

Effects of *Gua-Sha* Therapy on Breast Engorgement: A Randomized Controlled Trial

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ABSTRACT

Background: Breast engorgement is a common problem that affects the initiation and duration of breastfeeding. Limited solutions are available to relieve the discomfort associated with breast engorgement. Thus, further investigation of methods to achieve effective relief of symptoms is critical to promote breastfeeding success.

Purpose: The purpose of this study was to determine the effects of two breast care methods, that is, scraping (*Gua-Sha*) therapy (administered to the experimental group) and traditional breast care (i.e., massage and heating; administered to the control group).

Methods: A randomized controlled trial was conducted on 54 postpartum women at a Level III medical teaching hospital. Participant inclusion criteria included postpartum breastfeeding women (a) who had an uncomplicated delivery and (b) who were experiencing breast engorgement problems. The *Gua-Sha* protocol selected appropriate acupoint positions, which included ST16, ST18, SP17, and CV17. Each position was lightly scraped seven times in two cycles. For the control group, we used hot packs and massage for 20 min in accordance with recommendations given in an obstetrical technique textbook.

Results: Results showed no statistical differences between the two groups at baseline. Body temperature, breast temperature, breast engorgement, pain levels, and discomforting levels were statistically different between the two groups at 5 and 30 min after intervention ($p < .001$). The results of generalized estimating equation analysis indicated that, with the exception of body temperature, all variables remained more significant ($p < .0001$) to improving engorgement symptoms in the experimental group than those in the control group, after taking related variables into account.

Conclusions and Implications for Practice: Our findings provided empirical evidence supporting that *Gua-Sha* therapy may be used as an effective technique in the management of breast engorgement. By using *Gua-Sha* therapy, nurses can handle breast engorgement problems more effectively in primary care and hence help patients both physically and psychologically.

KEY WORDS:

breast engorgement, *Gua-Sha* therapy, breast care.

blems of postpartum women during early breastfeeding (Lawrence & Lawrence, 2005). It often peaks on the third to fifth day after childbirth and then gradually subsides with time. However, it may persist as long as 2 weeks after childbirth (Riordan, 2005). The main reasons breast engorgement occur include the following: (a) lack of direct stimulation to the breast due to discontinuance of natural breastfeeding (Wright, Rice, & Wells, 1996), (b) delay in breastfeeding (Humenick, Hill, & Anderson, 1994), (c) inadequate breastfeeding (Lawrence & Lawrence, 2005), (d) limited breastfeeding time and frequency (Lawrence & Lawrence, 2005), and (e) not altering feedings between breasts (Lawson & Tulloch, 1995). Hill and Humenick (1994) and Humenick et al. (1994) indicated that breast engorgement involves three elements: congestion and increased vascularity, accumulation of milk, and edema secondary to the swelling and obstruction of drainage of the lymphatic system by vascular increases and fullness of the alveoli. Therefore, the breast becomes hot, painful, and hard; milk does not flow; and the mother is thirsty and experiences pain when breasts are touched (Chang, 2007; Chang & Chang, 2007; Maciocia, 1998).

The most serious effect of breast engorgement is that it prevents the baby from keeping the nipple and areola in his or her mouth, therefore preventing effective breast milk flow.

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Introduction

Breast engorgement is defined as the swelling and distention of breasts, which is one of the most common pro-

This leads to severe breast engorgement, which can cause great discomfort (Riordan, 2005; Taiwan Breastfeeding Academic Association, 2006). In addition, due to improper infant sucking position, abrasion of the nipple and even mastitis can occur (Lawrence & Lawrence, 2005; Riordan, 2005). If the baby cannot effectively suck, a negative feedback mechanism is activated, and breast milk excretion is suppressed (Cregan, Mitoulas, & Hartmann, 2002; Vogel, Hutchison, & Mitchell, 2001). Inadequate breast milk intake will consequently occur and hinder normal infant growth. All these problems frustrate the mother and represent an important reason behind early abandonment of breastfeeding (Cotterman, 2004; de Oliveira et al., 2006; Riordan, 2005).

