n=200)

Group	(Soreness grade for First day)					Total	Fisher test
	First 5-10 m.	More 5-10 m.	Tender between feeding	Begin to crack	Cracked		
Pepper	17 34.0%	25 50.0%	4 8.0%	4 8.0%	0 0.0%	50 100.0%	17.8 <0.05
Tea	14 28.0%	22 44.0%	10 20.0%	4 8.0%	0 .0%	50 100.0%	
Lanolin	24 24.0%	40 40.0%	28 28.0%	4 4.0%	4 4.0%	100 100.0%	
Total	55 30.0%	87 46.0%	42 16.0%	12 7.0%	4 1.0%	200 100.0%	

This table showed that the soreness rate in both nipple tender for first 5-10 minutes after feed and nipple tender more 5-10 minutes after feed was higher (34%, 50%) in peppermint group than other groups [(28% 44%) in tea, and (24%, 40%) in lanolin]. Meanwhile, the rate of tenderness was higher (28%) in

lanolin group than other groups. On the other hand, the percentage of cracked was (0%) in peppermint, (0%) in tea, and (4%) in lanolin. As well as, there is a statistical significant difference between three methods.

Table (15): Comparison between tea, lanolin, and peppermint for lactating mothers regarding to soreness at fourteen day (n=200)

Group	(Soreness grade for Fourteen day)			Total	Fisher test
	normal	first 5-10	more 5-10		
• Pepper	35 70.0%	15 30.0%	0 .0%	50 100.0%	12.1 <0.05
• Tea	26 52.0%	22 44.0%	2 4.0%	50 100.0%	
• Lanolin	54 54.0%	46 46.0%	0 .0%	100 100.0%	
Total	115 61.0%	83 38.0%	2 1.0%	200 100.0%	

This table showed that the soreness rate was found normal (70%) in peppermint, (52%) in tea, and (54%) in lanolin. On the other hand, the percentage of nipple tender more than 5-10 minutes after feeds was

(0%) in peppermint, (4%) in tea, and (0%) in lanolin, with presence of statistical significant.

Table (16) : Comparison between tea,lanolin,and peppermint for lactating mothers regarding to trauma at first day (n =200)

Group	(Trauma grade for First day)				Total	Fisher test
	Erythema	Damage less 25	Damage more 25	Thickness less 25		
Pepper	20 40.0%	22 44.0%	8 16.0%	0 .0%	50 100.0%	21.3 <0.05
Tea	9 18.0%	26 52.0%	10 20.0%	5 10.0%	50 100.0%	
Lanolin	20 20.0%	58 58.0%	22 22.0%	0 .0%	100 100.0%	
Total	49 24.0%	106 53.0%	40 20.0%	5 3.0%	200 100.0%	

This table illustrated that trauma grade was found the percentage of erythema (40%) in peppermint, (18%) in tea, and (20%) in lanolin. On the other hand,

found the percentage of thickness less 25% of nipple surface was (0%) in peppermint, (10%) in tea, and (0%) in lanolin, with presence statistical significant.

Table (17): Comparison between tea, lanolin, and peppermint for lactating mothers regarding to trauma at fourteen day (n=200)

Group	(Trauma grade for Fourteen day)		Total	Fisher test
	No change	Erythema		
Pepper	43 86.0%	7 14.0%	50 100.0%	5.2 >0.05
Tea	38 76.0%	12 24.0%	50 100.0%	
Lanolin	81 81.0%	19 19.0%	100 100.0%	
Total	162 83.0%	38 17.0%	200 100.0%	

Regarding trauma grade at fourteen day, this table revealed that most of women in the three groups had no change, and the rate of no change was (86%) in peppermint, (76%) in tea, and (81%) in lanolin with statistical significant difference among three methods.

