EFFECT OF GUA-SHA THERAPY ON BREAST ENGORGEMENT AMONG POST NATAL MOTHERS IN A SELECTED HOSPITAL AT COIMBATORE

REG. NO. 30101422

A Dissertation Submitted to
The Tamilnadu Dr. M. G. R. Medical University,
Chennai-32.

In Partial Fulfillment of the Requirement for the
Award of the Degree of

MASTER OF SCIENCE IN NURSING

2012
EFFECT OF GUA-SHA THERAPY ON BREAST ENGORGEMENT AMONG POST NATAL MOTHERS IN A SELECTED HOSPITAL AT COIMBATORE

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2012
POST NATAL MOTHERS WITH BREAST ENGORGEMENT

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ACKNOWLEDGEMENT

I express my heartfelt thanks to honorable Thiru. C. Soundararaj Avl., Managing Trustee, M/S. S. N. R & Sons Charitable Trust for giving me an opportunity to utilize all the facilities in this esteemed institution.

I owe my sincere appreciation and deepest gratitude to Prof. Seethalakshmi, B. Sc (N)., R. N., R. M., M. N., M. Phil., (Ph. D)., Principal, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, for her expert guidance and support throughout the study.

My sincere thanks to Prof. R. Ramathilagam, M. Sc (N)., Vice principal College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore for enduring moral support throughout the study.

I express my deep sense of gratitude to Mrs. R. Renuka, M. Sc (N)., Professor, Department of Obstetrics and Gynecological Nursing for her expert guidance, valuable suggestions, constant encouragement and keen interest in conception, planning and execution of the study. I extend my thanks to Dr. R. Lalitha, M. B. B. S., D. G. O., Dr. Jaleel Ahammed Sri Ramakrishna Hospital for their encouragement and valuable suggestions.

I express my special and sincere thanks to Dr. G. K. Sellakumar, M. A., M. Phil., P. G. D. P. M., Ph. D., Professor and Head, Department of Psychology and Research Methodology and Mrs. R. Ramya, M. Sc., M. Phil., Associate Professor in Biostatistics for their thoughtful guidance and constant encouragement in every step.

I express my sincere thanks to Mrs. Suganthi, M. Sc. (N)., Professor, Department of Child Health Nursing for her encouragement, moral support and valuable suggestions throughout the study.

I would like to express my special thanks to Prof. Girijakumari and Mrs. Nuziba Begum, M. Sc (N) for their valuable suggestions in completing the study.
I express my deepest and sincere thanks to Mrs. Umadevi, M. Sc (N), Mrs. Jamila Kingsly, M. Sc (N), Mrs. Nithya. N, M. Sc (N), Mrs. Chitra. L, M. Sc (N), Mrs. Kavitha. V, M. Sc (N), and Mrs. Yasodha, M. Sc (N), for their moral support and valuable suggestions in completing the study.

My sincere thanks to Dr. John Andrews, Health Care consultant and reflexologist, Grace Health Care, Coimbatore who had given me training on Gua-Sha therapy.

I extend my sincere thanks to all post natal mothers who participated in the study.

I owe much to all Faculties of various Departments, Staff members, Librarian, My Classmates - The Spartans and Bubbles Net Cafe who lended their supporting hands throughout my research work.

My deepest and sincere thanks to my Husband, Parents and Family Members for their motivation, guidance and prayful support throughout my research work.

I humbly submit this work into the hands of ALMIGHTY.
Abstract

An interventional study was conducted to assess the effect of Gua-Sha therapy on breast engorgement among post natal mothers in Sri Ramakrishna Hospital Coimbatore. Quasi experimental one group pre test post test only design was used to conduct the study. A purposive sample of 18 post natal mothers with breast engorgement were included for the study. Gua-Sha therapy was applied on the engorged breast for 30 minutes unilaterally twice a day until the breast becomes soft. Modified Breast Engorgement Check List and Six-Point Engorgement Scales were used to assess the condition and associated symptoms of breast engorgement before and after the intervention. The obtained data were analyzed using paired ‘t’ test. The result shows that there is a significant relief in breast engorgement after the implementation of Gua-Sha therapy. Hence, it is concluded that Gua-Sha therapy is effective in relieving breast engorgement among post natal mothers.
Effect of Gua-Sha Therapy on Breast Engorgement among Post Natal Mothers in a selected Hospital at Coimbatore

Post natal period is a special time where the woman undergoes transition to motherhood. It begins from birth and ends when baby is at six weeks of age. According to WHO all newborn should be fed within half an hour after birth in case of Normal Vaginal Delivery and between 1 to 4 hours in case of Lower Segmental Caesarean Section.

Human breasts are modified cutaneous glandular structure which produces milk after child birth. The process of milk production is called lactation. When the nipples and areola are stimulated by the sucking of the baby, two hormones namely prolactin and oxytocin are released in to the mother’s blood stream. Prolactin which is secreted by the anterior pituitary gland sends message to the alveoli to produce milk. Oxytocin which is secreted by posterior pituitary gland send message to the alveoli to eject breast milk in to ducts. The level of oxytocin is regulated by emptying of breast. (Toronto Public Health, 2006).

Breast milk is a nutritionally adequate diet during the first year of life and is essential for healthy growth and development of the body of a newborn. Prolonged and exclusive breast feeding decreases the occurrence and severity of infectious disease during infancy. Colostrum, the first milk produced during late pregnancy and early post partum contains proteins, nutrients, antibodies, white blood cells and immunoglobulin A which prevents pathogens from invading baby’s immature body. Foremilk is the breast milk available at the beginning of breast feeding which has
higher water content and hind milk is produced towards the end of breast feeding which has higher fat content.

A Post natal mother experiences discomfort in the early days of breast feeding mainly due to breast fullness and breast engorgement. Breast fullness is a normal condition where the mother feels breast heaviness but soft when pressed with the absence of breast pain. Breast engorgement is a common problem that affects the initiation and duration of feeding. It is a physiological condition characterized by painful swelling of breast associated with the sudden increase in milk volume, lymphatic and vascular congestion and interstitial edema during the first two weeks of post natal period (Woolridge, 2006). Engorgement is usually caused by an imbalance between milk supply and new born demand. This condition inhibit successful breast feeding leading to early breast feeding cessation.

Breast Engorgement peaks between 3rd and 6th day of post partum. Lachlan found that 70% of multiparous women experiencing engorgement in current lactation had also experienced engorgement with previous babies and first time (primi) mothers often suffers from engorgement when compared to second and third time mothers.

Various methods employed to treat and prevent the problems associated with breast engorgement are

1. Kangaroo care
2. Fluid limitation
3. Binding the breast or wearing tight brassiere
4. Hot and cold compress
5. Breast massage and breast milk expression
6. Application of jasmine flower and cabbage leaves
7. Acupuncture
8. Gua-Sha therapy

Chang and Chang (2007) indicated that Gua-Sha therapy will reduce breast engorgement by relaxing tight muscles and stimulating the nerve endings of the skin causing pain relief and improvement in blood circulation.

1.1. NEED FOR THE STUDY

Breast engorgement is a common problem that affects post natal mothers during early weeks of postpartum. It is a condition where women find the breast to be heavy and tender. It mostly affects primi mothers. The reason for breast engorgement may vary.

The literature on effect of Gua-Sha therapy on breast engorgement by Chiu states that scraping five different acupoints of affected breast ST16, ST17, ST18, SP17 and CV17 for 30 minutes twice a day will relieve breast engorgement, pain and discomfort. Further studies have shown the effect of different acupoints.

Korosec (1991) states that acupressure therapy was accepted by WHO. It is mainly used to treat chronic pain. The therapy has no side effects. When used properly it is very effective and can be applied in gynecological cases to treat breast pain, dysmenorrhea and climacteric problems. Zha Zhuty (1989) states that acupressure can increase the level of pituitary prolactin and galactosis, which cause an increase in breast milk excretion.
Liang (1988) conducted a study where 32 mothers with acute mastitis were treated with acupressure over different acu points of breast like CV17, ST18 and ST17. The principles of the treatment were to relieve stasis and obstruction of mammary gland, clear up heat, promote blood flow and relieve pain. The longest course of the treatment was six days and the shortest course was a day. Out of the 32 treated cases 28 were cured, 3 cases were improved and 1 sample had no benefit.

Yuang Zhang (1984) treated 110 cases of mastitis by acupressure over different points like ST16, ST18 and CV17. The result of the study shows that out of 110 cases 31 % had complete disappearance of lumps and pain, 59 % had reduction of lumps and pain and 10 % were unchanged. The author states that acupressure had a remarkable effect on mastitis.

Engorgement peaks between 3\textsuperscript{rd} and 6\textsuperscript{th} day of postpartum. The researcher during the clinical posting witnessed several post natal mothers suffering with breast engorgement. The common interventions that are provided in the hospital settings for the relief of breast engorgement are hot or cold application and breast massage or breast milk expression which are verbalized as painful by mothers. Being a nursing student by profession and by seeing the sufferings of the mother due to engorgement pain and discomfort the researcher decided to provide an intervention to post natal mother, where the mother gets relief from breast engorgement without pain. Keeping this need in mind the researcher searched for different non pharmacological interventions for reducing breast engorgement.

With the support of the above literatures and by understanding the benefits of different acu points in relieving breast engorgement, the researcher was interested to
assess the effect of Gua-Sha therapy. By using the therapy nurses can handle breast
engorgement problems more effectively and hence can help post natal mothers both
physically and psychologically.