Many solutions to breast engorgement for breastfeeding women have been proposed in the literature. These include heat therapy prior to breastfeeding (hot packs and warm water baths), cold therapy (refrigerated bags of vegetables), cabbage compression, breast massage and milk expression, ultrasound therapy, and even anti-inflammatory medications (Chang, 2007; Hung, 2008; Newman & Kernerman, 2008; Riordan, 2005; Roberts, Reiter, & Schuster, 1995). However, the benefits of these solutions are controversial. Cold packs have been identified as a cause of reduced vascularity, and warm packs, a trigger of aggravated swelling (Newman & Kernerman, 2008). One article pointed to the mother standing in a warm shower while manually expressing milk may be the best way to prepare for infant feeding (Lawrence & Lawrence, 2005). Riordan (2005) found the pain of breast engorgement was reduced by alternating between hot and cold water applications.

Snowden, Renfrew, and Woolridge (2001) conducted a randomized controlled clinical study on 424 women to test the effectiveness of eight different breast engorgement solutions, including oxytocin, ice packs, cabbage compression, ultrasound therapy, and anti-inflammatory medications such as Danzen and Kimotab. Results indicated that only anti-inflammatory medications (Danzen, odds ratio [OR] = 3.6, 95% CI = 1.27–10.26; Kimotab, OR = 8.02, 95% CI = 2.76–23.3) relieved symptoms effectively. Other tested solutions performed at suboptimal levels and were not recommended by Snowden et al.

The most prevalently used of these eight solutions in Taiwan remains milk expression after application of hot packs (Hsieh, Cheng, Hsieh, & Chung, 2001). Although time-consuming and likely to cause discomfort, this method is widely used in most hospitals (Hsieh et al., 2001). Hsieh et al. (2001) compared the effects of two breast care methods—one using a moist heating pad (the pad group) and the other using a moist hot towel (the towel group). A total of 146 breastfeeding mothers participated in the study (94 in the towel group and 52 in the pad group). Results revealed no difference in newborn body weights between the two. The mothers in the pad group felt more comfortable, convenient, and private than did those in the towel group. However, there are two major limitations of the heating pad. First, the shape of the heating pad cannot

be adjusted to the contours of the breast. Second, the pad covers the entire breast, including the nipple, which may overheat and damage the nipple.

As cold therapies are discouraged during the month following delivery for postpartum women in Chinese culture, the use of ice packs and cabbage compression are likely not favorable for use in Taiwan. In Taiwan, traditional Chinese therapies have been considered beneficial in postpartum recuperation (*Zuo yuezi*) for postpartum women (Chen & Wang, 2000). Hence, it is vital to examine the effectiveness of traditional Chinese therapies, such as scraping therapy (*Gua-Sha*), on relieving postpartum breast engorgement.

Scraping therapy (*Gua-Sha*) is widely used in Asia by traditional therapy practitioners. It is based on the Chinese principles of the 12 meridians and collaterals (十二經絡) to move blood externally and internally, promote blood production, and improve dissemination of fluids (Lo & Liu, 2008; Nielsen, 1995; Nielsen, Knoblauch, Dobos, Michalsen, & Kaptchuk, 2007). It extravasates blood and metabolic waste that congest in surface tissues and muscles, promoting normal circulation and metabolic processes. By resolving fluid and blood stasis, scraping therapy is valuable in the treatment of pain and in the prevention and treatment of acute infectious illness and many acute and chronic disorders (Cheng & Cheng, 1999; Nielsen, 1995; Nielsen et al., 2007).

In Chinese medicine, according to the Ling Shu (靈樞) chapter in the Huang Di Neijing (黃帝內經), nipples are part of the Terminal-Yin channels (liver; 足厥陰肝經), whereas breasts comprise part of the Bright-Yang channels (足陽明經; Chang, 2006; Maciocia, 1998). If the nursing mother does not follow a healthy lifestyle or if she is affected by feelings of anger, the *qi* (氣) of the Terminal-Yin (liver) will stagnate, the orifices will be blocked, and milk cannot come out easily. This is called *du ru* (堵乳); “grudging milk” or engorged breast). The treatment principle of *du ru* is to “dissipate” (消散) by gently kneading the breast to disperse accumulation so that the milk flows. If this is not done, the Bright-Yang heat will predominate, transforming milk into pus and developing a condition known as *ru yong* (乳癰); “breast carbuncle” or acute mastitis and breast abscess (Chang, 2006; Maciocia, 1998).