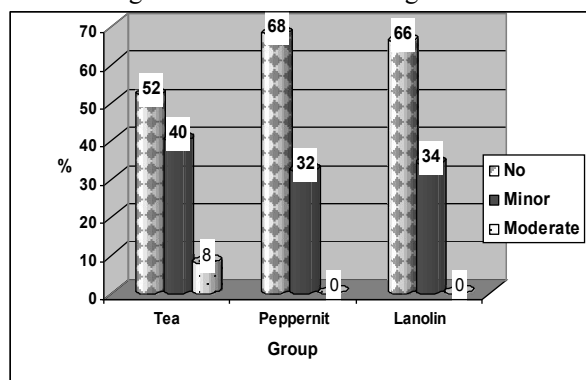


Figure (1) shows Comparison between tea, lanolin, and peppermint for lactating mothers regarding to pain at fourteen day.

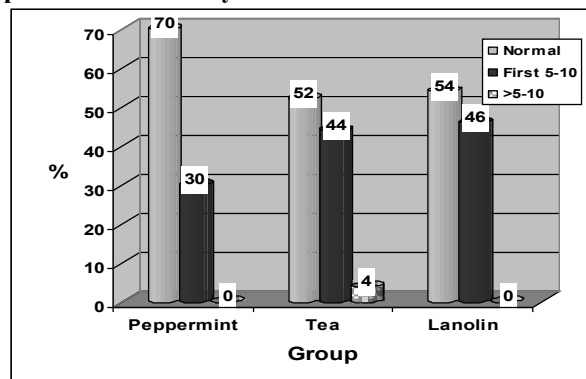


Figure (2) shows Comparison between tea, lanolin, and peppermint for lactating mothers regarding to soreness at fourteen day.

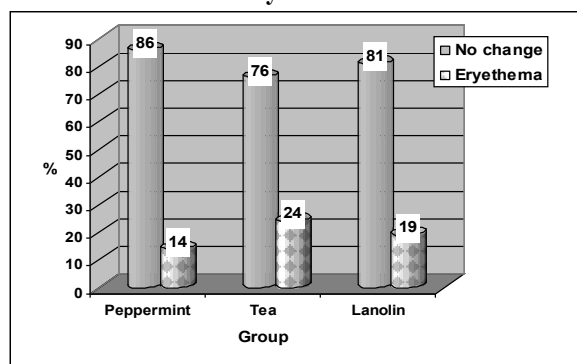


Figure (3) shows Comparison between tea, lanolin, and peppermint for lactating mothers regarding to trauma at fourteen day.

4. Discussion:

One of the major problems in lactating women at the beginning of breastfeeding is nipple crack, and this may represent an obstacle to a successful

breastfeeding, leading to a decrease in milk production. No one, as topical agent, showed superior results in the relief of nipple discomfort. The most important factor in decreasing the incidence of nipple crack is the provision of education in relation to proper breastfeeding technique and latch-on as well as anticipatory guidance regarding the high incidence of early postpartum nipple pain.⁽¹¹⁾

Early pain experienced by a breastfeeding mother can also have a negative psychological impact, then the mother received symptomatic relief, which will likely help her to relax while she works on the underlying cause of the nipple trauma, this may be a matter of correctly positioning the baby at the breast or fixing a faulty latch by the baby attaching to the breast.⁽⁵⁾

The present study sample was Quasi-experimental, which aims to evaluate the effect of using pharmacological versus alternative therapy on traumatic nipple for lactating mothers. The study was implemented in Maghagha Hospital and MCH, Benha Hospital and MCH on a total of two hundred lactating mothers complaining with nipple trauma. They were divided into three groups; one hundred mothers for conduct pharmacological therapy (lanolin cream), and one hundred of lactating mothers for conduct alternative therapy (peppermint and tea). They were Applied four times after feeding on traumatic nipple for fourteen days and measures levels of pain, soreness, and trauma in each group.

Thus, the discussion of the study findings will be presented in the following sequence: The first part will deal with findings related to factors affecting incidence of traumatic nipple. The second part will discuss effect of using lanolin, tea, and peppermint groups. The third part will compare between three groups lanolin, tea, and peppermint for lactating mothers.