1.2. STATEMENT OF THE PROBLEM

EFFECT OF GUA-SHA THERAPY ON BREAST ENGORGEMENT
AMONG POST NATAL MOTHERS IN A SELECTED HOSPITAL AT
COIMBATORE

1.3. OBJECTIVES

1.3.1. To assess the degree of breast engorgement

1.3.2. To implement Gua-Sha therapy for breast engorgement

1.3.3. To assess the degree of breast engorgement after implementation of Gua-Sha
therapy

1.4. OPERATIONAL DEFINITIONS

1.4.1. Effect

Effect refers to a significant relief in breast engorgement identified in the post
test after the application of Gua-Sha therapy.

1.4.2. Gua-Sha therapy

A therapeutic technique applied in the pressure points like ST16, CV17, ST17,
SP17 and ST18 of the affected breast to relieve breast engorgement.
1.4.3. Breast Engorgement

Breast Engorgement refers to painful overfilling of breast with tenderness, heaviness and hardness experienced by post natal mothers admitted at Sri Ramakrishna Hospital, Coimbatore.

1.4.4. Post Natal Mothers

In this study post natal mothers refers to primi parous or multi parous mother with breast engorgement, who are admitted at Sri Ramakrishna Hospital, Coimbatore.

1.5. CONCEPTUAL FRAMEWORK

Conceptual framework of this study is derived from general system theory formulated by Ludwig Von Bertalanffy in 1980. It is a visual diagram by which researcher explains the specific areas of interest. This theoretical framework is used in the present study to evaluate the effect of Gua-Sha therapy on breast engorgement.

The components of the system includes

1. Input
2. Throughput
3. Output

1.5.1. Input

Input begins with establishing a therapeutic relationship with post natal mother. In this phase the nurse researcher identifies post natal mother with breast engorgement by interrogation, inspection and palpation techniques and collects necessary information based on demographic data, obstetrical data and data on assessment of baby. After collecting the baseline information from the post natal mother the condition and associated symptoms of breast engorgement are assessed.
using Modified Breast Engorgement Check List and severity of breast engorgement is using Six-Point Engorgement Scale.

1.5.2. Throughput

From the information’s obtained from Modified Breast Engorgement Check List and Six-Point Engorgement Scale, mothers with unilateral and bilateral engorgement are identified. This phase includes preparation of articles, preparation of post natal mother, conducting pre test using Modified Breast Engorgement Check List and Six-Point Engorgement Scale. After the pre test, Gua-Sha therapy is applied on the affected breast for 30 minutes in two cycles per day till the breast becomes soft. After every intervention the same scales are used to conduct post test where the condition and severity of breast engorgement are re-assessed.

1.5.3. Output

This phase includes identifying the effect of Gua-Sha therapy on breast engorgement among post natal mothers. The output is measured by comparing the significant differences obtained in the pre test and post test. When the breast engorgement gets relieved the intervention is terminated by explaining mother about the need, position, frequency and duration of breast feeding.
FIG 1.1. CONCEPTUAL FRAMEWORK BASED ON MODIFIED GENERAL SYSTEM THEORY BY LUDWIG VON BARTALANFFY (1980)

INPUT
- Identify post natal mother with breast engorgement
- Collect demographic data, obstetrical data and data on assessment of baby
- Assess the condition of breast and associated symptoms of engorgement using Modified Breast Engorgement Check List
- Assess the severity of breast engorgement using Six-Point Engorgement Scale

THROUGHPUT
- Preparation of articles
- Preparation of post natal mother
- Pre test using Modified Breast Engorgement Check List and Six – Point Engorgement Scale
- Application of Gua-Sha Therapy on the affected breast for 30 minutes in two cycles per day till breast becomes soft
- Post test using Modified Breast Engorgement Check List and Six - Point Engorgement Scale

OUTPUT
- Application of Gua-Sha Therapy helps to relieve the breast engorgement and promotes comfort to the post natal mother

Source: (Kozier & Erbs, 2001)
1.6. PROJECTED OUTCOME

Gua-sha therapy will minimize breast discomfort by improving the blood supply to the affected breast and thereby relieves breast engorgement and provides a satisfactory breast feeding experience to the post natal mother.
REVIEW OF LITERATURE

The present chapter discusses the review of literature pertinent to the study.

The literature review is discussed under the following headings:

2.1. Literature related to Effect of Gua-Sha therapy

2.2. Literature related to Breast Engorgement

2.3. Literature related to Prevention of Breast Engorgement

2.4. Literature related to the Effect of Gua-Sha therapy on Breast Engorgement

2.1. LITERATURE RELATED TO EFFECT OF GUA-SHA THERAPY

Gua-Sha comes from a Chinese word “Cao Gio” which means catch the wind. According to this concept excessive wind causes illness and by using Gua-Sha therapy the excess wind is caught thus preventing or treating illness.

According to Nelson (1996) Gua-Sha therapy is a cleansing technique used by many practitioners of traditional Chinese medicine which includes application of pressure and stimulating the skin. This technique is used to move blood stagnation which is considered to be the main cause of pain and stiffness.

A study was conducted using Laser Doppler imaging to measure micro circulation of surface tissue before and after Gua-Sha therapy by Nelson (2007). The researcher pointed that there was a four fold increase in micro circulation in the first 7.5 minutes following treatment and a significant increase in micro circulation during entire 25 minutes of the study period following treatment and there is a decrease in tenderness not only locally but also in sites distal to the treated area.
A comparative study was conducted by Bruce Bentley (2002) to determine the effect of Gua-Sha therapy and tepid sponging on fever among 60 samples aged between 18-70 years old, the samples were randomly selected into experimental and control groups. Gua-sha therapy was given to the experimental group at the points DU14, BL13 to BL22 in the bladder meridian, and tepid sponge bath was given to the control group. Body temperature was measured after the treatment in both groups. 30 minutes after the treatment there were 11 patients with obviously effect, 13 patients with general effect and 6 patients with no effect in the experimental group and the effectiveness was 80 % and in the control group 6 patients had obvious effect, 10 patients had general effect and 14 patients had no effect and the effectiveness level is 53.33 %. The study shows that Gua-Sha therapy was very effective in reducing fever.

Another study was conducted to determine the effectiveness of Gua-Sha therapy on musculoskeletal pain in Germany by Essen Miller Klinken (1996). 48 patients with chronic mechanical neck pain were assigned randomly into experimental and control group. Samples in experimental group were provided with Gua-Sha therapy while the control group with local thermal heat pad. A week after the therapy pain was assessed using visual analogue scale. Result of the study shows that neck pain in the experimental group was significantly improved than in the control group.

In 1981 a case study was conducted to determine the effect of Gua-Sha therapy on neck pain reduction by Xing Juang in North West China. Gua-Sha therapy was provided at DU20 and GB20 for a few minutes and the author concluded that the pain relieved completely and the sample never experienced such a pain there after.
Literatures suggest that Gua-Sha therapy is very effective in correcting many disorders. The benefits of Gua-Sha therapy are 1. Stimulates immune system, 2. Detoxifies immune system, 3. Promotes circulation and cell integration, 4. Regulates function of organs, 5. Removes blockage and pain, 6. Diminishes stress and fatigue, 7. Regenerate cells, 8. Rebalances emotion and promotes clarity of mind.

In Traditional Chinese Medicine 14 channels of energy known as Meridian runs through the body, these meridians passes just under the skin surface presenting acu points (Cheng & Cheng, 1999). Gua-Sha is used to release fire from the channels where blood is encouraged to flow freely through the blood vessels.

Gua-sha therapy treats a person as a whole by stimulating the immune system, eliminating toxins from the body, improves circulation, regulates organ function and relieves the pain (Chang & Chang, 2007).

2.2. LITERATURE RELATED TO BREAST ENGORGEMENT

Breast engorgement is a painful problem that leads to premature weaning. It occurs in 72 %-85 % of women. James Nelson (1953) noted that breast engorgement did not occur when infants were put to the breast immediately after the delivery.

Data on 1,50,000 women from 30 countries by Foxman (2002) established that, in each year breast feeding reduced women’s lifetime breast cancer risk by 4.3 % and in United States by 7500. Other studies show that the nursing mothers are third less likely to be depressed.
A study on breast engorgement, occurrence and medical management by Foxman (2002) among 946 breast feeding women in United States revealed that, incidence of breast engorgement was 10% - 27%. The study revealed that the risk of engorgement was higher among women who had breast fed previously.

A descriptive study to assess the knowledge, attitude, practice and problems of post natal mother regarding breast feeding among 100 post natal mothers in Chennai by Subbiah (2003) indicated that 65% of population knew how to prevent breast engorgement, 56% remarked that frequent suckling is essential to prevent breast engorgement, 76% of population knew the measures to get relief from breast engorgement, 59% opined that manual expression will relieve engorgement, 12% knew hot fomentation will relieve breast engorgement.

A study on breast feeding practices and problems related to breast feeding among 327 rural women in India by Yadav (2002) revealed that about one quarter of mothers had lactation problem. The study found that 28.4% had initial sucking problem, 8.6% had sore nipple, 8.6% had engorgement, and 9.8% had mastitis and abscess.

A descriptive study on breast feeding problems in the first six months of life in rural Karnataka by Mallikarkuna (2002) among 420 mothers showed that onset of breast feeding problem occurred in 31.7% of women during first month of life, 76.9% in the first week, 7.7% in second week, 15.4% in third week, insufficient milk was reported by 53.6% while 23.1% had problems like sore nipple, mastitis and engorgement.
A descriptive study on prevention and management of post natal breast complication by Ganguli, Dhavan, Mukherji, Dayal and Pandey (2001) among 600 post natal mothers at Allahabad showed that 20% of mothers were found to have breast complication. Breast engorgement 43.3% was the most common complication followed by cracked nipple 17.8%, retracted nipple 10%, cracked and sore nipple 8.33%, cracked and retracted nipple 7.5%, failing lactation 7.5% and breast abscess 3.33%. The study found that rural mothers had false belief regarding the goodness of colostrum and started feeding on the third or fourth day.