Benefits reputedly associated with *Gua-Sha* include fever and inflammation relief, elimination of residues, and diminishing discomfort (Nielsen, 1995; Yeatman & Viet, 1980). Previous studies have reported the clinical effectiveness of *Gua-Sha* in relieving chronic cough (Liu & He, 2008), sinusitis (Cui, Xu, & Kang, 2008), diarrhea (Yao & Guo, 2009), migraines (Zhan, Hu, & Zhang, 2009), dysmenorrhea (Qi, Ian, Du, & Liu, 2007), and fever (Li, 2006). Only one study has previously been published on the relationship between *Gua-Sha* and breast engorgement. Lo and Liu (2008) studied 172 participants with acute mastitis; 86 of the participants received combined *Gua-Sha* therapy and Chinese medicine or *Gua-Sha* therapy only. Both treatment methods had significant and positive effects on mastitis, in terms of lowering body temperature, eliminating breast tenderness, and relieving pain.

In summary, *Gua-Sha* therapy is an easy, nonpharmacological therapy, the philosophy behind which dovetails with the Chinese theory of meridians. Although many methods are available to treat breastfeeding-related engorgement, the effectiveness of the scraping therapy (*Gua-Sha*) has yet to be clarified and adequately described. In this study, we aimed to evaluate the effects of two breast care methods, scraping therapy and hot packs and massage, on breast engorgement by conducting a randomized controlled trial among postpartum women with breast engorgement.

Methods

Design

A randomized controlled trial was employed to assign participants randomly into intervention (*Gua-Sha* therapy) or control (hot packs and massage) groups. A computer-generated block randomization list (with block sizes of four and eight varied randomly) was generated by the statistician to ensure even distribution of participants between the two groups. This was designed as an open trial, without blinding, that is, all participants knew to which group they had been assigned. However, to control for any bias in data collection, all data were collected by a nurse, who was blinded to patient group assignments.

Before interventions, we evaluated baseline breast engorgement levels. Nielsen et al. (2007) claimed that *Gua-Sha* could extend blood vessels ends, improving partial blood circulation and metabolism. Their study showed that *Gua-Sha* therapy caused a fourfold increase in microcirculation perfusion units in the treated area during the first 5–7.5 min following treatment and a significant increase in surface microcirculation during the entire 25 min of the study period following treatment. Therefore, we chose to reevaluate breast engorgement levels at 5 and 30 min following each intervention.

All participants were selected from a medical center in central Taiwan, with breastfeeding women who met the following criteria recruited: (a) breast engorgement (diagnosed as having hot, painful, and hard breasts; nonflow of milk; abnormal thirst levels; and pain when the breasts were touched), (b) no high-risk complications both before or following childbirth, and (c) willingness to participate in this study.

To estimate the sample size needed for this study, we adopted the definition of the effect size as mean 1 minus mean 2, divided into the pooled standard deviation (Cohen, 1988). We supposed an effect size of breast difference of .80 between the experimental group and control group based on initial pilot test results. For a two-sided 5% and 80% power, the number of samples in each group should be at least 26, with a total sample size of 52. We included 54 postpartum women in this study, yielding statistical power >80%.

Clinical Intervention

To ensure study result uniformity, the primary investigator handled all interventions. The primary investigator had taken

nine credits of Chinese medicine courses over 1.5 years and had more than 10 years of experience practicing Chinese medicine.

All interventions were based on a standardized flowchart, which was established by conducting a pilot test of 5 postpartum women with breast engorgement. Stopwatches were used to minimize experimental error.

In traditional Chinese medicine, 14 channels of energy, like rivers, are believed to run throughout the body. These channels, known as *meridians*, channel currents of energy through the body, enhancing blood flow, nourishing tissues, and facilitating normal bodily functions (Chang & Chang, 2007). Meridians passing just under the skin surface present acupoints. According to Cheng and Cheng (1999) and Pan (2003), the most common meridians involved in breast are the stomach meridian (胃經), spleen meridian (脾經), and conception vessel (任脈). Stimulating acupoints along their channels through *Gua-Sha* may help remove obstructions, revitalize the meridians, and help restore health. A variety of acupoints are documented in medical studies as being able to reduce breast engorgement symptoms. Theoretically and empirically supported acupoints, namely *Ying-Chuang* (膺窗穴; ST16), *Dan-Zhong* (膻中穴; CV17), *Ru-Gen* (乳根穴; ST18), and *Shi-Dou* (食竇穴; SP17), were selected for use on the experimental group in this study (Figure 1).

