

Effect of Peppermint Water Versus Expressed Breast Milk on Nipple Trauma among Lactating Primiparous

Elsaida Gouda Naser ⁽¹⁾, Sanaa Ali Nour ⁽²⁾, Amina Saad Gonied ⁽³⁾ and Rabaa Elsaid Shaban ⁽⁴⁾

⁽¹⁾ Assist .Lecturer in Obstetrics and Gynecological Nursing, Faculty of Nursing, Fayoum University ⁽²⁾ Professor of Obstetrics and Gynecological nursing, Faculty of Nursing, Zagazig University. ⁽³⁾ Professor of Obstetrics and Gynecology nursing, Faculty of Nursing, Zagazig University. ⁽⁴⁾ Lecturer in Obstetrics and Gynecological Nursing, Faculty of Nursing, Tanta University.

Abstract

Back ground: Nipple trauma associated with breast feeding is common during lactation, with an incidence ranging from 34% to 96% and remains the major reason for failing to establish breastfeeding. **Aim of the study:** was to determine the effect of peppermint water in the prevention of nipple trauma during breastfeeding. **Subjects and methods:** **Research design:** A Quasi-experimental design. **Setting:** study was carried out at postnatal department of Zagazig University Hospitals. **Subject:** One hundred primiparous breastfeeding women were assigned randomly to two groups. Each group (50 women) applied only one of the above preparations on both breasts for 14 days. The rate of nipple trauma and areola crack and pain was evaluated together with the change in women knowledge and practice. **Tools of data collection:** A structured interview sheet, Evaluation check list to assess women's practices related to breastfeeding, Visual Analogue Scale, The Nipple Trauma Score and nipple soreness scale. **Results:** Vast majority of the subjects in peppermint water group and group of expressed breast milk had wrong or incomplete knowledge about breast feeding on the first day. More than two thirds of women in peppermint water group and group of expressed breast milk felt no pain in their breasts or nipple at the 7th day. However by the 14th day, women in group 1 (peppermint water) had significantly experience mild and moderate pain and less severe pain compared to group of expressed breast milk. **Conclusion:** peppermint water is effective in the prevention of nipple trauma and less nipple pain compared to the application of express breast milk. **Recommendations:** Further studies are recommended to gain more insight into the effectiveness of peppermint water.

Keywords: Traumatic nipples, Peppermint, Express breast milk

Introduction

Nipple pain and trauma as complications associated with breastfeeding are considered amongst the most significant factors impacting on breastfeeding in the first weeks of motherhood. 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. Up to one third of mothers who experience these complications may change to alternate methods of infant nutrition within the first six weeks postnatal ⁽¹⁾.

The most common causes of nipple trauma are; incorrect positioning and attachment of the baby to the breast, disorganized or dysfunctional suckling, incorrect use of breast pump, bacterial infection of nipple, candidacies' of, nipple/breast, tongue tie (ankyloglossia) and Vasospasm of nipple. Effective attachment of the baby to the breast is necessary to: prevent nipple damage and pain, facilitate removal of milk from the breast, and maintain an adequate milk supply ⁽²⁾.

The four principles of correct positioning are that the baby is held close to the mother and facing her breast, baby's head and body are in alignment allowing the baby freedom

to tilt his head backwards. Moreover, baby is held with his nose or top lip at the level of the nipple, this allows the baby to open his mouth wide and grasp a good mouthful of breast and ensures the mother has good back and arm support to sustain the position. The Signs of effective positioning and attachment are that the baby's chin is in contact with the breast, leaving his nose free to breathe. Baby's mouth is open wide, his bottom lip is curled outwards, and his cheeks are full and rounded. If any of the areola is visible it is mainly under the bottom lip⁽³⁾.

The baby sucks and swallows in rhythmic pattern and the process is not painful for the mother. When putting baby to the breast, the nurse should ensure mother is in a comfortable position with good back support, Support breast with one hand, bring baby to breast and Tickle lower lip with nipple. Baby should open mouth wide, Aim nipple at roof of mouth and allow him to draw it into his mouth. For breaking suction, the mother should gently insert her finger into baby's mouth beside nipple and allow baby to open mouth widely before removing nipple⁽²⁾.

Significance of the study

Nipple pain and/or trauma associated with breastfeeding are common, with incidences varying between 34 and 96%, and are cited as one of the main reasons for early cessation of breastfeeding in the early postpartum period, while later on; low milk supply is often seen as a reason to stop breastfeeding⁽⁴⁾.

Treating sore and/or traumatized nipples quickly and effectively is therefore an important factor in establishing successful breastfeeding by maintaining a pleasurable breastfeeding relationship between mother and infant and preventing complications such as mastitis or breast abscesses⁽⁵⁾.