The information from infant survey in North Ireland shows that the prevalence of breast feeding at birth is 63%, six weeks is 32%, six months is 14% and the number of women who may develop mastitis each year ranges from 700-1600.

Evans et al., (1995) observed that many mothers find it easier to attach their infant to the breast on one side than on the other and it was suggested that poor attachment leading to milk stasis and engorgement might be more likely to occur on the side that was more difficult to fed. Several studies showing the frequency of breast engorgement in left or right breast shows that no significant difference was observed. 37% - 52% of case involves engorgement in the right breast and 38% - 52% of case involves engorgement in the left breast and 3% - 12% of cases involve bilateral engorgement.

Inch and Fisher (1996) noticed that women’s preferred side for holding their baby was not necessarily related to their hardness. They recorded both dominant hand and preferred side for holding the baby for every woman who developed breast engorgement. No relationship was found between the dominant hand and the side
affected but in 78 % of cases engorgement occurred in the opposite side to the preferred side.

2.3. LITERATURE RELATED TO PREVENTION OF BREAST ENGORGEMENT

A study was conducted by Ingelman-Sundberg (1953) to determine the effect of subcutaneous oxytocin versus placebo in treatment of breast engorgement among 45 women. The participants of the study were randomly selected and they received either oxytocin or placebo. The main outcome of the study was duration of treatment, overall seven out of 45 women still had the symptoms of breast engorgement three days after starting the treatment. The study concluded that majority of the women in the treatment group had decreased signs and symptoms when compared with the control group.

A study conducted by Murata (1965) to compare the effect of protease complex a plant enzyme versus placebo in 59 women complaining painful and tender breast on the 3rd and 5th day after delivery. The outcome measure includes improvement in pain and swelling and when the symptoms were assessed in the post test women in the experimental group received overall improvement in their symptoms.

A non blinded study was conducted by Robson (1990) to identify the effect of cold packs for breast engorgement with 88 women who had caesarean delivery and who developed symptoms of breast engorgement. The samples were randomly selected to experimental and control group, the control group received routine care and the experimental group received cold packs. The result of the study shows that
women in experimental group experienced reduction in pain intensity and the author reported a decrease in mean pain intensity score from 1.84 to 1.23 compared with control group from 1.80 to 1.79. The study concluded that application of cold pack was effective in treatment of breast engorgement.

A comparative study was conducted by Roberts (1995) to determine the effect of chilled cabbage leaves and chilled gel packs in reducing breast engorgement in post partum women. 34 lactating women with breast engorgement used chilled cabbage leaves on one breast and chilled gel packs on another for up to 8 hours. The pain level were compared before and after for both treatment. The study concluded that both treatments were equally effective in reducing pain and breast engorgement and 68% obtained relief in two hours.

A study was conducted to assess the effect of hand expression and manual pump on breast engorgement by Boo (2001) identified that hand expression and manual pump had the incidence of contamination in one sample of post natal mother thus the study stopped early due to high levels of contamination and infant illness and all expressed milk thereafter pasteurized before infant use until the mother could produce milk free of contamination.

In a study by Katharyn Roberts (2007) effectiveness of cabbage leaf extract was compared with placebo in treating breast engorgement in lactating women. In the study 21 participants received cream containing cabbage leaf extract and 18 received placebo cream. The study concluded that two groups received equal relief in breast engorgement. Mothers perceived both creams to be equally effective.
A study was conducted by Ruba (2008) to determine the effectiveness of cabbage leaves application to relieve breast engorgement at various Maternity Centres, Coimbatore. 24 post natal mothers with breast engorgement were taken as samples. Breast engorgement was assessed using check list and six point engorgement scale. The collected data were analyzed using paired ‘t’ test. The analysis based on six point engorgement scale documented that the mean score before application of cabbage leaves 4.067 was greater than mean score after application of cabbage leaves 1.2 with average mean difference 2.87. The calculated ‘t’ value 31.55 was found to be greater than ‘t’ table value 1.71. The study concluded that cabbage leaves application was effective in relieving breast engorgement.

A study was conducted by Smrithi Arora (2008) to compare effectiveness of cabbage leaves versus hot and cold compress in treatment of breast engorgement among 60 postnatal mothers. The control group was administered alternate hot and cold compress to the engorged breast and the mothers in the experimental group received cold cabbage leaves. Cabbage leaves were placed inside women’s brassiere for 30 minutes, both treatments were performed three times a day and the engorgement was measured using Six Point Engorgement Scale. Result shows that both treatments were equally effective in treating breast engorgement and pain in post natal mothers. Hot and cold compress were found to be more effective in reducing pain due to engorgement.

A study was conducted by Health and Nutrition (2008) to identify the efficacy of Whillestone Breast Expresser in treatment of breast engorgement. For the study 20 women were selected as samples. 45% of mother had flattened nipple before using the
expresser. The average milk ejection time was 1.3 minute with one person taking ten minutes. The difference in engorgement before and after the intervention was obtained. All the participants stated that they had release of pain and swelling after using Whillestone Breast Expresser, many women stated that they received further relief after the baby had nursed and all infants were able to latch on breast after using Whillestone Breast Expresser, 18 women stated that the expresser felt gentle and soothing.

2.4. LITERATURE RELATED TO THE EFFECT OF GUA-SHA THERAPY ON BREAST ENGORGEMENT

According to Chang & Chang (2007) Gua-Sha therapy is a traditional non-pharmacological management used in treatment of breast engorgement. It is time efficient and easier to perform. Gua-sha can relax tight muscles which is being the physical reason that the participants felt pain relief. The principle behind Gua-Sha therapy is that the therapy can stimulate skin nerve endings causing stimulation of self-reflex of breast leading to improvement in partial circulation, reduction in pain and also better blood circulation.

A study was conducted to identify the effect of Gua-Sha therapy on breast engorgement by Chiu (2010) at Taiwan. The study was conducted among 54 postpartum women, the samples were assigned randomly into experimental and control group. The experimental group received Gua-Sha therapy and the control group were provided hot packs and massage. Before the intervention, the severity of breast engorgement was assessed using breast engorgement scale and visual analogue scale. The Gua-Sha points used were ST16, ST17, ST18, SP17 and CV17.
ST16 (stomach meridian) acu point is located 4 cun lateral to the mid line in the 3rd intercostal space (1cun=1inch).

ST17 (stomach meridian) acu point is located 4 cun lateral to the midline in the 4th intercostal space, in the centre of the nipple.

SP17 (spleen meridian) acu point is located 6 cun lateral to the anterior mid line in the 5th intercostal space.

ST18 (stomach meridian) acu point is located 4 cun lateral to the midline in the 5th intercostal space.

CV17 (conception vessel) the point is located in the midline level with the 4th intercostal space of sternum in between the two nipples.

The intervention time was selected before feeding when the nipple is hard and distended. The breast engorgement was re-evaluated at 5 and 30 minutes following the intervention. Hot packs and massage is administered to the control group and the massage was done using index finger and thumb finger in spiral motion towards nipple. The result of the study shows that there is a significant improvement in body temperature, breast engorgement, pain and discomfort five minutes following the intervention when compared to the control group. The result suggested that Gua-Sha therapy can improve body temperature, breast temperature, breast engorgement pain and discomfort at both 5 minute and 30 minute following the intervention and the study concluded that Gua-Sha therapy was superior to conventional heat therapy.

An article on acupressure points in nursing described about different acu points. ST16 the breast window helped to relieve breast pain, lactation problem, insomnia and chest congestion. ST17 the heavenly point helped to reduce breast and
chest pain and helped in ejection of breast milk during lactation. The stimulation of
the acu point CV17 sea of transquality helps to relieve neck stiffness, chest congestion
and emotional imbalance.

An article on breast feeding: a guide for medical profession by Lawrence and
Lawrence (2008) stated that gentle stroking stimulated areola helped to decrease
anxiety and stimulate milk flow. The principle behind relief of breast engorgement
was by stimulating the five different acu points over the breast, the nerve impulses are
transmitted to hypothalamus which stimulates the posterior pituitary gland to secrete
oxytocin which causes the myo epithelial cells to contract and eject milk from the
ducts.

A study of Lo and Liu (2008) shows that Gua-Sha therapy was highly
effective to improve mastitis symptoms. In the study, participants body temperature
were lowered and they felt less tenderness and pain over breast. Literature shows that
Gua-Sha therapy can be used as an effective management of breast engorgement. By
using the therapy nurses can handle breast engorgement problems more effectively
and hence can help post natal mothers both physically and psychologically.

A study was conducted to identify the effect of Gua-Sha therapy to help
parturient women with breast fullness by Chiu et al., (2008). The study explained the
experience of nurses who applied Gua-Sha on a parturient mother. The caring period
starts from the second day post partum till discharge. The activities in the study
included supporting and reinforcing the mother’s confidence to encourage continued
breast feeding, making sure that the baby sucked in good position, applying Gua-Sha
to help breast milk expression and to reduce breast fullness and discomfort, regular
follow up on breast feeding and breast fullness condition. The result from the study concluded that the mother was able to continue breast feeding and eventually take care of herself, thus achieving satisfactory breast feeding experience.
METHODOLOGY

The present chapter describes the research methodology adopted to assess the effect of Gua-Sha therapy on breast engorgement among postnatal mothers at Sri Ramakrishna Hospital, Coimbatore. The following paragraphs enumerates the research approach, research design, research setting, population, sample and sampling technique, description of tools, interventional procedure, hypothesis formulated, method of data collection and statistical tools used for data analysis.