Nielsen (1995) specified three types of *Gua-Sha* friction methods (hard, moderate, and soft) and three types of therapeutic duration (short, moderate, and prolonged). Soft *Gua-Sha* therapy loosens the flesh, moderate *Gua-Sha* therapy increases flesh concentration, and hard *Gua-Sha* therapy strengthens the flesh (Chen, 2004). Prolonged therapeutic duration thins the flesh, whereas short and moderate times are used to loosen (Nielsen, 1995). Chen (2004) concluded that the type of *Gua-Sha* therapy application should be determined by patient condition. He suggested using short and soft *Gua-Sha* therapy to remedy breast engorgement, as related disturbances involve obstructions in meridians (經絡) and the exterior (皮表). Therefore, we applied

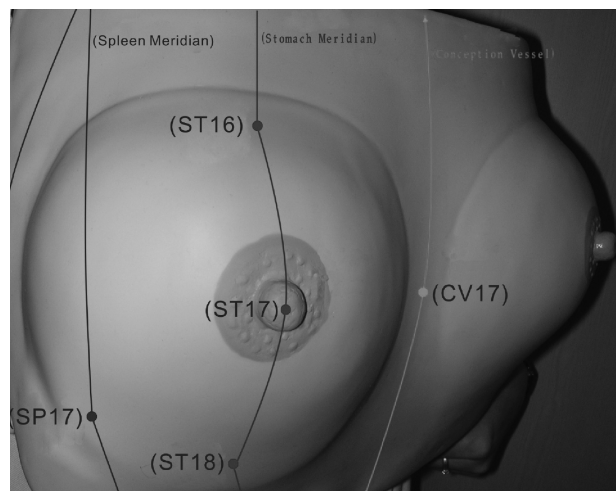


Figure 1. *Ying-Chuang* (ST16), *Ru-Gen* (ST18), *Dan-Zhong* (CV17), and *Shi-Dou* (SP17).

short and soft *Gua-Sha* therapy in this study. The force level delivered in the therapy was tolerable, which resulted in mild skin redness and elevation. Participants did not report perceiving any discomfort in the treatment areas.

A *Gua-Sha* protocol was established based on a review of relevant literature and consultations with two licensed traditional Chinese physicians who had graduated from medical schools in Taiwan and had practiced traditional Chinese medicine for more than 15 years. The protocol included selecting *Gua-Sha* positions, the manual techniques to be used, and the time duration of intervention. Starting from ST16, ST18, and SP17 acupoints, we scraped in the direction of the nipples (Figure 2). In addition, for CV17, we scraped between breasts. Each position was lightly scraped seven times in two cycles. Intervention time was around 2 ± 0.5 min. Prior to the formal study, the protocol was applied to 5 postpartum women with breast engorgement. All participants experienced relief from their breast engorgement symptoms and achieved satisfactory breastfeeding experiences. We wrote a case report regarding the treatment effects of applying *Gua-Sha* therapy based on the pilot study (Chiu, Chang, & Gau, 2008). The intervention time was selected before feeding time, when postpartum breasts can be as “hard as rocks” and the nipples distended. As a result, the neonate may be unable to latch onto the mother’s breasts until the engorgement has subsided.

We used hot packs and massage in the control group (Hsieh et al., 2001; Sun, 2008). First, we immersed small towels in water of $43 \pm 2^\circ\text{C}$ and then applied hot packs to the breasts. Water temperature was measured with a thermometer. Massage was done using the index and middle fingers in a spiral motion toward the nipples (Hsieh et al., 2001; Sun, 2008). Intervention time in the control group was 20 ± 2 min.

