DISSERTATION ON
"A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03"

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"A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03"

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CERTIFICATE

This is to certify that this dissertation titled **"A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03"** is a bonafide work done by CHANDRA. K, M.Sc. (N) II year student, College of Nursing, Madras Medical College, Chennai submitted to The Tamil Nadu DR.M.G.R Medical University, Chennai. In partial fulfillment of the requirements for the award of degree of Master of Science in Nursing, Branch I- MEDICAL SURGICAL NURSING, under our guidance and supervision during the academic period from 2017 – 2019.

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ABSTRACT

INTRODUCTION

Cancer is a most important cause of death world-wide statics for 9.6 million deaths. Mastectomy is the common surgical procedure for breast cancer. Following mastectomy potential complications are likely functional disability in arm and stiffness in shoulder flexibility. Mastectomy may develop feelings like impairment or disability in patient's disturbed body image and secondary lymphedema. Studies have reported that the early initiation of Calisthenics therapy more effectively in improving the upper limb function and reduce the pain and stiffness.

TITLE

A study to assess the effectiveness of Calisthenics Therapy on shoulder pain and immobility among mastectomy patients admitted in postoperative wards, Rajiv Gandhi Government General Hospital Chennai-03"

OBJECTIVES

The study objectives are to assess the pre test level of shoulder pain and immobility of mastectomy patients, to evaluate the effectiveness of Calisthenics therapy on the level of shoulder pain and immobility of mastectomy patients, to compare the pre test and post test level of shoulder pain and immobility and to associate the post test level of shoulder pain and immobility with selected demographic variables.

METHODS AND MATERIALS

This study was conducted with 60 (mastectomy patients >30years) samples in quantitative approach, Pre experimental one group pre-test and post-test design by non-probability convenient sampling method sampling technique . Shoulder pain and immobility

was assessed by using SPADI scale. After pre test, Calisthenics therapy was given to mastectomy patients. After 7 days post-test was conducted using the same tool in same groups.

RESULTS

The study depicts pre test percentage of shoulder pain and immobility of mastectomy patients, considering pain score, in pre test patients have 70.94% of pain score and in post test they have 30.90% pain score, difference of reduction score is 40.30% and considering immobility score, in pre test patients have 70.99% of disability score and in post test they have 30.86% disability score, difference of reduction score is 40.13% of immobility score and regarding overall SPADI score, in pre test patients have 70.97% of pain score and in post test they have 30.88% pain score, difference of reduction score is 40.09%. In pre test, the mean SPADI score is 92.25 score , after Calisthenics therapy the mean score is 52.11score which is statistically significant calculated by Student's Independent t-test.

CONCLUSION

Hence, Calisthenics therapy is appropriate and feasible to implement in all settings. It would help to mastectomy patients to improve the upper limb function and improve their health status.

INDEX

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURES

S.No	Description
1.	Certificate approval by Institutional Ethics Committee
2.	Certificate of content validity by Experts
3.	Letter seeking permission to conduct the study
4.	Tool for data collection Section A: Questionnaire regarding socio demographic variables Section B: SPADI scale (Shoulder pain and Disability index scale)
5.	Calisthenics therapy menu script
6.	Informed consent form- English
7.	Informed consent form- Tamil
8.	Certificate of Tamil Editing
9.	Certificate of English Editing
10.	Certificate of Plagiarism
11.	Photos

LIST OF ABBREVIATION

Abbreviation	Expansion
PMPS	Post Mastectomy Pain Syndrome
IWCRF	International World Cancer Research Fund
ICMR	International Council of Medical Research
NCRP	National Cancer Report Program
RGGGH	Rajiv Gandhi Government General Hospital
ROM	Range of Motion
ALND	Axillary Lymph Node Dissection
WHO	World Health Organisation
RT	Radiotherapy
ACS	American Cancer Society
BC	Breast Cancer
DASH	Disabilities of the Arm, Shoulder and Hand
SPADI	Shoulder Pain and Disability Index Scale
SD	Standard Deviation
NS	Not statistically Significant
S	Significance
CI	Confidence Interval
DF	Degrees of Freedom

CHAPTER-I
INTRODUCTION

"Breast is exalted as the epitome of all that is most feminine and desirable in woman".