3.1. RESEARCH APPROACH

The present study aimed at application of Gua-Sha therapy among postnatal mothers to determine its effect on breast engorgement. Hence, quantitative research approach was used for the study.

3.2. RESEARCH DESIGN

The research design adopted for this study was Quasi Experimental One Group Pre test Post test only Design. This design was found to be appropriate to identify the effect of Gua-Sha therapy on breast engorgement among postnatal mothers.

3.3. RESEARCH SETTING

The study was conducted at Maternity Ward, Special Ward and Deluxe Ward of Sri Ramakrishna Hospital Coimbatore. The hospital’s bed strength is 640. In Maternity unit, the postnatal ward consists of nine beds and the post operative ward consists of thirteen beds. Postnatal mothers with breast engorgement after the
Normal Vaginal Delivery and Lower Segmental Caesarean section were taken as samples from Maternity Ward, Special Wards and Deluxe Wards.

3.4. POPULATION

Post natal mothers with breast engorgement admitted at Sri Ramakrishna Hospital, Coimbatore were considered as accessible population.

3.5. CRITERIA FOR SAMPLE SELECTION

3.5.1. Inclusion criteria:

1. Post natal mothers with breast engorgement
2. Willingness to participate in study

3.5.2. Exclusion criteria:

1. Mothers receiving lactation suppressants
2. Mothers with infection in the breast like broken skin of breast and bleeding or cracked nipples

3.6. SAMPLING

Purposive sample of 18 post natal mothers with breast engorgement were included for the study. The samples were identified by interrogation, inspection and palpation techniques. After selecting the sample the condition and associated symptoms of breast engorgement was assessed using Modified Breast Engorgement Check List and severity of engorgement using Six-Point Engorgement Scale. After the initial assessment intervention was provided and the condition, associated symptoms and severity of breast engorgement were re-assessed using Modified Breast Engorgement Check List and Six-Point Engorgement Scale.
3.7. VARIABLES UNDER THE STUDY

3.7.1. Independent variable

The independent variable of the study was application of Gua-Sha therapy. Hence the researchers deliberately apply Gua-Sha therapy to maximize the experimental variable.

3.7.2. Dependent variable

Dependent variable of the present study was breast engorgement.

3.8. TOOLS FOR THE STUDY

PART A

3.8.1. Demographic data: The baseline data profile comprised of age, education and occupation of postnatal mother with breast engorgement.

3.8.2. Obstetrical data: The obstetrical data profile comprised of information’s regarding obstetrical score, type of delivery, mode of delivery and postnatal day.

3.8.3. Assessment of baby: The profile comprised of informations regarding gestational age, sex, birth weight, APGAR score, details of congenital anomaly, time of feeding started after delivery, duration and frequency of feeding.

PART B

3.8.4. Modified Breast Engorgement Check List: The Modified Breast Engorgement Check List consists of six question statement related to condition of breast and their associated symptoms, inspection and palpation by the researcher. The criteria’s under the appearance of breast include enlarged breast, redness of skin, bluish discoloration of skin, shining of skin and presence of visible veins.
The criteria’s under the appearance of nipple include flat nipple, retracted nipple, cracked or broken nipple. Presence of itching, feeling of fullness, nipple pain during sucking, pain existing between the feeds and pain extending to axilla are the informations included under the criteria pain and discomfort. Palpation includes warm to touch, presence of hardness, palpable lumps, tenderness and axillary lymph node enlargement. General symptoms include increased body temperature, headache, generalized malaise and fatigue and the general information included the use of brassier and mother’s interest to feed (Ruba, 2008).

PART C

3.8.5. Six-Point Engorgement Scale: The scale was formulated by Hill and Humenick (Pamela Hill and Sharron Humenick) in the year 1994. This standardized scale was used to assess the severity of breast engorgement. The scale consists of scoring ranges from 1 to 6. Score 1 indicates soft and no change in the breast, score 2 indicates slight change in the breast, score 3 indicates firm non tender breast, score 4 indicates firm beginning tenderness in the breast, score 5 indicates that the breast is firm and tender and score 6 indicates that the breast is very firm and very tender. Score 1 indicates the breast is normal, Score 2 and 3 indicates that the breast has mild engorgement, Score 4 and 5 indicates that the breast is moderately engorged and Score 6 indicates that the breast is severely engorged.

3.9. ADMINISTRATION OF TOOL

The samples for the study were post natal mothers with breast engorgement. To identify the samples with breast engorgement the researcher used interrogation, inspection and palpation techniques. Gua-Sha therapy is applied from the second day
postpartum till the breast becomes soft. The intervention was applied for 30 minutes in unilateral breast. For assessing mothers with breast engorgement, Modified Breast Engorgement Check List as well as Six-Point Engorgement Scale was used. The Modified Breast Engorgement Check List was derived to identify the conditions and associated symptoms of breast engorgement. By using the Check List mothers with signs and symptoms of unilateral and bilateral engorgement were assessed. The mothers with symptoms of breast engorgement on left or right side (unilateral) was awarded a score of 1 and those with the symptoms of breast engorgement on left and right side (bilateral) was awarded a score of 2.

The Six-Point Engorgement scale which was developed by Hill and Humenick was used to assess the degree of breast engorgement. The maximum score given was 6 which indicate that the mother has severe breast engorgement and the minimum score given was 1 which indicates mother’s breast is soft and normal. Before and after the intervention engorgement was re-assessed using Modified Breast Engorgement Check List and Six-Point Engorgement Scale.

3.10. VALIDITY OF TOOL

Six-Point Engorgement Scale was developed by Hill and Humenick in the year 1994. The content validity index of the scale was 0.90 and yield high predictive validity.

3.11. INTERVENTIONAL PROCEDURE

3.11.1. Pre requisites

1. Gua-Sha Therapy should not be taken immediately after meals.

2. One should not perform Gua-Sha therapy within half an hour after bathing.
3. Under condition such as fatigue and rapid heartbeat the therapy should postponed until one regains normal condition.

3.11.2. Articles

A tray containing
1. Bowl
2. Gauze piece
3. Towel
4. Kidney tray

3.11.3. Pre procedure

1. Select an appropriate place
2. Explain the procedure to the mother
3. Provide privacy

3.11.4. Procedure

Step 1: Wash hands
Step 2: Advise mother to lie down in the bed
Step 3: Expose the engorged breast
Step 4: Assess the condition of breast using the Modified Breast Engorgement Check List
Step 5: Assess the degree of engorgement using Six-Point Engorgement Scale
Step 6: Select scrapping points – ST16, ST17, ST18, SP17, CV17
Step 7: Scrap each point for 2 minutes for 3 times = 30 minutes for one cycle
Step 8: Scrap the following points
ST16 - 2 minutes x 3 times
ST17 - 2 minutes x 3 times
ST18 - 2 minutes x 3 times
SP17 - 2 minutes x 3 times
CV17 - 2 minutes x 3 times

Step 9: Perform the procedure twice a day until the breast becomes soft.

3.11.5. Post procedure

1. Wash hands
2. Assess breast for any changes
3. Assess the condition of breast using Breast Engorgement Check List and severity using Six-Point Engorgement Scale
4. Record procedure with date, time and observation
5. Advice mother to feed the baby
3.12. HYPOTHESIS

There will be a significant relief in breast engorgement after Gua-Sha therapy.

3.13. PILOT STUDY

The study was conducted at Sri Ramakrishna Hospital Coimbatore. Data was collected for 10 days. A purposive sample of 5 post natal mothers with breast engorgement were selected for the study.

Sample 1

Sample 1 had breast engorgement in the right breast (unilateral engorgement). Before the intervention according to the Modified Breast Engorgement Check List the sample obtained a pre test score of 10 out of the total score 18, and the mother had moderate engorgement according to Six-Point Engorgement scale. After a day of intervention on the right breast, mother obtained a post test score of 1 according to Modified Breast Engorgement Check List and the severity of breast engorgement reduced to normal as per Six-Point Engorgement Scale. Hence, the researcher terminated the intervention.

Sample II

Sample II had engorgement in the right and left breast (bilateral engorgement). Before the intervention according to Modified Breast Engorgement Check List the sample obtained a pre test score of 13 out of the total score 36 and the sample had severe breast engorgement as per the Six-Point Engorgement Scale. After two days of intervention the sample obtained a post test score of 0 out of the total score 36 according to the Modified Breast Engorgement Check List and the severity of breast
engorgement reduced to normal as per Six-Point Engorgement Scale. Hence the researcher terminated the intervention.

Sample III

Sample III had engorgement in the right and left breast (bilateral engorgement). The sample obtained a pre test score of 15 out of the total score 36, and the mother had moderate breast engorgement. After two days of intervention the sample obtained a post test score of 0 out of the total score 36 and the breast became soft and normal. Hence the researcher terminated the intervention.

Sample IV

Sample IV had engorgement in the right and left breast (bilateral engorgement). The sample obtained a pre test score of 18 out of the total score 36 and the sample had severe breast engorgement. After three days of intervention sample obtained a post test Score of 0 out of the total score of 36 and the breast became soft and normal. Hence the researcher terminated the intervention.

Sample V

Sample V had engorgement in the right and left breast (bilateral engorgement). The sample obtained a pre test score of 10 out of the total score 36 and the sample had moderate breast engorgement. After two days of intervention the sample obtained a post test score of 0 out of total score of 36 and the breast became soft and normal. Hence the researcher terminated the intervention.
3.14. MAIN STUDY

The main study was conducted to meet the objectives of the present study. The data was collected for a period of 30 days from June 2011 to July 2011 at Sri Ramakrishna Hospital Coimbatore. Purposive sampling of 18 post natal mothers with breast engorgement were selected as samples for the study. Prior to the intervention the condition and associated symptoms of breast engorgement was assessed using Modified Breast Engorgement Check List and the severity of breast engorgement using Six-Point Engorgement Scale. After the initial assessment the intervention was administered on the engorged breast for 30 minutes unilaterally. The procedure was repeated twice a day, four hours apart and was continued till the breast becomes soft. The effectiveness of the therapy was determined by comparing the pre test score of first intervention and the post test score of last intervention.