Instruments

Patient and obstetric data

From the literature, we reviewed possible influences on the excretion of breast milk (Cregan et al., 2002; Lawrence & Lawrence, 2005; Riordan, 2005), including patient and

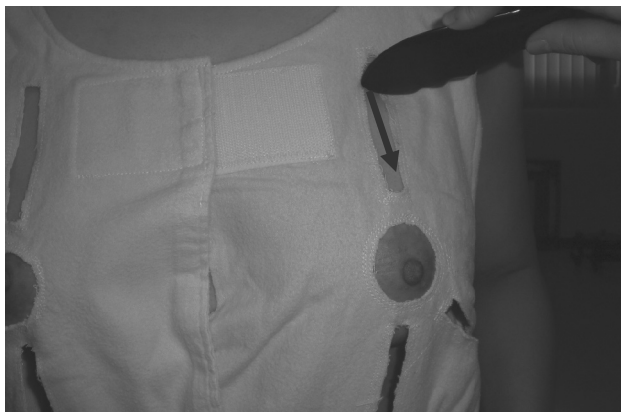


Figure 2. The direction of *Gua-Sha* therapy.

obstetric data such as age, marital status, educational level, parity, delivery method, epidural anesthesia, family attitudes toward breastfeeding, prenatal education, breastfeeding type after birth, and immediate skin-to-skin contact.

Subjective Breast Engorgement Scale

The Subjective Breast Engorgement Scale was a scale developed by the authors that consisted of three questions addressing levels of pain, engorgement, and discomfort, measured with a visual analogue scale. For each question, participants described their discomfort using a score ranging from 0 to 10, higher scores correlating to greater discomfort. Visual analogue scales have proven dependable in various studies (Geden, Beck, Hauge, & Pohlman, 1984; Gift, 1989) and are easy to administer and time efficient and do not hurt patients. The researchers invited five Taiwanese experts from different fields involved with breastfeeding (two nursing professors, two lactation consultants, and one obstetrician) to examine scale content. The expert panel evaluated Subjective Breast Engorgement Scale content validity using a 4-point Likert scale from *nonrelevant* (1) to *very relevant* (4; Burns & Grove, 2005). The content validity index was calculated using the proportion of items given a rating of 3 or 4 by all raters involved. All items received a rating of 3 or 4 from all five experts. Thus, the content validity index was 1.00 for the scale, indicating the items to be appropriate. The Cronbach’s alpha for the scale was .83.

Physiological measurements

These included multiple clinical symptoms of breast engorgement such as breast temperature and vital signs (Humenick et al., 1994). A digital infrared thermal imaging system was used to measure breast and body temperatures, and compact blood pressure monitors were used to measure vital signs.

Ethical Considerations

This study protocol was approved by the institutional review board of the Chinese Medical University Hospital (in Taiwan). After receiving institutional review board approval, the researcher visited the postpartum unit to explain the purpose of the research and methods to obstetricians, nursing managers, and nurse clinicians prior to data collection. Participants who meet study criteria were given a clear explanation of research purposes and of benefits and risks of the interventions and the procedures. Once explanations had been given, interested participants were asked to sign a consent form. We closely monitored the vital signs of participants before and after interventions. We also controlled the water temperature and the force of *Gua-Sha* therapy to ensure participant safety.

Statistical Analysis

Means and standard deviations of continuous variables and frequency and percentage of dichotomous variables were calculated using SPSS Version 17 (SPSS, Inc., Chicago, IL)

and SAS Version 9.1 (SAS Institute, Inc., Cary, NC). A paired *t* test and repeated analysis of variance were used for dependent data. Group and time effects were tested using generalized estimating equations models, which take the dependency of our data into account and yield unbiased *p* values. In addition, we included the significant variables identified in our univariate analysis and related literature (e.g., parity and feeding method) in multivariate analysis.

Results

The average age of the participants was 30.70 ± 5.79 years. Most had graduated from junior or senior high school (*n* = 21, 38.89%), were primiparous (*n* = 33, 61.11%), and gave vaginal delivery (*n* = 32, 59.26%). Thirty (55.56%) breast-fed exclusively. The groups showed no statistical differences in any variables except for age (*p* < .05; Table 1).

The independent *t* test showed no significant statistical differences between groups in terms of pretest variables such as body temperature, breast temperature, or scores on breast engorgement, breast pain, or breast discomfort scales (Table 2).

Five minutes following intervention, the conventional therapy group showed significant improvements in breast temperature and in the breast engorgement, pain, and discomfort scales, but not in body temperature (*p* < .001). After 30 min, there was an average improvement of 2.67, 2.29, and 2.29, respectively, on the same scales. All showed statistically significant differences from preintervention values (*p* < .001; Table 2).