The studied women were in age group ranging from 18 to 36 years old with mean age 25.2 ± 4.9 . More than one third of the studied sample was illiterate. Almost half of the studied women were not working.

Regarding the factors affecting incidence of traumatic nipple, the previous Studies have described many factors associated with the intention of breastfeed⁽¹³⁾. These factors included maternal age, mother's education level, family household income, number of children, mother's knowledge about the benefits of breastfeeding, previous breastfeeding experience, attitude towards breastfeeding and the mother's social support network. Understanding factors were associated with the intention to breastfeed which will allow health care decision-makers to plan and evaluate appropriate interventions to improve breastfeeding initiation and duration.

The present study found statistically significant differences ($P < 0.05$) in complete entrance of nipple

into baby's mouth for incidence of traumatic nipple. This could be explained as incorrect positions or latching-on which is the main cause of traumatic nipples. So, mothers didn't know correct latching on were high risk for incidence of traumatic nipples.

These results were in agreement with the results which were obtained by ⁽¹⁴⁾ who found that factors associated with nipple traumas, and breastfeeding technique (latching on) in relation with traumas.

As regarding factors associated with traumatic nipple, there were statistically significant differences ($P < 0.05$) in nipple problem during pregnancy and incidence of it. This may be due to physiological changes during pregnancy and expression of colostrums; if women have no attention for hygienic breast care during This period were high risk for incidence of traumatic nipples.

This finding was at the same line with ⁽¹⁵⁾ who found that preparing nipples during pregnancy, studied contraindicated the use of creams, oils, and ointments, and the use of sponges towels, since they can provoke peeling of the skin in the nipple and areola region, make the nipples more sensitive, and predispose to the occurrence of nipple trauma.

Regarding the effect of using lanolin, tea, and peppermint on group of traumatic nipple for lactating mother, the present study result found that pain, regarding lanolin, of the most group have moderate pain at the first day (1st visit), minor pain at the seventh day (2nd visit), no pain at the fourteenth day (3rd visit), respectively.

Regarding soreness of using lanolin as alternative therapy, the results were most groups have nipple tender longer than 5 -10 minutes after feed at the first day (1st visit), nipple tender for first 5 -10 minutes after feed at the seventh day (2nd visit), and normal at the fourteenth day (3rd visit), respectively. In addition to trauma regard to lanolin most groups have damage less than 25 % of nipple surface at the first day (1st visit), and no trauma at the seventh day (2nd visit).

The study results found that the appropriate use of HPA lanolin results in a significant reduction of pain associated with breastfeeding and significantly higher healing rates of nipple trauma, pain, and soreness within 14 days of topical treatment and the benefits were mostly pronounced within the first 7 days of treatment. This can be explained that lanolin is a type of highly purified, and medical-grade. Lanolin has had no allergenic components, and has environmental impurities removed by a proprietary process rendering it is safe to use by breastfeeding mothers and infants.

In addition to Lanolin, an organic ester derived from sheep fleece after shearing, creating an air-permeable temporary barrier, and promoting moist wound healing when it applied to injured skin. Lanolin

is proven to have anti-inflammatory, antimicrobial, skin-protecting, and barrier repair properties.

This finding was in agreement with the results obtained by **Morland-Schultz** ⁽¹¹⁾ who found that lanolin has a beneficial effects on prevention or treatment of sore or crack nipples, as well as the study results were in agreement with **Ahluwalia** ⁽¹⁶⁾ who demonstrates the beneficial effects of lanolin in the treatment of sore and/or crack nipples associated with breastfeeding.

The results of the present study showed that tea has a positive effect on pain relieve as the most of group demonstrated a moderate pain at the first day (1st visit), and minor pain at the seventh day (2nd visit), more than half of mothers with no pain and presence cases with moderate pain at the fourteenth day (3rd visit), respectively.