A variety of interventions have been used to either treat or prevent nipple pain and/or trauma associated with breastfeeding. However, there is little evidence from prospective trials regarding the use of topical agents. Despite a lack of evidence-based research on its efficacy, expressed breast milk (EBM) and peppermint oil continue to be widely recommended for the prevention and treatment of sore and/or damaged nipples. Unfortunately, many women delay seeking treatment until substantial damage already has occurred. Sore nipples heal rapidly, often within a day or two. However, it is still easier to prevent rather than to treat them.

Aims of the study

To evaluate the effect of peppermint water versus expressed breast milk on nipple trauma among lactating primiparous.

Study Hypothesis:

Lactating primiparous with nipple trauma who utilize peppermint water exhibit faster healing than those who utilizing expressed milk secretion.

Subjects and Methods:.

Research Design:

A Quasi-experimental study was used that aimed to compare between the effectiveness of a topical preparation of peppermint water with that of expressed breast milk for the prevention of nipple trauma in primiparous breastfeeding women.

Study setting;

This study was carried out in the postnatal department of Zagazig University Hospitals.

Study subjects:

Sample size:

The sample size is calculated using Epi-save software to conduct a comparative study. To detect

difference of 25% from 90% to 65%: making the sample size 50 women for each group.

The sample was a convenient sample.

Tools of data collection:

I- A structured Interview schedule

It includes the following:

a) Socio demographic and data: such as; name, age, address, and level of education, occupation, incidence, residence.

b) Women's' knowledge related to breast feeding such as; important of breastfeeding to mothers and baby, positions of breastfeeding, duration of breast feeding.

c) Women's' knowledge related to breast and nipple problems such as; breast infection, plugged duct, nipple soreness.

2-Check list related to breastfeeding practices and how to deal with breast engorgement and nipple trauma.

3-Visual analogue scale (VAS) adapted from Abou-Dakn ⁽⁶⁾, to assess nipple pain. The VAS is usually scored from 0 to 10 and the participants were asked to place a mark through the line at the point best describing the characteristic being assessed (e.g. pain). Measure, such as; 0 representing no pain and 10 representing pain as bad as it could possibly be. Rating scales were used to determine the level of pain as follows: no pain, mild (discomforting), moderate (distressing), and severe (excruciating).

4- Nipple soreness rating scale (NSR) adapted from Storr ⁽⁷⁾ to assess soreness healing of the nipple. Nipple Soreness score (0, 1, 2, 3, 4, and 5) after completion of the treatment, according to the explanation below:

Description of nipple soreness score:

-Nipple color, no tenderness (0)

-Nipple slightly red and/or tender for first 5-10 seconds of feeding (1)

-Nipple red and tender for longer than first 5-10 seconds of feeding (2)

-Tender between feeding, makes mother grimace when baby starts feeding (3)

-Nipple beginning to crack, involuntary gasps of pain when baby starts feeding(4)

-Nipple cracked, feels sore "down to my toes" when baby starts feeding (5)

5- Description of nipple trauma at the 7th and 14th days.

Description of nipple trauma No microscopically visible skin changes.

(score: 0)

Erythematic or edema or combination of both. **(score: 1)**

Superficial damage with or without scab formation of less than 25% of the nipple surface. **(score:2)**

Superficial damage with or without scab formation of more than 25% of the nipple surface. **(score: 3)**

Partial thickness wound with or without scab formation of less than 25% of nipple surface. **(score: 4)**

Partial thickness wound with or without scab formation of more than 25% of nipple surface. **(score:5)**

Content Validity and Reliability:

Tools were reviewed by a panel of five experts in the field of Obstetrics and Gynaecological Nursing to test its content validity. Modifications were done accordingly based on their judgment. Reliability was done by Cronbach's Alpha Coefficient Test which revealed that each item of the utilized tools consisted relatively homogeneous items.

Field work:

After giving informed consent, a random numbers table was used to allocate participants (stratified by method of birth) to the experimental group, application of peppermint water after each feed, or the control group,

application of expressed breast milk after each feed. The peppermint water group was instructed to put soaked cotton with peppermint water on the nipples and areola after washing the nipples with water following every breastfeed from day 1 to day 14 and wash before the next feed. The same instruction was given to the expressed breast milk group with the difference being that milk was used to soak nipples in place of peppermint water. A single supply of quantified peppermint water was given to all participants of the peppermint water group and they were asked not to use their own household peppermint water or any other medication.

Preparation of the peppermint water is done by adding essential oil of peppermint to 1 liter of distillate water gradually while the distillate water saturated with it.

The follow-up telephone interviews were conducted by the researcher at days 8 and 14 postpartum. In the case of nipple or areola crack and pain, both examination of the breast and the scoring were carried out by the researcher according to published methods. All mothers were asked about the frequency and duration of breastfeeding at 24 hours and the data were recorded. A follow-up visit was arranged for both groups one week after recruitment (day eight) or at any time during the trial course in the case of nipple crack or pain.