In the *Gua-Sha* therapy group, body temperature dropped an average of 0.14°C, whereas breast temperature dropped an average of 2.01°C 5 min after intervention. There was an average improvement of 4.18, 4.49, and 4.47, respectively, on breast engorgement, pain, and discomfort scale

TABLE 1.
Participant Sociodemographic and Obstetric Characteristics

Variables	All		Experimental		Control		Statistical Data	<i>p</i>
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
Education							0.90 ^a	.64
High school or less	21	38.89	9	33.33	12	44.44		
University or college	19	35.18	11	40.74	8	29.63		
Graduate school	14	25.93	7	25.93	7	25.93		
Marital status								1.00 ^c
Married	50	92.59	25	92.59	25	92.59		
Divorce	4	7.41	2	7.41	2	7.41		
Age (<i>M</i> ± <i>SD</i>)	30.70 ± 5.79		32.59 ± 4.17		28.81 ± 6.60		2.51 ^b	.02
Type of birth								.41 ^c
Vaginal delivery	32	59.26	14	51.85	18	66.67		
Cesarean delivery	22	40.74	13	48.15	9	33.33		
Parity							0.08 ^a	.78
Primipara	33	61.11	16	59.26	17	62.96		
Multipara	21	38.89	11	40.74	10	37.04		
Epidural anesthesia							1.19 ^a	.28
Yes	26	48.15	11	40.74	15	55.56		
No	28	51.85	16	59.26	12	44.44		
Immediate skin-to-skin contact								1.00 ^c
Yes	47	87.04	24	88.89	23	85.19		
No	7	12.96	3	11.11	4	14.81		
Family attitude toward BF								.78 ^c
Agree with exclusive BF	32	59.26	17	62.96	15	55.56		
Agree with combined feeding	22	40.74	10	37.04	12	44.44		
BF type							0.30 ^a	.58
Exclusive BF	30	55.56	16	59.26	14	51.85		
Combined BF and formula	24	44.44	11	40.74	13	48.15		
First time BF							1.33 ^a	.51 ^c
Within 8 hr	27	50.00	12	44.44	15	55.56		
9–12 hr	9	16.67	4	14.81	5	18.52		
Above 12 hr	18	33.33	11	40.74	7	25.93		

Note. BF = breastfeeding.
^aChi-square test. ^bIndependent *t* test. ^cFisher's exact test.

TABLE 2.
Comparisons of the Experimental Group and the Control Group in Physiological and Subjective Scales

Item	Pretest	Posttest 5 min	Posttest 30 min	F/t (Within Factor)
	M ± SD	M ± SD	M ± SD	
BT (°C)				
Experimental	36.94 ± 0.34	36.80 ± 0.35	—	3.19 ^{*,a}
Control	36.90 ± 0.31	36.85 ± 0.37	—	0.91
t test (between)	0.50	−0.49		
BBT (°C)				
Experimental	34.92 ± 0.86	32.91 ± 0.72	—	12.11 ^{**,a}
Control	34.99 ± 0.71	34.63 ± 0.70	—	4.06 ^{**}
t test (between)	−0.31	−8.91 ^{**}		
SBES				
Experimental	8.19 ± 0.84	4.01 ± 0.91	4.12 ± 0.95	201.19 ^{**,b}
Control	8.61 ± 0.77	6.43 ± 1.17	5.93 ± 1.40	
t test (between)	−1.89	−8.45 ^{**}		
SBPS				
Experimental	8.74 ± 0.64	4.25 ± 1.07	4.77 ± 1.26	199.08 ^{**,b}
Control	8.47 ± 0.66	6.26 ± 1.14	6.18 ± 1.20	
t test (between)	1.53	−6.68 ^{**}		
SBDS				
Experimental	8.52 ± 0.65	4.04 ± 0.86	4.32 ± 1.19	284.80 ^{**,b}
Control	8.47 ± 0.55	6.37 ± 0.94	6.18 ± 1.18	
t test (between)	0.32	−9.44 ^{**}		

Note. BT = body temperature; BBT = breast temperature; SBES = Subjective Breast Engorgement Scale; SBPS = Subjective Breast Pain Scale; SBDS = Subjective Breast Discomfort Scale.

^aPaired t test. ^bRepeated one-way analysis of variance.