3.15. TECHNIQUES OF DATA ANALYSIS AND INTERPRETATION

Collected data was analyzed using mean percentage and paired ‘t’ test, to assess the effect of Gua-Sha therapy on breast engorgement among post natal mothers.
DATA ANALYSIS AND INTERPRETATION

The present chapter describes the method of data analysis and interpretation. The participants of the study were post natal mothers with breast engorgement. Totally eighteen mothers were preferred for the study. The breast engorgement was assessed using Modified Breast Engorgement Check List and Six-Point Engorgement Scale. The intervention selected for the study was Gua-Sha therapy. The therapy facilitates alleviate breast engorgement.

The collected data were grouped and analyzed using descriptive and inferential statistical methods.

SECTION I

4.1. BASELINE DATA PRESENTATION

The socio demographic characteristics and obstetrical data were collected to analyze their influence on relief of breast engorgement. Assessment on baby was also done to contrast the influencing factors for breast engorgement.
TABLE 4.1
DISTRIBUTION OF DEMOGRAPHIC VARIABLES AMONG POST NATAL MOTHERS

(N=18)

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Number of Mothers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (in years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 – 25</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>26 – 30</td>
<td>8</td>
<td>44</td>
</tr>
<tr>
<td>31 – 35</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td><strong>Educational Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Secondary</td>
<td>11</td>
<td>61</td>
</tr>
<tr>
<td>Degree</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Master Degree</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Occupational Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House wife</td>
<td>16</td>
<td>88</td>
</tr>
<tr>
<td>Coolie</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Teacher</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

The table 4.1 demonstrates the distribution of demographic variables like age, educational status and occupational status among post natal mothers. About 44 % of post natal mothers belong to the age group of 26-30 years, about 39 % of mothers were between 20-25 years of age and 17 % were between 31-35 years of age. Information of educational status of post natal mothers reveals that, about 61 % of
post natal mothers had secondary education, 17% of mothers possess primary education and degree respectively and 6% of mothers possess master degree. The table as well showed the depiction of occupational status of post natal mothers. About 88% of post natal mothers were housewife, 6% of mothers were teacher and coolie workers correspondingly.

**FIG. 4.1**

**AGE DISTRIBUTION OF POST NATAL MOTHERS**
FIG. 4.2
DISTRIBUTION OF EDUCATIONAL STATUS AMONG POST NATAL MOTHERS

FIG. 4.3
DISTRIBUTION OF OCCUPATION AMONG POST NATAL MOTHERS
### TABLE 4.2
DISTRIBUTION OF OBSTETRICAL VARIABLES AMONG POST NATAL MOTHERS

(N=18)

<table>
<thead>
<tr>
<th>Obstetrical Variables</th>
<th>Number of Mothers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gravida Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primi gravida</td>
<td>14</td>
<td>78</td>
</tr>
<tr>
<td>Multi gravida</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td><strong>Type of Delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Vaginal Delivery with Episiotomy</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Assisted Vaginal Delivery</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Lower Segmental Caesarean Section</td>
<td>10</td>
<td>55</td>
</tr>
<tr>
<td><strong>Mode of Delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term</td>
<td>11</td>
<td>61</td>
</tr>
<tr>
<td>Pre term</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td><strong>Post Natal Day</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>13</td>
<td>72</td>
</tr>
<tr>
<td>4-6</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>7-9</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Gestational Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34-36 weeks</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>37-39 weeks</td>
<td>15</td>
<td>83</td>
</tr>
</tbody>
</table>
The table 4.2 interpretates the distribution of obstetrical variables among postnatal mothers. The majority 78% of mothers were primi gravida and 22% of mothers were multi gravida. The table gives a picture of types of delivery of postnatal mothers. About 55% of mothers underwent Lower Segmental Caesarean Section, 39% of them had Normal Vaginal Delivery With Episiotomy and 6% of them underwent Assisted Vaginal Delivery. The table projects that, the majority of mothers 61% were delivered at term and 39% of mothers had pre term delivery.

The table illustrates the picture of execution of intervention to postnatal mothers. About 72% of mothers were implemented with Gua-Sha therapy in the first three postnatal days, whereas about 22% were treated on fourth to sixth postnatal day and about 6% of mothers were treated on seventh to tenth postnatal day. The table projects the information of gestational age of postnatal mothers. The majority of mothers 83% delivered between 37-39 weeks of gestation about 17% of mothers delivered between 34-36 weeks of gestation.
FIG. 4.4
DISTRIBUTION OF GRAVIDA STATUS AMONG POST NATAL MOTHERS

FIG. 4.5
DISTRIBUTION OF TYPE OF DELIVERY AMONG POST NATAL MOTHERS
FIG. 4.6
DISTRIBUTION OF MODE OF DELIVERY AMONG POST NATAL MOTHERS

FIG. 4.7
DISTRIBUTION OF POST NATAL DAY AMONG POST NATAL MOTHERS
FIG. 4.8
DISTRIBUTION OF GESTATIONAL AGE AMONG POST NATAL MOTHERS

Gestational Age (in weeks)

No. of Mothers (%)
TABLE 4.3
DISTRIBUTION OF OBSTETRICAL VARIABLES AMONG POST NATAL MOTHERS IN RELATION TO NEONATES

(N=18)

<table>
<thead>
<tr>
<th>Obstetrical Variables</th>
<th>Number of Neonates</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender of Neonates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>44</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>56</td>
</tr>
<tr>
<td><strong>APGAR Score</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-7</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>8-9</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td><strong>Birth Weight (in Kg)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1.99</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>2-2.99</td>
<td>8</td>
<td>44</td>
</tr>
<tr>
<td>3-3.99</td>
<td>7</td>
<td>39</td>
</tr>
</tbody>
</table>

The table 4.3 expresses the gender distribution of neonates of post natal mothers. The majority of mothers 56 % were delivered female baby and 44 % of mothers delivered male baby. The table projects the APGAR score of newborns. About 83 % of neonate’s APGAR score was 8-9 out of 10, 17 % of neonates belong to the score of 6-7 out of the total score 10. The table portrays the representation of birth weight of neonates. About 44 % of neonate’s birth weight was between 2-2.99 kg, 39 % of them weighed between 3-3.99 kg and 17 % of neonates weighed between 1-1.99 kg.
FIG. 4.9
DISTRIBUTION OF GENDER AMONG NEONATES OF POST NATAL MOTHERS

FIG. 4.10
DISTRIBUTION OF APGAR SCORE AMONG NEONATES OF POST NATAL MOTHERS
FIG. 4.11
DISTRIBUTION OF BIRTH WEIGHT AMONG NEONATES OF POST NATAL MOTHERS

Birth Weight (in Kg)

No. of Mothers (%)
SECTION –II

4.2 ASSESSMENT OF BREAST ENGORGEMENT USING MODIFIED
BREAST ENGORGEMENT CHECK LIST AND SIX-POINT
ENGORGEMENT SCALE

This section includes comparison of condition and degree of breast engorgement prior and following Gua-Sha therapy using Modified Breast Engorgement Check List and Six-Point Engorgement Scale.

TABLE 4.4
DISTRIBUTION OF CONDITION OF BREAST AMONG POST NATAL MOTHERS DURING THE PRE TEST AND POST TEST USING MODIFIED BREAST ENGORGEMENT CHECK LIST

(N=18)

<table>
<thead>
<tr>
<th>Condition of Breast</th>
<th>Pre test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Mothers</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Appearance of Breast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enlarged breast</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td>Redness of skin</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Bluish discolouration</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Shining of skin</td>
<td>6</td>
<td>33</td>
</tr>
<tr>
<td>Presence of visible veins</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td>Appearance of Nipple</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat nipple</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Retracted nipple</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cracked or broken nipple</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Condition of Breast</td>
<td>Pre test</td>
<td>Post test</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>Number of Mothers</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td><strong>Pain and Discomfort</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of itching</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Feeling of fullness</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Nipple pain during Sucking</td>
<td>10</td>
<td>56</td>
</tr>
<tr>
<td>Pain persisting between Feeds</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Pain extending to Axilla</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Palpation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warm to touch</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Presence of hardness</td>
<td>15</td>
<td>83</td>
</tr>
<tr>
<td>Palpable lumps</td>
<td>8</td>
<td>44</td>
</tr>
<tr>
<td>Tenderness</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Axillary lymph node enlargement</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>General Symptoms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased body temperature</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Headache</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Generalized malaise</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Fatigue</td>
<td>4</td>
<td>22</td>
</tr>
</tbody>
</table>
The table 4.4 demonstrates the condition of breast among post natal mothers identified in the pre test and post test using Modified Breast Engorgement Check List. Data projecting the appearance of breast among post natal mothers in the pre test reveals that majority of the mothers 83 % had enlarged breast and presence of visible veins respectively, 33 % had shining of skin, 6 % of mothers had redness of skin and none of the mothers had bluish discolouration.

The information obtained during the post test of post natal mothers under the criteria appearance of breast portraits that none of the post natal mothers had enlarged breast, presence of visible vein, redness of skin, shining of skin and bluish discolouration.

The table also interprets the appearance of nipple among post natal mothers in the pre test revealed that about 11 % of post natal mothers had flat nipple and none of the post natal mothers had retracted, cracked or broken nipple. In the post test the percentage of post natal mothers with flat nipple remain unchanged.