-Faulder

Health is one of the basic rights of every human being. Unfortunately health could not be given or disturbed but has to be acquired and won. It is difficult to know when the state of health ends and state of disease begins. A healthy person is an asset to himself, to his family and to his community. Feminine appearance is said to be enormously important to the self-image of every women. Female breast is a significant to the beauty, mother hood and sexuality. Female breast development indicates emphasis the feminity.

Cancer is a generic term for a large group of diseases characterized by the growth of development cells beyond their usual boundaries that can them invade adjoining parts of the body and spread to other organs. The term breast cancer refers to a malignant tumor that has developed from cells in the breast. Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple. Less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissue of the breast.

In female, the most common cancer is breast cancer and cancer related death among women in developed and developing country is breast cancer. More than 90% of women diagnosed with breast cancer undergo operative treatment like mastectomy. Many women survive from breast cancers as well as most of the women are affected by the side effect of treatments including seroma formation, wound infection and wound dehiscence, skin flap necrosis, hemorrhage, hematoma

1

formation, parasthesia, muscle paralysis, stiffness, pain, restricted mobility , lymph edema and PMPS.

The breast cancer develops the life time risk approximately 1 in 8% to 1 in 12% and the risk of death from the disease in a person's lifetime is approximately 2.4%. The increased rate of detection and survival rates also increased due to the contribution of screening mammography and improvement in systemic combined therapy. Rapid industrialization in developing countries has contributed to the increasing incidence of carcinoma breast.

Based on **GLOACON (2018)** estimated 18.1 million new cancer cases and 9.6 million cancer deaths in 2018. In both sexes combined, lung cancer is the most commonly diagnosed cancer (11.6% of the total cases) and the leading cause of cancer death (18.4% of the total cancer deaths), closely followed by female breast cancer (11.6%), prostate cancer (7.1%), and colorectal cancer (6.1%) for incidence and colorectal cancer (9.2%), stomach cancer (8.2%), and liver cancer (8.2%) for mortality.

As per 2015 statistics, in 2012 about 8.2million women died with breast cancer worldwide and in 2015 about 40,291 breast cancer death has occurred. The women with detected breast cancer are increased survival rate more than 5yrs, i-e survival rate shifted from 80% to 89% and is relating totally to women without the disease. Breast cancer incidence is higher in Europe, New Zealand, Australia and North America. The incidence rate is low in Asia, Central America and Africa (**IWCRF, 2015**).

In India, more than 7.6 lakh people are affected by breast cancer and one third among them is dying every year and also one out of every 22 women in India is diagnosed with breast cancer in her life time By 2025, the number of cancer patients in India will have been increased by five times. The report also revealed that by 2025 the most of the cancer

patients in developed countries such as America will be doubled. Presently 3%of the population in India is suffering from one or other type of cancer. According to ICMR report more than 5.55 lakh Indians have died due to cancer **(ICMR, 2016).** All the cancer in India are likely to range from 9, 79,786 cases in the year 2010 to 11, 48,757 cases in the year 2020 **(NCRP, 2010).**

In our Rajiv Gandhi Government General Hospital, 350 breast cancer women are detected in every year that census is approximately 12% total cancer clients and also every day 10 to 15 breast cancer patients were coming to outpatient department for radiotherapy.

Complications are common following any surgery. However complications increase the suffering of the patient, prolong their stay in the hospital and cause psychological trauma and delay in the recovery to normal life. Therefore specific nursing intervention and restoration of functioning of the arms in the affected side after mastectomy and axillary lymph node dissection is one of the important goals of the nurses. The nurse must also be able to recognize the early signs and symptoms of arm dysfunction and act promptly and effectively to increase range of motion.

1.1 BACKGROUND OF THE STUDY

The history of breast cancer dates back to 377 B.C where Hippocrates made references to breast cancer and provided detailed descriptions about its effects. In 525 B.C. Democedes successfully treated a woman with breast disease. From 1882 -1907 Halsted extensively worked out on the procedure known as the radical mastectomy . In 1981 Veronessi published the first study stating that survival rates for breast conservation procedures equals to that of radical mastectomy.

According to **World Cancer Research Fund International (2015)** breast cancer is the major cause of death among women worldwide. It indicates that the total number of breast cancer will increase to 2.1 million by 2030. Breast cancer is the second common cancer with more than25% of new cases.