* $p < .01$. ** $p < .001$.

scores. After 30 min, the average improvement was 4.07, 3.97, and 4.2, respectively, on the same scales. These results suggest that *Gua-Sha* therapy can improve body temperature and breast temperature, engorgement, pain, and discomfort at both 5 min and 30 min following intervention ($p < .001$; Table 2).

We also used generalized estimating equations to evaluate the differences after we controlled for several variables that can affect the severity of breast engorgement. Table 3 shows no significant differences in body temperature between the groups. Breast temperature dropped more in the *Gua-Sha* therapy group than in the conventional therapy group 5 min after intervention.

There were significant statistical differences in interactions between group differences and intervention time for breast engorgement, breast pain, and breast discomfort. There was greater improvement 5 min after intervention and less improvement later. The *Gua-Sha* therapy group showed statistically greater improvement in comparison with the traditional therapy (Table 3).

Discussion

In this study, a randomized controlled trial was performed to determine the effectiveness of scraping therapy to alleviate the

symptoms of breastfeeding-related breast engorgement in postpartum women. We found no significant statistical differences in breastfeeding engorgement symptoms between experimental and control groups at baseline. After interventions, breast and body temperatures were lower in both groups. However, our study revealed breastfeeding engorgement symptom relief scores in the scraping therapy group to be statistically significantly better in comparison with scores in the massage and heat-packing group. Results showed that women using scraping therapy had lower breast and body temperature, indicating improvement in engorgement symptoms. These symptoms originated from duct obstructions due to lack of breast milk excretion (Miller & Hanretty, 2001). The presentation of breast engorgement mainly consists of tightened nipples and erythema, heat, swelling, and pain localized in the breasts. Lowering of body and breast temperatures can relieve these symptoms significantly. In our study, the experimental group showed greater improvement in engorgement symptoms than did the control group. Statistically, we can conclude that *Gua-Sha* therapy is superior to conventional heat therapy.

Many researchers have noted that scraping therapy stimulates the surface skin and extends blood vessels, which facilitates the evacuation of heat and poisons (Chang &

TABLE 3.
Comparison Between Traditional Therapy and Gua-Sha Therapy in the Improvement of Breast Engorgement

Item	B	SE	95% CI	Z	p
Body temperature					
Intercept	36.85	0.07	36.72 to 36.98	626.35	<.0001
Group ^a	-0.05	0.09	0.13 to -0.23	0.27	.603
Time ^a	-0.05	0.05	-0.05 to 0.15	0.93	.336
Breast temperature					
Intercept	34.63	0.13	34.38 to 34.88	74022.02	<.0001
Group ^a	-1.72	0.18	-1.36 to -2.08	88.88	<.0001
Time ^a	-2.01	0.16	-0.06 to -0.22	164.18	<.0001
Subjective breast engorgement					
Intercept	5.93	0.26	5.43 to 6.43	540.76	<.0001
Group ^a	-1.82	0.31	-1.21 to -2.42	34.66	<.0001
Time ^a					
5 min	-4.18	0.21	-3.70 to -4.65	297.22	<.0001
30 min	-4.07	0.24	-3.66 to -4.48	375.70	<.0001
Subjective breast pain					
Intercept	6.18	0.21	5.76 to 6.61	805.77	<.0001
Group ^a	-1.41	0.32	-0.79 to -2.03	19.95	<.0001
Time ^a					
5 min	-4.49	0.18	-4.13 to -4.85	600.19	<.0001
30 min	-3.97	0.23	-3.52 to -4.42	296.08	<.0001
Subjective breast discomfort					
Intercept	6.18	0.21	5.76 to 6.60	829.81	<.0001
Group ^a	-1.86	0.30	-1.26 to -2.45	37.33	<.0001
Time ^a					
5 min	-4.47	0.17	-4.18 to -4.81	717.53	<.0001
30 min	-4.20	0.27	-3.67 to 4.73	242.06	<.0001

Note. ^aControl group or baseline is the reference. Controlled variables are parity, feeding method, and age.