The table illustrates the picture of pain and discomfort experienced by the post natal mothers in the pre test. Majority of mothers 100 % had feeling of fullness, 56 % had nipple pain during sucking, 39 % had pain persisting between feeds and 6 % had pain extending to axilla, whereas in the post test about 6 % of the mothers had nipple pain during sucking, and none of the mothers experienced discomforts like pain persisting between feeds, feeling of fullness, presence of itching and pain extending to axilla.
The table as well shows the picture of the information’s obtained by the researcher during palpation of the breast. It revealed that about 100 % of mothers breast were warm while touching, 83 % had presence of hardness, 44 % had palpable lumps, 39 % had tenderness and none of the mothers had axillary lymph node enlargement. The information from the post test reveals that neither the researcher nor the post natal mothers experienced warmth, hardness, palpable lumps, tenderness and axillary lymph node enlargement.

The table illustrates the picture of general symptoms experienced by the post natal mothers during the pre test and post test using Breast Engorgement Check List. About 22 % of post natal mothers had generalized malaise and fatigue respectively, none of the mothers experienced symptoms like increased body temperature and head ache in the pre test. In post test 11 % of mothers had fatigue and none of the mothers had symptoms like generalized malaise, increased body temperature and headache.
FIG. 4.12
DISTRIBUTION OF APPEARANCE OF BREAST AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST

FIG. 4.13
DISTRIBUTION OF PAIN AND DISCOMFORT AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST
FIG. 4.14
DISTRIBUTION OF PALPABLE SYMPTOMS ON AFFECTED BREAST AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST

FIG. 4.15
DISTRIBUTION OF GENERAL SYMPTOMS AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST
The table 4.5 representing general information of postnatal mothers describes that 88% of postnatal mothers were using tight brassier and 6% of mothers either not using or using loose brassier. The table depicts that majority of the postnatal mothers 94% were interested to feed their baby, whereas the minorities 6% were not interested to feed their baby.
FIG. 4.16
DISTRIBUTION OF GENERAL INFORMATION AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST

a. Use of Brassiere

b. Mothers Interest to Feed
The table 4.6 shows the distribution of breast engorgement among post natal mothers based on the side of engorgement in the pre test revealed that about 72% of mothers had engorgement in the right breast (unilateral engorgement), 17% had engorgement in the left breast (unilateral engorgement) and about 11% of mothers had engorgement in the right and left breast (bilateral engorgement) whereas in the post test breast engorgement of all the post natal mothers got relieved.
FIG. 4.17
DISTRIBUTION OF BREAST ENGORGEMENT AMONG POST NATAL MOTHERS BASED ON THE SIDE OF ENGORGEMENT

- Left breast: 72%
- Right breast: 11%
- Left and right breast: 17%
<table>
<thead>
<tr>
<th>Severity of Breast Engorgement</th>
<th>Pre test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Mothers</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Normal</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mild Engorgement</td>
<td>10</td>
<td>56</td>
</tr>
<tr>
<td>Moderate Engorgement</td>
<td>8</td>
<td>44</td>
</tr>
<tr>
<td>Severe Engorgement</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The table 4.7 shows the picture of the severity of breast engorgement among postnatal mothers before and following the intervention using Six-Point Engorgement Scale. It documents that 56% of mothers had mild engorgement and 44% of mothers had moderate engorgement prior to the intervention whereas the breast of postnatal mothers became normal in the post test.
FIG. 4.18
DISTRIBUTION OF SEVERITY OF BREAST ENGORGEMENT AMONG POST NATAAL MOTHERS IN THE PRE TEST AND POST TEST USING SIX POINT ENGORGEMENT SCALE
ANALYSIS OF BREAST ENGORGEMENT USING MODIFIED BREAST ENGORGEMENT CHECK LIST AND SIX-POINT ENGORGEMENT SCALE

‘t’ test is a statistical hypothesis test used in the present study to compare the mean score of post natal mothers prior and following the intervention and to test the effectiveness of Gua-Sha therapy on breast engorgement.

TABLE 4.8
ANALYSIS OF THE CONDITION AND ASSOCIATED SYMPTOMS OF BREAST ENGORGEMENT USING MODIFIED BREAST ENGORGEMENT CHECK LIST

(N = 18)

<table>
<thead>
<tr>
<th>Breast Engorgement Check List</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Mean percentage</th>
<th>Mean difference</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td>7.16</td>
<td>1.72</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test</td>
<td>0.3</td>
<td>0.64</td>
<td>2</td>
<td>18.14</td>
<td>8.485*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 Level

The above table confirms that the mean score of post natal mothers during pre test using Modified Breast Engorgement Check List was 20% and it was decreased to 2% in the post test. Standard deviation in the pre test was 1.72 and in the post test was 0.64. This proves that, the intervention has shown a positive difference in relief of breast engorgement among post natal mothers.

‘t’ test was used to test the mean significance. The calculated ‘t’ value 8.485 was compared with the table value 2.110 at 17 degrees of freedom with 0.05 level of significance. The calculated value was higher than the table value. Hence, hypothesis “There will be a significant relief in breast engorgement after Gua-Sha Therapy”
is accepted. Thus the mean value reveals that Gua-Sha therapy was effective to alleviate breast engorgement of post natal mothers.

**FIG. 4.19**
MEAN PERCENTAGE SCORE OF BREAST ENGORGEMENT BEFORE AND AFTER THE INTERVENTION USING MODIFIED BREAST ENGORGEMENT CHECK LIST
TABLE 4.9
ANALYSIS OF THE DEGREE OF BREAST ENGORGEMENT USING SIX
POINT ENGORGEMENT SCALE

(N = 18)

<table>
<thead>
<tr>
<th>Six-Point Engorgement Scale</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Mean percentage</th>
<th>Mean difference</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td>3.4</td>
<td>0.66</td>
<td>57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post test</td>
<td>1</td>
<td>0</td>
<td>17</td>
<td>39.6</td>
<td>19.86*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 Level

The above table explains the mean score of post natal mothers during the pre test and post test of breast engorgement by using Six-Point Engorgement Scale. The pre test score of breast engorgement of post natal mothers was 57 % reduced to 17 % on post test. Standard deviation in the pre test score was 0.66 reduced to 0 on post test. This proves that, the intervention has positive difference in breast engorgement of post natal mothers.

‘t’ test was used to test the mean significance. The calculated ‘t’ value 19.86 was compared with the table value 2.110 at 17 degrees of freedom with 0.05 level of significance. The calculated value was much higher than the table value. Hence, hypothesis “There will be a significant relief in breast engorgement after Gua-Sha therapy” is accepted. Thus, the mean value reveals that Gua-Sha therapy was effective to relieve breast engorgement among post natal mothers.
FIG. 4.20
MEAN PERCENTAGE SCORE OF BREAST ENGORGEMENT BEFORE AND AFTER THE INTERVENTION USING SIX-POINT ENGORGEMENT SCALE
SECTION - III
4.3. KARL PEARSON’S CO-EFFICIENT OF CORRELATION

Correlation is the measure of relationship between two or more variables. Karl Pearson’s co-efficient of correlation was used in the present study to identify the influence of gestational age on breast engorgement.

TABLE 4.10
INFLUENCE OF DEMOGRAPHIC VARIABLE ON BREAST ENGORGEMENT

(N=18)

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>‘r’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational age</td>
<td>0.95</td>
</tr>
</tbody>
</table>

The above result represents that there exists a positive correlation between gestational age on breast engorgement. Hence, it depicts that the duration of relief of breast engorgement is influenced by the gestational age of post natal mother.
RESULTS AND DISCUSSION

The present chapter deals with the interpretation of results and discussion of findings. The study was conducted at Sri Ramakrishna Hospital, Coimbatore. The study was intended to assess the effect of Gua-Sha therapy on breast engorgement among post natal mothers.

18 post natal mothers who experienced breast engorgement were taken as samples irrespective of their type of delivery, gravida status and gestational age. The findings were discussed under the following headings 5.1. Demographic data, 5.2. Obstetrical data, 5.3. Findings related to the conditions of breast in the pre test and post test using Modified Breast Engorgement Check List, 5.4. Findings related to severity of breast engorgement in the pre test and post test using Six-Point Engorgement Scale, 5.5. Findings related to the effect of Gua-Sha therapy on breast engorgement using Modified Breast Engorgement Check List, 5.6. Findings related to effect of Gua-Sha therapy on breast engorgement using Six-Point Engorgement Scale.

5.1. FINDINGS RELATED TO DEMOGRAPHIC DATA

5.1.1. Age Distribution

Age wise distribution of post natal mothers revealed that majority of mothers 44% were aged between 26-30 years, 39% aged between 20-25 years and 17% were aged between 31-35 years. A study on breast feeding initiation practice and factors affecting breast feeding in South Gujarat region of India by Chudasama et al., (2009) documented that older age experienced difficulty on breast feeding initiation.
5.1.2. Educational Status

The findings related to educational status depicts that majority of mothers 61% had completed their secondary education, whereas 17% of mothers possessed primary education or degree respectively and the rest of 6% of mothers possess master degree. A study by Chudasama et al., (2009) reported that higher maternal education is a factor that is positively associated with breast feeding.

5.1.3. Occupation

Percentage distribution of post natal mothers based on their occupation reveals that majority of mothers 88% were house wives and 6% of mothers were either coolie or teachers. A study on knowledge, attitude and practice of breast feeding by Bhavana Singh (2010) revealed that breast feeding duration is low among working women due to short maternity leave and inability to feed in working places.

5.2. FINDINGS RELATED TO OBSTETRICAL DATA

5.2.1. Gravida Status

Analysis on gravida status depicts that, majority of the post natal mothers 78% were primi gravida and rest of 22% of mothers were multi gravida. A study on occurrence of breast engorgement among post natal mothers in 1-14 days post partum by Pamila Hill (2008) documented that second time breast feeding mothers experiences engorgement sooner and more severe than first time mothers regardless of the method of delivery.