A telephone interview was conducted with all mothers at 6wk post partum. A questionnaire was used to determine the presence and severity of nipple damage and pain. Each mother scored her own pain during breastfeeding.

The main outcome measures include responses to questions about nipple pain at fourteen day and objective findings from the physical examination at each visit. The nipple

damage was defined on the basis of the width of the damage as follows: 1–2 mm, mild; 3–9 mm, moderate; >10 mm, severe and/or a visible yellow color in the crack. Areola damage was also assessed according to the same criteria.

The study period started from the first of September 2014 to the end of January 2015. The researcher attended postpartum department the three hot days (Saturday, Monday and Friday) per week during morning and evening shifts. The interview was conducted during the postpartum stay together with instructions about the technique of breast feeding and a nursing booklet will be given to every woman. The researcher took about 15-20 minutes for filling each sheet depending up on the response of participant.

Administrative and ethical consideration:

An official permission was granted by submission of an official letter from the Faculty of Nursing to the responsible authorities of the study setting to obtain their permission for data collection.

Pilot study:

A pilot study was conducted on a sample of 10% of cases who were not included in the total sample size. It was done to test the study tools in terms of clarity and feasibility, and the time required to be applied and to assess the degree of nurses' understanding of the questionnaire and acceptance to be involved in the study. Following the pilot study the questionnaire was reconstructed and necessary modifications were done to reach the final form.

Statistical analysis: - The data which were obtained reviewed, prepared for computer entry, coded, analyzed, and tabulated. 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 is more appropriate and useful for testing the hypotheses in nominal data.

Results:

Table 1: shows that almost three fifths (60.0%) of women in the breast milk group were between 20-<25 years of age compared to those in the peppermint group (38.0%) but with no statistical significant difference. As much as 42.0% of women in breast milk group were university graduates and 10.0% were either illiterate or could just read and write compared to the peppermint group (24.0% and 32.0%). Meanwhile, slightly less than three quarters of the subjects were housewives in peppermint water group and breast milk group (72.0% vs. 74.0% respectively) and they almost equally perceived their monthly income as sufficient.

Table 2 shows the number and percent distribution of the study subjects according to their knowledge about breast and nipple problems. Almost an equal percent of the subjects in peppermint water group and expressed breast milk group were either had wrong or incomplete knowledge on the first day (82.0 or 18.0% vs. 82.0% or 16.0% respectively). However, on the 7th and the 14th day women in peppermint water group showed more incomplete and correct knowledge than women in breast milk group (40.0% & 50.0% vs. 18.0% & 20.0% respectively).

Table 3 showed that the great majority of women in both groups did not give the colostrum to their babies (91.0% vs. 91.0% respectively). Meanwhile, as much as high proportion and partially an equal percentages were able to put correctly

the nipple inside the baby mouth, pull it correctly after feeding as well as eructate the baby in the proper way. More than half percent in both groups assumed the right positions for feeding their infants.

Table 4 reveals that by the 7th day almost one fourth (26.0%) of women in peppermint water group had the feeling of tender nipple for the first 5-10 minutes after feeding and 6.0% had such tenderness more than 5 minutes this has been improved by the 14th day and the majority (80.0%) of women felt normal with no feeling of tenderness or soreness.

Table 5 indicates that almost three fourths of the two groups had no microscopically visible skin changes i.e score 0 (74.0% and 72.0% respectively). However, women in peppermint water group was less likely to suffer from the presence of erythematic or edema or combination of both (score 1) compared to those in breast milk group (26.0% vs. 28.0% respectively), but with no statistical significant difference.

Table 6 demonstrates that by 14th day improvement was pronounced in peppermint water group compared to breast milk group. Thus more women in peppermint water group felt no microscopically visible skin changes (84.0% vs 72.0% respectively) and less erythema or edema or combination of both (16.0% vs 26.0%) respectively.

Table 7 showed that more than two thirds of women in peppermint water group and breast milk group (68.0% & 72.0% respectively) felt no pain in their breasts or nipple at the 7th day. Meanwhile they were exposed to mild and moderate pain (32.0% vs. 22.0%). Severe pain was only encountered by 6.0% of women in the breast milk group. Differences observed are statistically significant ($p=0.008$).

Table 8 points to the study subjects had almost equally no pain at the 14th day. However, women in peppermint water group had significantly experience more mild and moderate pain and less severe pain compared to breast milk group (30.0% & 2.0% vs. 26.0% & 6.0% respectively).