Regarding to the effect of tea on healing of soreness, the study result found that most groups have nipple tender for longer than 5 -10 minutes after feed at the first day (1st visit), nipple tender first 5 -10 minutes after feeding at the seventh day (2nd visit), and normal and presence cases with nipple tender longer than 5 - 10 minutes after feed at the fourteenth day (3rd visit), respectively.

In addition to trauma regard to tea, most groups have damage less than 25 % of nipple surfaces at the first day (1st visit), erythema at the seventh day (2nd visit), and no trauma at the fourteenth day (3rd visit).

This study showed a significant reduction in the frequency of nipple pain and soreness in breastfeeding mothers where tea bag was applied after breastfeeds, but this effect was very slowly and the present cases were without improvement. These results indicated that the effect of tea bag on traumatic nipple was weak, however, present cases with improvements.

This could be explained that green tea poly phenols induce differentiation and proliferation in epidermal facilitate natural wound healing, but some cases were without improvement because tea has potential harmful effects, such as changing the taste and smell of the nipple.

It should be noted and emphasized that there was no correlation between pain score, and wound score in either groups, which should be taken into consideration when advising breastfeeding mothers with painful nipples. ⁽¹⁷⁾

These results were at the same line with the study of some locations, that wet tea bags remain a popular folk remedy for the treatment of nipple pain. They are inexpensive and can be found in most homes, making them easily accessible at the onset of difficulties. They may be soothing because of the moist warmth. Tea bags are the subject of a number of studies; they appear neither prevent nor reduce nipple soreness ⁽¹²⁾. Furthermore, the tannic acid in the tea can act as an

astringent causing drying and cracking, rather than healing.

This result was in agreement with **Ahluwalia** ⁽¹⁸⁾ who found the effectiveness of compress application in reducing nipple soreness during early breastfeeding. Either warm water or tea bags were equally effective. Both types of compresses may help by improving blood flow to the injured area, which promoted nutrient supply and removal of waste products. Nevertheless, this result was congruent with **Lavergne** ⁽¹⁹⁾ who reported that women using warm water compresses had significantly less pain than those using tea bags or no treatment.

Pain as regard peppermint most of groups have minor pain at the first day (1st visit), minor pain at the seventh day (2nd visit), and no pain at the fourteenth day (3rd visit), respectively.

Toward soreness regard peppermint, most groups have nipple tender longer than 5 -10 minutes after feed at the first day (1st visit), nipple tender for first 5 -10 minutes after feed at the seventh day (2nd visit), normal at the fourteenth day (3rd visit), respectively.

In addition to trauma regard to peppermint most groups have damage less than 25% of nipple surfaces at the first day (1st visit), and no trauma at the seventh day (2nd visit).

This study showed a significant reduction in the frequency of nipple pain and cracks in breastfeeding mothers where peppermint water was applied after breastfeeds. These effects could be attributed to the calming and numbing effects, and the antibacterial activity of peppermint water leading to the reduction of irritation and nipple discomfort.

This result was in agreement with **Potter** ⁽²⁰⁾ who found that peppermint has an antiseptic effect and increases tissue flexibility, and prevent crack. Another study by **Persad** ⁽²⁾ in agreement with the current study found that Peppermint (*Mentha piperita*), which is used as a popular flavoring for gum, toothpaste, and tea, has a calming and numbing effect and has been used to relieve skin irritations.

Regarding a comparison among three groups lanolin, tea, and peppermint for lactating mothers, the present study revealed that the effects of peppermint in the treatment of sore and traumatic nipples associated with breastfeeding as compared to tea the appropriate use of peppermint results in a significant reduction of pain associated with breastfeeding and significantly higher healing rates of nipple trauma within 14 days of topical treatment. Benefits are most pronounced within the first 7 days of treatment. Furthermore, the group that used tea, 4 cases with moderate pain but didn't find that in peppermint group.