5.2.2. Type of Delivery

The data on type of delivery among post natal mothers reveals that majority 56% of mothers underwent lower segmental caesarean section, 38% had normal...
vaginal delivery with episiotomy and the rest 6% had assisted vaginal delivery. An article by Mom (2002) describing breast feeding after caesarean section documented that those women who had a long difficult labour or a caesarean section encounter breast feeding difficulties. For a few women hormonal, genetic or infant conditions may prevent them from breast feeding their babies fully.

5.2.3. Mode of Delivery

The data projects that highest percentage of mothers 61% delivered at term and the remaining 39% of mothers delivered pre term. The correlation co-efficient of the present study shows that there is a positive correlation (0.95) between gestational age and breast engorgement. A study on early lactation performance in primiparous and multiparous women in relation to different maternity home practices, a randomized trial in St. Petersburg by Ksenia Bysrova (2007) is in line with the above finding saying that, newborn staying in nursery ingested less milk than newborn who were rooming in and newborn at higher gestational age sucked milk earlier than newborn born at lower gestational age.

5.2.4. Post Natal Day

Analysis on post natal day shows that 72% of post natal mothers developed breast engorgement in the first three post natal day, 22% had breast engorgement from fourth to sixth post natal day and the rest 6% had breast engorgement in the seventh to tenth post natal day. An article on breast engorgement by Toronto Public Health (2006) projected that breast engorgement peaks between 3-6 days after child birth.
5.2.5. Gender

Analysis on gender distribution revealed that highest percentage 56% of postnatal mothers delivered female baby and the rest 44% delivered male baby. A study on breast feeding initiation practice and factors affecting breast feeding in South Gujarat region of India by Chudasama et al., (2009) reported that male babies in India were more likely to be breast fed for longer duration when compared to female babies.

5.2.6. APGAR Score

The findings related to APGAR score among neonates reveals that majority 83% attained the APGAR score between 8-9 and rest of the 17% attained an APGAR score between 6-7 out of the total score 10. A study on assessment of primitive reflexes in high-risk new born by Min Sohn et al., (2011) supported the above finding by documenting that one third of new born who presented abnormal response to sucking reflex born pre term and with poor APGAR score.

5.2.7. Birth Weight

Percentage distribution of birth weights among neonates revealed that 44% of neonates weighs between 2-2.99 kg, 39% weighs between 3-3.99 kg and 17% weighs between 1-1.99 kg. In a study by Min Sohn et al., (2011) it was reported that infants who sucked during the first two hours after delivery weighed significantly more at birth than those who did not suckle.
5.3 FINDINGS RELATED TO CONDITION OF BREAST AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST USING MODIFIED BREAST ENGORGEMENT CHECK LIST

5.3.1. Appearance of Breast

Data on appearance of breast among post natal mothers revealed that majority of mothers 83% had enlarged breast and presence of visible veins correspondingly in the pre test which reduced to 0% in the post test. 33% of mothers who had shining of skin in the pre test became 0% in the post test, 6% of mothers who had redness of skin in the pre test changed to 0% in the post test. None of the mothers had bluish discoloration prior or following the intervention. An article by Toronto Health (2007) explained that breast engorgement is an abnormal condition where the breast become enlarged, shining and appear flushed with veins visible on the breast surface.

5.3.2. Appearance of Nipple

Percentage distribution of appearance of nipple among post natal mothers projected that about 11% of mothers had flat nipple in the pre test which remain unchanged in the post test. None of the mothers had retracted nipple, cracked or broken nipple before and following the intervention. An article on common problems encountered by breastfeeding women by Marianne (1998) reported that both flat nipple and inverted nipple may leads to breast engorgement. A flat nipple cannot protrude with stimulation of milk and inverted nipple retracts inward instead of becoming erect when the areola is compressed. Both these conditions causes difficulty for an infant to grasp the breast correctly leading to incomplete emptying of breast and thereby resulted in breast engorgement.
5.3.3. Pain and Discomfort

Findings related to pain and discomfort among post natal mothers depicts that all the post natal mothers 100% had feeling of fullness prior to the intervention which became 0% in the post test. About 56% of mothers had nipple pain during sucking in the pre test became 6% in the post test. 39% of mothers who complained of pain persisting between the feeds in the pre test reported that they felt no pain 0% while lactating their baby in the post test. About 22% of mothers who had itching in the pre test reduced to 0% in the post test. About 6% of mothers had pain extending to axilla in pre test reduced to 0% in the post test. An article on engorgement by Anne Smith (2006) reported that in some cases of engorgement, the pain and swelling may extend into axilla and in very severe cases it cause numbness or tingling of hands from pressure on the nerves. When the breast became full and swollen due to engorgement, the nipple and areola may flatten out making the tissue difficult for the baby to grasp.

5.3.4. Palpation

Data obtained while palpating the breast by the researcher in the pre test revealed that all the mothers 100% had warmth over the affected breast whereas in the post test none of the mothers breast remained warm. Majority of the mothers 83% had hardness prior to the intervention reduced to 0% in the post test and about 39% mothers who had tenderness in the pre test changed to 0% in the post test. About 44% of mothers had palpable lumps in the pre test became 0% in the post test and none of the mothers had axillary lymph node enlargement prior and following the intervention. A study on efficacy of Whillestone Breast Expresser in relieving breast engorgement among post natal mothers prepared by Health and Nutrition (2008) outlined that breast engorgement is a condition characterized by swelling, warmth,
hardness of breast tissue, breast skin tightness, flat nipple, discomfort and pain over the affected breast. The condition causes difficulty for a neonate to feed from the breast which causes reduction in the amount of milk transferred from mother to baby.

5.3.5. General Symptoms

Data on general symptoms revealed that about 22% of mothers had generalized malaise and fatigue respectively in the pre test and in the post test 2% of mothers had fatigue and none of the mothers had generalized malaise. According to Marianne (2007) mothers who suffer from breast engorgement may experience a gradual rise in body temperature, pain and generalized malaise.

5.3.6. General Information

Information regarding the use of brassier among post natal mothers shows that majority of the mothers 88% used tight brassier and about 6% of mothers either used loose brassier or not used brassier. An article on mastitis, plugged ducts and breast infections by Bonnie (1993) reported that a bra that is too tight or clothing that applies pressure to the breasts can restrict the flow of milk. Nursing bras should be properly fitted and the mother should lean forward while wearing a bra so that the entire breast falls in the bra cup. The information regarding the interest of mothers to feed shows that about 94% of mothers were interested to feed whereas the minority 6% were not interested to feed the baby as the mother was on treatment for epilepsy and the drugs which are used for the treatment made the mother to feel drowsy for the whole day, hence the mother had no interest in lactating her baby.
5.3.7. Distribution of Breast Engorgement among Post Natal Mothers based on the Side of Engorgement

The data showed that majority of the mothers 72% had engorgement in the right breast, 17% in the left breast and 11% had bilateral engorgement. Inch and Fisher (1996) noticed that women’s preferred side for holding their baby was not necessarily related to their hardness. They recorded both dominant hand and preferred side for holding the baby for every woman who developed breast engorgement. No relationship was found between the dominant hand and the side affected but in 78% of cases engorgement occurred in the opposite side to the preferred side.

5.4. DISTRIBUTION OF SEVERITY OF BREAST ENGORGEMENT AMONG POST NATAL MOTHERS IN THE PRE TEST AND POST TEST USING SIX-POINT ENGORGEMENT SCALE

The data projects that majority of the post natal mothers 56% had mild engorgement and 44% had moderate engorgement in the pre test and breast engorgement of all mothers got relieved in the post test.

5.5. FINDINGS RELATED TO THE EFFECT OF GU-A-SHA THERAPY ON BREAST ENGORGEMENT USING MODIFIED BREAST ENGORGEMENT CHECK LIST

The result revealed that, the mean score attained by the post natal mothers during the pre test was 7.16 with mean percentage 20 and standard deviation 1.72, whereas, in the post test the mean score obtained was 0.3 with mean percentage 2 and standard deviation 0.64.
5.6. FINDINGS RELATED TO THE EFFECT OF GUA-SHA THERAPY ON BREAST ENGORGEMENT USING SIX-POINT ENGORGEMENT SCALE

The result revealed that, the mean score attained by the post natal mothers during the pre test was 3.4 with mean percentage 57 and standard deviation 0.66 whereas, during the post test the mean score obtained was 1 with mean percentage 17 and standard deviation 0.

On analyzing the main findings the intervention was found to be effective in relieving breast engorgement. Similar study was carried out by various researchers with different population revealed the result which is evident in relieving the breast engorgement. The present finding is in line with the study conducted by Chiu, Chang and Gau (2008), in that study application of Gua-Sha therapy managed breast engorgement and breast fullness. Another study evidences that Gua-Sha relaxes tight muscles of the breast, causes stimulation of skin nerve endings and stimulates self reflex of breast leading to improvement in blood circulation and reduction in pain (Chang & Chang, 2007). In a study Chiu (2010) found that scraping different acu points of the affected breast like ST16, ST17, ST18, SP17 and CV17 of the affected breast relieved breast engorgement. Zha Zhutty (1989) found that Gua-Sha therapy increased the level of pituitary prolactin and galactosis which cause an increased in breast milk excretion. With the support of the above results the researcher intended to assess the effect of Gua-Sha therapy on breast engorgement among post natal mothers admitted in Sri Ramakrishna Hospital, Coimbatore.
SUMMARY AND CONCLUSION

The major focus of the study was to assess the effect of Gua-Sha therapy on breast engorgement among post natal mothers. Post natal period is a special time where the woman undergoes transition to motherhood. This is a crucial time that the mothers need care and supervision from the midwives. Effective post natal care by the nurse midwife play a vital role in supporting and motivating the post natal mothers for exclusive breast feeding and thus preventing problems related to breast engorgement. Alternative and complementary therapy now in existence relieves breast engorgement within shortest time as possible.