Discussion:

Nipple pain and /or trauma is a common complaint among breastfeeding women and are cited as one of the main reasons for early cessation of breastfeeding in the early postpartum period, while later on, low milk supply is often seen as a reason to stop breast feeding. The incidence ranges from 34 to 96.0% Read, et al and Nancy et al.,⁽¹⁰⁻¹¹⁾. Preparation for breastfeeding happens naturally in pregnancy and the presence of 'epidermal growth factor' in breast milk has potential therapeutic benefits by promoting the growth and repair of skin cells⁽¹⁰⁻¹¹⁾.

Nipple damage may occur due to trauma to the nipple from incorrect attachment to the breast Nancy et al.,⁽¹¹⁾. And healing may be difficult because of repeated trauma from the infant's suckling Inch⁽¹²⁾. Moreover, early pain experienced by a breast feeding woman can also have a negative psychological impact, so the mother took symptomatic relief, which in turn help her to relax while she works underlying the cause of nipple trauma. This may be a matter of incorrectly positioning the baby at the breast or fixing a faulty latch by the baby attaching to the breast Inch and Tait⁽¹²⁻⁹⁾ Therefore, the prevention of nipple pain and cracks is important. A number of reviews have examined the effect of various protocols on either the prevention or treatment of nipple pain and/or trauma Huml,⁽¹³⁾ including, the application of various oils Akkuzu⁽⁸⁾, drugs Tamarap., et al and Morland⁽¹⁴⁻²⁾, education Centuori et al and Tamarap⁽¹⁵⁻¹⁴⁾, sprays Page .,et al and Nancy et al⁽¹⁶⁻¹¹⁾, warm water Arthur

et al and Tait⁽¹⁷⁻⁹⁾, expressed breast milk and peppermint water Herd⁽¹⁸⁾ and combinations of different methods Tanchev et al and Akkuzu⁽¹⁹⁻⁸⁾. However, there are some other reports with different and sometimes controversial results Manizheh⁽²⁰⁾ unfortunately, many women delay seeking treatment until substantial damage already has occurred. Sore nipples heal rapidly, often within a day or two. However, it is still easier to prevent rather than to treat them Nancy et al, Buchko and Clark⁽¹¹⁻²¹⁻²²⁾.

No one topical agent showed superior results in the relief of nipple discomfort. The most important factor in decreasing the incidence of nipple pain 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 Henderson, Dodd and Sayyah., et al⁽²³⁻²⁴⁻²⁵⁾.

The studied women were in age group ranging from 18 to 29 years old, almost one third of the participants had middle education and the majority was housewife and had sufficient income. In this respect persad, and storr⁽²⁶⁾ have mentioned that there are many factors associated with the intention and success of breastfeeding. These factors included maternal age, mother's education level, family household income, mother's knowledge about the benefits and technique of breast feeding, attitude towards breastfeeding and the mother's social support network. Understanding such factors will allow maternity nurses to plan and evaluate appropriate intervention to improve breastfeeding practice and help woman to prevent and cope with minor discomfort associated with breast feeding.

According to Manizheh et al.,⁽¹⁹⁾ natural remedies (peppermint water and expressed milk) in conjunction with nursing care and support provide

relief from breast feeding problems, One of the major problems in lactating women at the beginning of breastfeeding is nipple crack, and this may represent an obstacle to successful breastfeeding, leading to a decrease in milk production Persad and Storr⁽²⁶⁻⁷⁾. Bearing in mind the health hazards associated without breast feeding and the fact that sore nipples are not inevitable during the early days of breastfeeding⁽³⁻²⁰⁾, it is logical to create a healthy, flexible tissue very resistant to cracks by using the above mentioned remedies. However, it was first essential to assess and correct women knowledge and practice regarding breast feeding, breast and nipple problems during the first few days after labor. Several studies over the world have shown that breastfeeding is the universal practice. It seems that mothers don't even consider alternative to this Henderson et al.,⁽²³⁾. In the present study also, all the mothers knew that breastfeeding is the best nutritional source for baby. It was found that nearly 17% of the mothers were aware that the time of initiation of breastfeeding should be within half an hour after labor and 95% of the participants knew that colostrum feeding is very nutrient for baby. These figures were much higher than those reported by Chaudhary et al.,⁽²⁷⁾ who found that only 10% and 25% of mothers knew they had to start breastfeeding within 1/2 - 1 hour after birth and knew the benefits of colostrum, and few women who knew how to cope with their breast or nipple problems. This difference could be explained by valuable effort of the researcher who provides advice and support to mothers during the study period. This study detected high frequencies of parameters indicative of inadequate breastfeeding technique, related to mother/baby positioning and latching-on and suckling etc..... At the beginning of the program. This might be due to the fact that all the participants were primiparous with no experience before, at a relatively

young age and might not be exposed to similar educational program during their antenatal period or immediate postnatal period. The number of studies of breastfeeding technique is relatively low. However, Sanches⁽²⁸⁾ reported that suckling was inadequate in 33% of full term, healthy newborn infants, evaluated during the first 24-48 hours, with more than half of these cases being due to an incorrect manner in which the infant takes the nipple into its mouth. While, Carvalhaes⁽²⁹⁾ showed that the mother/baby positioning and attachment observed in the maternity unit were satisfactory in 68 and 82% of cases, respectively.