Breast cancer has ranked number one cancer among Indian female and prevalence rate as high as 25.8 per person 1,00,000 women and mortality 12.7 per 1,00,000 women. Data reports from various latest national cancer registers were compared for incidence, mortality rates. The incidence rate of carcinoma of the breast was found as high as 41 per 1,00,000 in delhi, followed by Chennai 37.9, Bangalore 34.4 and Thiruvananthapuram district 33.7 **(ICMR , 2018).**
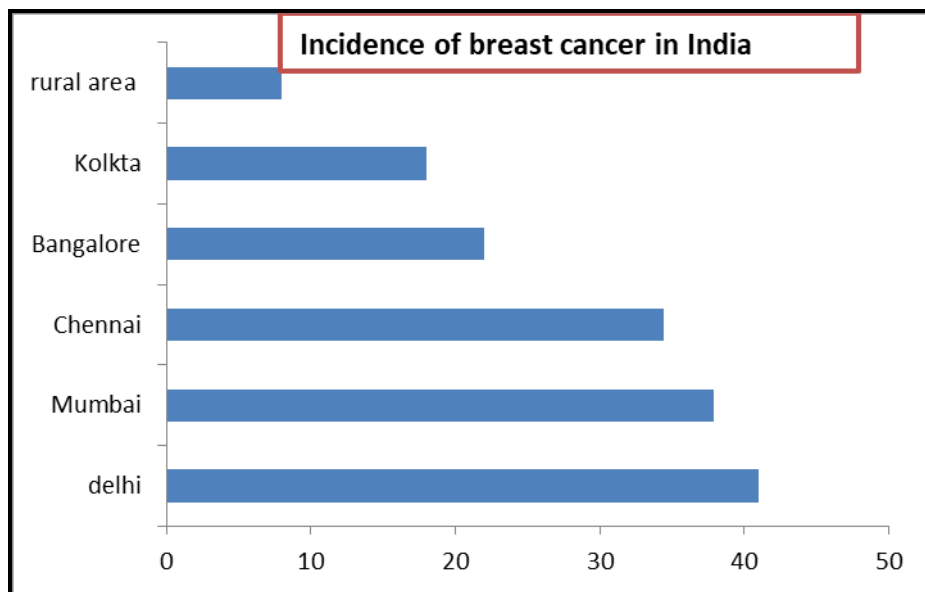
Per 100000 women a year

Post mastectomy pain syndrome is one of the most morbid conditions occurring after breast cancer therapy, causing severe physical, functional and psychological distress to the patient. With improvements in breast cancer therapy, more women become long time survivors and hence the long term post-operative complications and their management become an increasingly important issue. Several

4

therapies have been used to treat shoulder dysfunction but rehabilitative interventions remain the treatment mainstay and exercises play an important role in such rehabilitation.

1.2. NEED FOR THE STUDY

Cancer is a most important cause of death world-wide statics for 9.6 million deaths. Globally, cancer mortality is increased, with an expected 13.1 million deaths in 2020. Carcinoma breast is the foremost cancer diagnosed in women and occurred as a fatal problem. It is the foremost cause of death from cancer among female internationally. In the high incidence rates, 89% of women confirmed with breast cancer are still alive 5 years after their diagnosis in western countries which is owing to early diagnosis and management. Breast cancer is by far the foremost cancer among women with an expected 1.38 million new diagnosed cancer cases in 2015(23% of all cancers) and is placed in overall 2nd rank. Carcinoma breast is the leading cancer both in developing and developed countries with approximately 690,000 new cases expected in each countries.

Throughout the world, surgery is the best treatment for breast cancer. Other treatments are usually not always employed to surgery and are referred to as adjuvant therapies. According to **National Mastectomy & Breast Reconstruction Audit (2011)** reported that in England, 40 in 100 women diagnosed with breast cancer undergone mastectomy as their primary therapeutic procedure. Some women may also prefer mastectomy to the option of breast conserving surgery. Carcinoma Breast is the widespread cancer in the women and mastectomy is opted for 82% of surgeries for breast cancer treatment. Mastectomy may develop feelings like impairment or disability in patient's disturbed body image and it reduce sexual activity, it may be turn to entail mental disorders (**Steven Halls, 2017).**

India is one of the cancer epidemics. By 2020, 71% of the total world's cancer patients will be in most developing countries. India stands in 5th place in cancer prevalence. Previous year the **Indian Council of Medical Research** released the report of census of cancer among women where 28 per 1,00,000 are affected with carcinoma breast. Indian women in urban also adopt to have a western diet, leading to abnormal over weight and a higher alcohol intake both of which increase the chance of carcinoma breast.