The conceptual framework of the study was based upon Ludwig von Bartalanffy’s General System Theory (1980).

The present study was conducted at Sri Ramakrishna Hospital, Coimbatore. Quasi Experimental One Group Pre test Post test only design was adopted and purposive sampling technique was used to select post natal mothers with breast engorgement. Total number of post natal mothers selected for the study was 18.

The procedure for application of Gua-Sha therapy was explained to the mothers and obtained informed consent. The demographic data and obstetrical data and data on assessment of baby was collected by interrogation, inspection and palpation techniques. According to procedure protocol, the condition and associated symptoms of breast engorgement was assessed before and after the intervention using Modified Breast Engorgement Check List and severity of breast engorgement using Six-Point Engorgement Scale, during the period of hospitalization. The intervention
was carried out for 30 minutes in unilateral breast twice a day till the breast becomes soft. The findings from the study proved that application of Gua-Sha therapy is very effective in relieving breast engorgement.

6.1. MAJOR FINDINGS OF STUDY

1. About 72 % of post natal mothers had engorgement in the right breast, 17 % in the left breast and 11 % in the bilateral breast in the pre test. Breast engorgement of all mothers got relieved after Gua-Sha therapy.

2. The majority of mothers 56 % had mild engorgement and 44 % had moderate engorgement in the pre test and was reduced to 0 % after the intervention.

3. All the mothers selected for the study co-operated throughout the interventional period.

4. No adverse reactions were observed during the application of Gua-Sha therapy on breast engorgement.

5. The study shows that there was a significant relief in breast engorgement of post natal mothers after the application of Gua-Sha therapy.

6. All the mothers reported that they are able to feed the baby without pain and discomfort after application of Gua-Sha therapy.

7. There was a positive correlation (0.95) exists between gestational age and breast engorgement among post natal mothers.

6.2. LIMITATIONS

1. The researcher felt inconvenience in sample selection because, the duration of hospital stay for post natal mothers who underwent normal vaginal delivery with episiotomy was only 3 days.
2. The duration of the intervention for post natal mothers with bilateral breast engorgement lasts for one hour, during which the researcher has to terminate the intervention earlier as the baby care demands.

6.3. **RECOMMENDATIONS**

1. A study can be replicated with a larger size for wider generalization of findings.

2. A study can be conducted using Gua-Sha therapy for management of musculo skeletal pain in various medical surgical conditions.

3. A study can be conducted using Gua-Sha therapy for stress management among different population.

4. A similar study can be conducted as a true experimental study using control group.

5. A long term study can be done to identify the impact of Gua-Sha therapy in managing menstrual irregularities.

6.4. **NURSING IMPLICATIONS**

The health professionals especially maternity nurse has a major role in supporting and motivating the post natal mother for exclusive breast feeding of their infants, which is a most cost effective tool to reduce neonatal mortality and morbidity, breast engorgement and breast cancer. A result of this study has implication in nursing practice, nursing education, nursing administration and nursing research.

6.4.1. **Nursing Education**

To deliver the nursing care effectively, nursing education must focus on alternative and complementary therapies to enhance the relief of breast engorgement.
Hence, application of Gua-Sha therapy on breast engorgement among post natal mothers can be introduced as an alternative therapy in nursing curriculum.

6.4.2. Nursing Practice

Nursing is based upon the body of knowledge that is always changing with new innovations and discoveries. When nurses integrate the science and art of nursing into their practice the quality of care provided to the mothers is at a level of excellence that benefits the mothers in innumerable way. Gua-Sha therapy facilitates the mother in relieving the breast engorgement, discomfort and pain within shorter duration. The intervention on breast engorgement enhances the skill and effort of the nurse midwife in monitoring and treating the post natal mothers with breast engorgement. Hence, the application of Gua-Sha therapy can be made as a routine practice in treating the post natal mothers with breast engorgement.

6.4.3. Nursing Administration

When the alternative and complementary therapy advances, the administrator has a responsibility to provide nurses with substantive continuing education opportunities and enable the nurses to update their knowledge in the latest practices. Hence, the administrator can draw written policies regarding the benefits and application of Gua-Sha therapy for relieving the condition and associated symptoms of breast engorgement among post natal mothers.

6.4.4. Nursing research

The findings of the present study can be utilized by the nurse researcher to contribute the profession to accumulate new knowledge regarding management of breast engorgement. The study has tested the effect of Gua-Sha therapy on breast
engorgement among post natal mothers. The result from the present study helps the nurse in managing the conditions and signs and symptoms of breast engorgement using a non pharmacological approach, thus ensuring the postnatal mothers a satisfactory breast feeding experience.

6.5. CONCLUSION

Gua-Sha therapy is a non pharmacological therapy used in the present study to evaluate its effect in the management of breast engorgement among post natal mothers. It was found to be very effective to relieve breast engorgement. The therapy was found to be cost effective. Hence, the researcher concluded that the nurse midwife should adopt this intervention in their clinical practice to relieve breast engorgement among post natal mothers.
References


Ruba. (2008). Effectiveness of cabbage leaves application to relieve breast engorgement at various maternity centers, Coimbatore.


Yao C. X. (1988). Primary agalactia or decreased lactation due to mental stress can be treated by Acupressure. *Journal of TCM* 8(2):128

APPENDIX – III

(PART-A)

DEMOGRAPHIC DATA

1. Age
2. Education
3. Occupation

OBSTETRICAL DATA

4. Obstetrical score
5. Type of delivery
6. Mode of delivery
7. Post natal day

ASSESSMENT OF BABY

8. Gestational age
9. Sex
10. Birth weight
11. Apgar score
12. Whether the baby has congenital anomalies
   (If Yes Specify)
13. Time when feeding started after delivery
14. If delayed — due to mother / due to baby
15. Duration and frequency of feeding
(Part B)

Modified Breast Engorgement Check List, to identify the condition and associated symptoms of breast engorgement.

<table>
<thead>
<tr>
<th>SI.No</th>
<th>Condition of Breast</th>
<th>Right breast</th>
<th>Left breast</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>1.</td>
<td>Appearance of Breast</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Enlarged breast</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Redness of Skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Bluish Discolouration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Shining of Skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) Presence of visible veins</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Appearance of Nipple</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Flat Nipple</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Retracted Nipple</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Cracked or broken Nipple</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Pain and discomfort</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Presence of itching</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Feeling of fullness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Nipple pain during sucking</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Pain persisting between feeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) Pain extending to axilla</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. **Palpation**
   
   a) Warm to touch
   b) Presence of hardness
   c) Palpable lumps
   d) Tenderness
   e) Axillary lymph node enlargement

<p>| | | | | |</p>
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<td></td>
</tr>
</tbody>
</table>

5. **General Symptoms**

   a) Increased body temperature:   
      (i) Present   (ii) Absent
   
   b) Headache:   
      (i) Present   (ii) Absent
   
   c) Generalized malaise:   
      (i) Present   (ii) Absent
   
   d) Fatigue:   
      (i) Present   (ii) Absent

6. **General Information**

   a) Use of brassie:   
      (i) Loose   (ii) Tight   (iii) Not Used
   
   b) Mother's Interest to feed   
      (i) Interested   (ii) Not Interested

**Scoring**

- Present - 1
- Absent – 0
SIX - POINT ENGORGEMENT SCALE

The scale was formulated by Hill and Humenick (Pamela.D.Hill and Sharron.S. Humenick) in the year 1994. This is a standardized scale used to assess the severity of breast engorgement.

<table>
<thead>
<tr>
<th>SCORE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soft, no change in the breast</td>
</tr>
<tr>
<td>2</td>
<td>Slight change in the breast</td>
</tr>
<tr>
<td>3</td>
<td>Firm, non-tender breast</td>
</tr>
<tr>
<td>4</td>
<td>Firm, beginning tenderness in breast</td>
</tr>
<tr>
<td>5</td>
<td>Firm tender</td>
</tr>
<tr>
<td>6</td>
<td>Very firm, very tender</td>
</tr>
</tbody>
</table>

Interpretation of score:

Score 1     : Normal
Score 2 and 3 : Mild engorgement
Score 4 and 5 : Moderate engorgement
Score 6     : Severe engorgement
Paired ‘t’ test

To test the hypothesis, ‘t’ test was applied to find out the significant relief of breast engorgement among post natal mothers after application of Gua-Sha therapy.

\[ t = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}} \]

\[ SD = \sqrt{\frac{\sum (d - \bar{d})^2}{n}} \]

\( \bar{d} \) = Mean difference

SD = Standard deviation

n = Number of samples
ANNEXURE – II

KARL PEARSON’S COEFFICIENT OF CORRELATION

This was calculated to find out the influence of independent variable on dependent variable. Influence of mode of delivery and APGAR score was assessed through Karl Pearson’s Co-efficient of correlation in order to find the significance of relationship between the two variables.

\[
r = \frac{\sum xy - \bar{x} \bar{y}}{SD_x \times SD_y}
\]

\[
\bar{x} = \text{Mean pre test score of mode of delivery}
\]

\[
\bar{y} = \text{Mean pre test score of breast engorgement}
\]

\[
\frac{\sum xy}{n} = \text{Average of mode of delivery and breast engorgement}
\]

\[
SD_x = \text{Standard deviation of mode of delivery}
\]

\[
SD_y = \text{Standard deviation of breast engorgement}
\]