Meanwhile, Ingran et al.,⁽³⁰⁾ in the United Kingdom, found a significant increase in exclusive breastfeeding rates at 2 and 6 weeks postpartum and of breastfeeding at 2 weeks when women were given instruction at the maternity unit on correct breastfeeding, when compared with a population of women who had their children at the same hospital before the intervention. This corresponds well with the finding of the present study where the majority of the studied women showed inadequate technique of breast feeding at the initial contact which significantly improved at the return visits due to the supportive care and encouragement from the researcher, although this could be of more value if started during the antenatal period. There is good evidence to show that antenatal education on women's positioning and attachment technique is likely to reduce nipple pain caused by breastfeeding Morland and Hill⁽²⁾. RCT compared standard antenatal education with an additional 30 minutes of one-on-one education for 158 primiparous women within 24 hours of giving birth. The woman's positioning and attachment technique was assessed during the education session and on each subsequent day in hospital. Nipple pain was found to be lower in the treatment group with a

statistically significant difference observed between the treatment and control groups on the second day. No significant differences were found for nipple trauma (predominantly nipple redness) at all assessment stages. It is a dream for most mothers to have comfort in breastfeeding, but sore nipples are still a common problem, and pain or cracks frequently occur after breastfeeding Nancy et al.,⁽¹¹⁾. When the nipples are hurt, breastfeeding is in jeopardy. It is estimated that 80 to 90 percent of breastfeeding women experience some nipple soreness, with 26 percent progressing to cracking and extreme nipple pain⁽³¹⁾. Up to one third of the mothers who experience these symptoms may change to alternate methods of infant nutrition within the first six postnatal weeks Braund and Kramer⁽³²⁻³³⁾.

When comparing the effect of peppermint water against the use of breast milk for the prevention of nipple trauma, the current study showed a significant reduction in the frequency of nipple pain and cracks in breastfeeding mothers where peppermint water was applied after breastfeeds. This effect could be attributed to the calming and numbing effect and the antibacterial activity of peppermint water leading to the reduction of irritation and nipple discomfort.

This result is matching with Schel et al.,⁽³⁴⁾ who added that peppermint has an antiseptic effect and increases tissue flexibility, and prevent crack. Also, Blumenthal,⁽³⁵⁾ studied herbal

The above mentioned result was partially supported with RCT carried out by Melli et al.,⁽³⁶⁾ in Iran about the use of peppermint gel, lanolin ointment, and placebo gel to prevent nipple crack in primiparous breastfeeding women. The application of peppermint gel was found to be an effective method to prevent nipple crack. In addition, no areola crack was observed in their studied group.

medicine and Melli et al.,⁽³⁶⁾ studied management of nipple pain and trauma associated with breast feeding in South Australia 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 making it resistant to cracks. However, the efficacy of these remedies is insufficiently documented. Despite the large number of preparations found to be effective, there is still a continuous search for finding additional preparations with increasing specificity Livingstone and Stringer⁽³⁷⁾. It is important to do something about nipple soreness before it gets worse and the nipples develop painful cracks. The rate of nipple crack in the present study in mothers who used peppermint water was 4.0% compared to 8.0% among women in the breast milk group which is relatively less than the value of 9.0% obtained by Sayyah⁽²⁵⁾ study for the rate of nipple crack in peppermint water users. This may indicate the importance of woman compliance of using of peppermint water in combination with researcher support and encouragement which could have some beneficial effects in reducing nipple crack.

Furthermore, the present study finding revealed that only mild and moderate but less severe pain were observed in group I (peppermint water) compared to those in G II (breast milk) at the return visits, which may show the therapeutic effects of the formulations' ingredients of peppermint on nipple pain and nipple crack. Moreover, the use of peppermint water was found to be three times more effective than expressed breast milk (EBM; 27% vs. 9%). The rate of nipple crack in their study in mothers who used peppermint gel was 3.8%. The discrepancy between the above study and the current one is attributed to the use of peppermint water in combination with an oily base which

could have some beneficial effects in reducing nipple crack.

On the other hand Mohammad Zadeh et al.,⁽³⁸⁾ compare the effect of rubbing breast milk versus lanolin in the treatment of symptoms of sore nipples. They showed that the breast-feeding technique is the basis of sore nipple treatment; breast milk has the advantage of being convenient, inexpensive, with no side effects and non-pharmacologic and must be recommended for the treatment of sore nipples. This is also matching with the present study finding which shows no significant differences between the two groups in relation to nipple pain or nipple cracking. One explanation could be that the true healing intervention was that of breast-feeding instruction and that both the peppermint water and expressed milk applications were incidental to that. Another finding in the present results that merits emphasis is that the majority of the participants were able to fully breast feed their infants up to the 14th day and most of them were satisfied with the intervention used together with the adequate support and information on the technique of breast feeding and prevention of common problems associated with breast feeding. This gives woman the chance of successfully breastfeeding her new baby.