This indicated that nipple cracks were less in mothers who received peppermint than in those who received tea. This could be explained that peppermint increases tissue flexibility, and prevents cracks. ⁽²¹⁾

Moreover, this study revealed the effects of peppermint in the treatment of sore and/or trauma nipples associated with breastfeeding as compared to lanolin. The appropriate use of peppermint results in a significant reduction of pain associated with breastfeeding and significantly higher healing rates of nipple trauma within 14 days of topical treatment (68% no pain, 32% minor pain). Benefits are most pronounced within the first 7 days of treatment. Furthermore, another group (Lanolin) showed the significant reduction of pain associated with breastfeeding (66% no pain, 34% minor pain) but less than peppermint group. This explained that peppermint has a calming and numbing effect, especially when it was used to relieve skin irritations. Peppermint increases tissue flexibility, and prevent crack.

This result was in line with **Scholz** ⁽⁷⁾, who found that nipple cracks were less in mothers who received peppermint water than in those who received lanolin ointment. Relative risk of nipple cracks in the lanolin group was higher than in the peppermint group. Modified lanolin ointment was also used in this study, and was less effective than the peppermint water.

This finding was in line with the finding obtained by **Locke** ⁽¹⁰⁾, who found that peppermint water was shown to be more effective than both lanolin and the placebo gel at preventing nipple cracks. Women in this group were also more likely to be exclusively breastfeeding at 6 weeks, possibly because they had suffered less discomfort.

However, the present study revealed the effects of lanolin in the treatment of sore and trauma nipples associated with breastfeeding as compared with tea bag. Pain was reduced significantly in both groups. However, lanolin group had larger reductions in pain related to feedings than tea group. This could be explained as lanolin purified by a special proprietary process in which impurities and allergenic components were removed there by rendering it free of odor, taste bleaches, and preservatives.

These results in line with **Blumanthal** ⁽²²⁾, who found that a moist environment was created at the injury site which was favorable for reepithelization. Lanolin has been shown to have anti-inflammatory, and barrier repair properties. By placing a temporary moisture barrier over the injured skin site using HPA lanolin, the proliferation and migration of epithelial cells across the surface of the wound were enhanced during healing. Moist wound healing eliminated crust formation and has been shown to encourage reepithelization up to 50% faster.

This may indicate that the use of peppermint water in combination with an oily base, which could have some beneficial effects in reducing nipple crack. Furthermore, in the present study, it found no moderate or severe pain, or areola crack were observed in the lanolin or peppermint groups, which

may show the therapeutic effects of the formulations' ingredients on nipple pain and areola cracks⁽²³⁾

Finally, the current study was comparing three treatments; peppermint, Tea and Lanolin of sore nipples associated with breast feeding. These treatments, in combination with instruction on proper breastfeeding management, were effective. However, greater improvement and fewer complications occurred with the peppermint therapy. Pain was reduced significantly in both groups. However, the peppermint group had larger reductions in pain related to feedings than both tea and lanolin group. This trend was also seen in the direct observation of pain by pain scale.

Conclusion

Depending on the results of the present study, the following can conclude that:

- Peppermint water is effective in the prevention of nipple trauma, and less nipple pain compared to the application of tea bag or lanolin cream after feeding. So, alternative therapy is nearly as pharmacological therapy.
- Daily peppermint water use is associated with an increased duration, number of feeds, and less nipple pain compared to the application of tea bag or lanolin cream after feed.

Recommendation

Depending on the results of the present study, the following recommendations can be suggested:

- Education program are needed to improve mothers' awareness toward traumatic nipples
- Teaching mothers for positioning and attachment of the baby to the breast for breastfeeding can prevent the incidence of traumatic nipples.
- Increasing the awareness, regarding usage of alternative therapy as (peppermint – tea) is to reduce traumatic nipple.
- Further researchers in this field are to generalize the use of alternative therapy.

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