Chang, 2007; Lo & Liu, 2008; Nielsen et al., 2007). Nielsen et al. (2007) recruited a convenience sample of 11 volunteers from among physician and nursing staff of the University of Duisburg-Essen, Germany. The study purpose was to understand the relationship between microcirculation perfusion units and *Gua-Sha* therapy. They found that *Gua-Sha* could extend the ends of blood vessels, improving partial blood circulation and metabolism. Chang and Chang (2007) indicated that *Gua-Sha* can relax tight muscles, which may be the physical reason that participants felt pain relief. Stimulation of skin nerve endings stimulated self-reflex of the breasts, leading to improvement in partial circulation, reduction in pain, and also better blood circulation. These results were similar to those of the study of Lo and Liu (2008) of 172 participants with acute mastitis, which found that *Gua-Sha* therapy was highly effective in improving mastitis symptoms. Participant body temperatures were lower after the treatment, and participants felt less tenderness and pain in their breasts.

Lawrence and Lawrence (2005) stated that gentle stroking or use of a comb to stimulate the areola may help to decrease anxiety and stimulate milk flow. Nerve impulses

are transmitted to the hypothalamus, which stimulates the posterior gland to secrete oxytocin, which stimulates myoepithelial cells to contract and eject milk from the ducts. However, our study did not measure oxytocin in the blood due to financial constraints. Therefore, it is hoped that future research can examine the impact of hot packs and massage and scraping therapy on oxytocin and prolactin levels.

This study found that *Gua-Sha* therapy is easy to perform and is time efficient. *Gua-Sha* therapy reduced discomfort from unnecessary pressure or stimulation on the breasts. Our study results can help enhance therapeutic effectiveness and care quality and reduce care costs.

Conclusions

A critical review of the sample and methods used highlights two major limitations of this study. First, as the sample was conducted at one medical center only, caution should be taken in generalizing findings to all settings. Second, the study may potentially threaten construct validity (evaluation apprehension; Burns & Grove, 2005), as participants in the intervention group may answer questions in a manner geared

toward being viewed favorably by researchers. However, although we applied biophysical measures (such as temperature) and data were collected by a nurse blinded to patient group assignments to reduce the threat of evaluation apprehension, future research may better consider and account for the impact of intervention on oxytocin and prolactin levels.

The experimental group showed improvements in symptoms that were significantly better than improvements perceived by the control group. Results can help nurses handle breast engorgement problems more effectively in primary care and hence help patients both physically and psychologically. *Gua-Sha* therapy also improves mastitis, with its ability to relieve breast engorgement. Another advantage is that it can be used while letting the baby suck the breast, which helps to remove annoying factors that disrupt breastfeeding. With the removal of these factors, breastfeeding can be expected to become easier and hence improve the health of both mothers and babies. Gau (2004) considered follow-up after discharge closely related to whether breastfeeding is continued or not because most breastfeeding problems occur about 2 weeks after breastfeeding. If we continue follow-up after discharge in advanced studies, we can evaluate breastfeeding status after intervention, which will be helpful clinically.

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刮痧於乳房腫脹之成效：隨機臨床試驗

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- 背景** 產後乳房腫脹為影響早期母乳成功哺餵的重要因素之一，在臨床能獲得關於減輕脹奶的方法極為有限。
- 目的** 探討並比較傳統處理乳房腫脹與運用刮痧療法於減輕乳房腫脹症狀之成效。
- 方法** 於中部某醫學中心產後病房取樣，收案條件為：(1)自然產及剖腹產產後無任何合併症的產婦；(2)哺餵母乳且有乳房腫脹現象者。共計收案54名，以臨床隨機分派法將個案分派至實驗組及對照組，實驗組接受刮痧療法，取胃經膺窗穴、任脈膻中穴、胃經乳根穴、脾經食竇穴等四穴位，每個穴位分別輕刮7次，共計二個循環；對照組以產科標準技術進行約20分鐘的熱敷按摩。
- 結果** 兩組產婦在介入措施前，生理監測及自我評量的結果沒有統計上的差異。在介入措施後的5分鐘及30分鐘，不管是生理監測及自我評量皆有統計上顯著的差異 ($p < .001$)。進一步利用廣義估計方程式 (GEE) 來評估兩組間的差異，在症狀的改善上實驗組仍明顯的高於對照組 ($p < .0001$)。
- 結論／實務應用** 本研究結果支持刮痧為處理乳房腫脹的有效方法，臨床上運用刮痧療法可以迅速地解決因為乳房腫脹所造成的生理及心理上的不舒適。

關鍵詞：脹奶、刮痧療法、乳房護理。

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