This is similar to Page et al., and Thabet et al.,⁽¹⁶⁻³⁹⁾ in Jeddah-Saudi Arabia about the Prevention of Nipple Cracks with Peppermint Water versus Breast Milk in Lactating Primiparous Women. They concluded that peppermint water in breastfeeding lactating women along with instruction about breast feeding technique is associated with fewer nipple cracks, less pain and soreness compared to those in breast milk group. They also, also help in successful initiation of breast feeding and help women to continue fully breast feed their children up to the first month.

Conclusion

Based on the Finding of the present study it can be concluded: Peppermint water is effective in the prevention of nipple trauma and less painful compared to express of breast milk after feeding.

Recommendations:

Based on the study results of the current study the following recommendation can be suggested further studies are recommended to gain more insight into the effectiveness of peppermint water. Using a large sample of primiparous women who already received counseling during their antenatal period about the proper technique of breastfeeding.

Table 1: Distribution of the studied women according to their Socio- Demographic Characteristics.

Socio demographic characteristics	Groups				X ² (P)
	Pep permint (G: I) (n=50)		Breast milk (GII) (n=50)		
	No	%	No	%	
Age (years)					
• <20	16	32.0	12	24.0	5.2 (0.075)
• 20-25	19	38.0	30	60.0	
• 25+	15	30.0	8	16.0	
Range	18-29		18-28		
Mean ± SD	22.4 ± 3.4		21.8 ± 2.6		
Education level					
• Illiterate and read and write	16	32.0	5	10.0	8.5 (0.037)*
• Basic education	6	12.0	8	16.0	
• Middle education	16	32.0	16	32.0	
• High education/ higher	12	24.0	21	42.0	
Occupation					
• Working	14	28.0	13	26.0	0.05 (0.882)
• Housewife	36	72.0	37	74.0	
Income					
• Insufficient	20	40.0	13	26.0	2.2 (0.330)
• Sufficient	21	42.0	26	52.0	
• More than sufficient	9	18.0	11	22.0	

• P < 0.05 (significant)

Table 2: Distribution of the Studied Women According to their knowledge about Breast & Nipple problems

	Groups				MCP
	Peppermint (GI) (n=50)		Breast milk (GII) (n=50)		
	No	%	No	%	
Baseline(at 1st day)					
Wrong answer	41	82.0	41	82.0	0.699
Incomplete knowledge	9	18.0	8	16.0	
Correct knowledge	0	0.0	1	2.0	
At 7th day					
Wrong answer	30	60.0	41	82.0	• 0.048*
Incomplete knowledge	17	34.0	8	16.0	
Correct knowledge	3	6.0	1	2.0	
At 14th day					
Wrong answer	25	50.0	40	80.0	0.003*
Incomplete knowledge	17	34.0	9	18.0	
Correct knowledge	8	16.0	1	2.0	
X² (P)	15.3 (0.001)*		2.0 (0.368)		

MCP: Mont Carlo exact probability

X²: Friedman test

* P < 0.05 (significant)

Table 3: Distribution of the Studied Women According to their Use of the Proper Technique of Breast Feeding (n = 50)

Variables	Peppermint (G:1)		breast milk (G: 2)	
	No	%	No	%
Did woman give the baby the colostrums				
Yes	4	9.0	4	9.0
No	46	91.0	46	91.0
Did she correctly put the nipple inside baby's mouth				
Yes	48	97.0	46	91.0
No	2	3.0	4	9.0
Did she pull the nipple correctly after feeding him				
Yes	43	85.0	40	90.0
No	7	15.0	10	10.0
Did she eructate the baby after each feeding				
Yes	46	91.0	44	88.0
No	4	9.0	6	12.0
Did she assume the right positions for breast-feeding				
Yes	26	51.0	25	50.0
No	24	49.0	25	50.0

Table 4: Comparison between the Grade of Soreness at the 7th day and the 14th day among Women in the Breast Milk Group (n=50).

Grade of soreness among women in the breast milk group	Number of days				Test of sig	
	7 th		14 th		Fisher (1)	Fisher (2)
	No	%	No	%		
-normal	31	72.0	34	68.0	21.4	16.2
- tender for 1 st 5-10 minutes after feeding	5	10.0	6	12.0		
- tender more than 5-10 minutes after feeding	11	22.0	7	14.0		
- tenderness between feeding	3	6.0	3	6.0		
- begin to crack	0	0.0	0	0.0		

P: Test of Marginal Homogeneity

P < 0.05 (significant)

Table 5: Distribution of the Studied Women According to Description of Nipple Trauma at the 7th day.

Description of nipple trauma.	Peppermint (G: I) (n=50)		P	Breast milk (G:II) (n=50)		P
	7th			7th		
	No	%	No	%		
No microscopically visible skin changes (score: 0)	37	74.0	0.822	36	72.0	0.493
Erythematic or edema or combination of both(score: 1)	13	26.0		14	28.0	

MCP: P value based on Mont Carlo exact probability

Table 6: Distribution of the Studied Women According to Description of Nipple Trauma at the 14th day.

Description of nipple trauma.	Peppermint (G:I- n=50)		P	Breast milk (G:II-n=50)		P
	14 th			14 th		
	No	%	No	%		
No microscopically visible skin changes (score: 0)	42	84.0	0.822	36	72.0	0.493
Erythematic or edema or combination of both(score: 1)	8	16.0		13	26.0	
Superficial damage with or without scab formation of less than 25% of the nipple surface. (score:2)	0	0.0		1	2.0	

MCP : P value based on Mont Carlo exact probability

Table 7: Distribution of the studied women According to Visual Analog Scale at 7th day.

Visual Analog Scale	Peppermint (G1) (n=50)		P	Breast milk (GII) (n=50)		P
	7 th day			7 th day		
	No	%	No	%		
No pain (Score 0)	34	68.0	0.003*	36	72.0	0.008*
Mild pain (score1-4)	3	6.0		0	0.0	
Moderate pain (score5-7)	13	26.0		11	22.0	
Sever pain (score8-10)	0	0.0		3	6.0	

P: Test of Marginal Homogeneity

P < 0.05 (significant)

Table 8: Distribution of the Studied Women According to Visual Analog Scale at 14th day.

Visual Analog Scale	Peppermint (G1) (n=50)		P	Breast milk (GII) (n=50)		P
	14 th			14 th		
	No	%	No	%		
No pain (Score 0)	34	68.0	0.003*	34	68.0	0.008*
Mild pain (score1-4)	9	18.0		6	12.0	
Sever pain (score8-10)	1	2.0		3	6.0	

P: Test of Marginal Homogeneity

P < 0.05 (significant)

References

- 1-Joanna Briggs Institute: The management of nipple Pain and trauma associated with breastfeeding. Best Practice evidence-based information sheet for health Professionals.2009.7:1-6.
- 2-Morland-Schultz K and Hill PD: Prevention of and therapies for nipple pain: a systematic review. J Obstet Gynecol Neonatal Nurs,2005.34:428–37.
- 3-Abd-Elsalam, S., S. Hamido and H. Abd el Hameed: Effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers Journal of American Science,2011, 7(11): 485-496.
- 4- Ziemer MM, Cooper DM, Pigeon JG: Evaluation of a dressing to reduce nipple pain and improve nipple skin condition in breast-feeding women. Nursing Res,1995.44: 347–51..
- 5- Read LC and George-Nascimento C: Epidermal growth factor: physiological roles and therapeutic applications. Biotechnol Ther.1999;1:237–72.
- 6-Abou-Dakn M: Inflammatory breast diseases during lactation: milk stasis, puerperal mastitis, abscesses of the breast, and malignant tumors – current and evidence-based strategies for diagnosis and therapy. Breast Care.2012.5: 33–37.
- 7- Storr, G. B: Prevention of nipple tenderness and breast engorgement in the postpartum period. Journal of Obstetric, Gynecologic, and Neonatal Nursing, 2008. 17: 203- 209.
- 8- Akkuzu G, Taskin L: Impacts of breast-care techniques on prevention of possible postpartum nipple problems. Professional Care of Mother & Child.2000. 10(2): 38–41.
- 9- Tait P: Nipple pain in breastfeeding women: causes, treatment, and prevention strategies. J Midwifery Women's Health..2003,45:212–5.
- 10- Read LC, Francis GL, Wallace JC, Ballard FJ: Growth factor concentrations and growth-promoting activity in human milk following premature birth. J Dev Physiol1985. 7:135–45.
- 11-Nancy B, Sherrill JR, Beverly R et al.: Sore nipples in breast-feeding women: A clinical trial of wound dressings vs conventional care. Chicago.1998. 152: 1077–83.
- 12-Inch S, Fisher C: Breastfeeding: early problems. The Practicing Midwife.2000.3:12–15.
- 13- Huml S: Moist wound healing for cracked nipples in the breastfeeding mother. Leaven.2000. 29: 2–6.
- 14-Tamarap, GraigL, KylieG: A Systematic Review.JBI REPORTS.2003.1:127-47.
- 15-Centuori S, Burmaz T, Ronfani L et al: Nipple care, sore nipples, and breastfeeding: a randomized trial. J HumLact.1999.15(2):125-30.
- 16-Page, T., C. Lockwood and K. Guest: Management of nipple pain and/or trauma associated with breast-feeding Issue1 (4) JBI Reports.2012. pp: 127-147.
- 17- Arthur CR, Saenz R, Replogle WH: Breastfeeding education, treatment, and referrals by female physicians. J Hum Lact.2003.19(3):303–9..
- 18- Herd B, Feeney J: Two aerosol sprays in nipple trauma. Practitioner.1986.230(1411): 31–38.
- 19- Tanchev S, Vulkova S, Georgieva V, Gesheva lu and Tsvetkov M: Lansinoh in the treatment of sore nipples in breastfeeding women [abstract].Akush Ginekol (Sofia) .2004. 3:27-30.
- 20-Manizheh sayyah Melli, Mohammad Raza Rashidi, Abbas Delazar and Elaheh Mandarek: Effect of peppermint water on prevention of nipple cracks in lactating primiparous women: a randomized controlled trial.. International Breastfeeding Journal, 2:7; 2007.
- 21-Buchko, B : Comfort measures in breastfeeding primiparous women. Journal of Obstetric, Gynecologic, and Neonatal Nursing.2004. 23:46-52.
- 22- Clark, M.J: Community Heath Nursing, Fifth edition, Prentice hall Company, California, USA.2008.pp: 95-98.
- 23- Henderson A, Stamp G, Pincombe J: Postpartum positioning and at- attachment education for increasing breastfeeding: a randomized trial. Birth.2001.28(4): 236–42.
- 24-Dodd,V,Chalmers,C: companing the use of hydrogel dressing to lanolin ointment with lactating mothers. Journal of

- Obstetric, Gynecologic Neonatal Nursing.2003.32(4)486-494.
- 25- Sayyah MM, Rashidi MR, Delazar A, Madarek E, Kargar Maher MH, Ghasemzadeh A, et al: Effect of peppermint water on prevention of nipple cracks in lactating primiparous women: a randomized controlled trial. *Int Breastfeed* .2007.J; 2:7.
- 26-Persad MD: Maternal breastfeeding attitudes: association with breastfeeding intent and socio- demographics among urban primi paras. *Journal of Community Health*.2008. 33:53-60.
- 27- Chaudhary RN, Shah T, Raja S: Knowledge and practice of mothers regarding breast feeding: A hospital based study. *Knowl Pract Breast Feed*.2011. 9:194–200.
- 28- Schelz Z, Molnar J, Hohmann J: Antimicrobial and antiplasmoid activities of essential oils. *Feto-therapy*.2006.77: 279– 285.
- 29- Carvalhaes MA: Identification of difficulties meeting women with breast feeding *Pediatric* .2003.J. 79:13- 20.
- 30- Ingran J, Johnson D, Greenwood R : Breastfeeding in Bristol: teaching good positioning, and support fathers and families. *Midwifery*.2002. 18:87-101.
- 31- Huml S: Sore nipples. A new look at an old problem through the eyes of a dermatologist. *Pract Midwife*.1999. 2:28– 31.
- 32- Braund D, Amir LH: Review of the Management of Nipple Pain and Damage. *Topics in Breastfeeding*. Melbourne, Lactation Resource Centre; 2005.
- 33- Kramer MS, Kakuma R: Optimal duration of exclusive breast-feeding. *Cochrane Review*, In: *The Cochrane Library*, Issue 2. Oxford, Update Software;2003.
- 34- Schelz Z, Molnar J, Hohmann J: Antimicrobial and antiplasmoid activities of essential oils. *Feto-therapy* .2007. 77: 279– 285.
- 35- Blumanthal D: Review of the Management of Nipple Pain and Damage. *Topics in Breastfeeding*. Melbourne: Lactation Resource Centre; 2000.
- 36- Melli, M., D. Rashidi, A. Delazar, E. Madarek, M. Hassan, K. Maher, A. Ghasemzadeh, K. Sadaghat and Z. Tahmasebi.: Effect of peppermint water on prevention of nipple cracks in lactating primiparous women: a randomized controlled trial. *International Breastfeeding Journal*.2007. 2:7.
- 37- Livingstone V, Stringer L: The treatment of *Staphylococcus aureus* infected sore nipples: a randomized comparative study. *J Hum Lact*.1999. 15:241– 6..
- 38- Mohammadzadeh A, Farhat A, Esmaeily H: The effect of breast milk and lanolin on sore nipples. *Saudi Med J*. Aug;2005. 26(8):1231-4.
- 39- Toronto Public Health: Breastfeeding protocols for health care providers [Internet]. Toronto (ON): City of Toronto; [cited 2010 Dec 15]. Available at: <http://www.toronto.ca/health/breastfeeding/pdf/protocols.pdf>