In Tamil Nadu the number of new cases of female breast cancer was 124.9 per 1, 00,000 women per year on 2017. In Chennai about 88,847 new cancer per year. Depending on each person's medical condition and type, cancer treatment differs in several ways **(Ministry of Health and Family Welfare, 2017).**

After mastectomy most of the patients are recovered without complications. It is normal to experience certain side effects such as short term pain, swelling, scar, seroma formation, lymphedema and wound infection. Lymphedema is one of the complication of surgical treatment and one that negatively impacts survivorship. A recent meta-analysis reports the incidence of breast cancer related lymphedema to as high as 65% -70% after modified radicle mastectomy. It is a common and under reported morbidity.

Duygu Soydas Yesilyurt et al. (2016) were conducted a descriptive study in the general surgery clinics of a University Health Centre for Medical Research and practice with 72 voluntary patients. The mean age of the patients was 52.66±13.39 years, 87% were married, 58% had primary school education, 76% had moderate economic status, and 53% had undergone simple mastectomy, 82% about symptoms and prevention of post-surgical problems, 76% regarding breast cancer and treatment options, and in the range of 54-68%, patients wanted information on the

effects of surgery on the body, shoulder and arm exercises, breast self-examination, the effects of breast cancer on family and work life, lymphedema and preventive interventions.

- Focus on psychological and psychological well -being as form of treatment
- Knowledge of community resources

- Serve as central point of contact between patient and medical team.
- Educate patient and review test results
- Advocates for patient
- Identifies community resources
- Recruits patients for clinical trials
- Promotes compliance with

- Focus on biologic form of treatment
- Knowledge of medical science

Fig 1.1 Role of Nurses in Cancer Care

In this model nurses act as a social worker as well as navigator. Nurses play an important role as educator, care giver, advocator, counsellor etc. Therefore nurses are more responsible to promote the compliance with treatment and medication. Based on this model the researcher initiates the Calisthenics therapy to mastectomy patients for reducing shoulder pain and immobility.

Following surgery for breast cancer, women may experience substantial impairment in upper extremity function. During my clinical posting of postoperative ward, the investigator found that the clients were having functional limitations, including decline in strength and range of motion, may continue after acute recovery from mastectomy surgery. The researcher realized that physical activity initiation,

reinitiating and maintenance are particular challenges in the post-surgical clients. So the researcher concludes that the early initiation of Calisthenics therapy is necessary for prevention of arm dysfunction of mastectomy patients.

Calisthenics therapy plays an important role in prevention of complications by releasing muscular tension, preventing scar tissue development and restoring strength and flexibility to joints and muscles that have been affected by the surgery. Commonly performed following exercises are selected for demonstration 1) Forward pinky slide exercise 2) Sideways pinky slide exercise 3) "T" and "Y" Stretch exercise 4) Snow Angel exercise 5) Butterfly wings exercise 6)Median Nerve Glides exercise. These exercises could be performed without the help of any complex device and it does not need any particular preparation in the part of the performer. It may not need any expensive device.

Prevention of complication is the one of the vital role of nurses. Nursing care following surgery involves the close monitoring of the patient in order to identify early complication and prevent it. In post mastectomy, common complication is shoulder pain and immobility. Unawareness of exercise will lead to complications. Inadequate knowledge is more hazardous than ignorance because an ignorant person may seek help but a person with inadequate knowledge may not be able to identify this deficiency. This may lead to poor self-care resulting in serious consequences. After conducting extensive review of research and based on suggestion given by the researcher felt that there is a great need of conducting study related to exercise for the mastectomy patients to reduce the post mastectomy complications.

1.2. STATEMENT OF THE PROBLEM

A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03.

1.3. OBJECTIVES

❖ To assess the pre test level of shoulder pain and immobility of mastectomy patients.

❖ To evaluate the effectiveness of Calisthenics therapy (post test) on the level of shoulder pain and immobility of mastectomy patients.

❖ To compare the pre test and post test level of shoulder pain and immobility.

❖ To associate the post test level of shoulder pain and immobility with selected demographic variables.

1.4. OPERATIONAL DEFINITIONS

Assess

Assessment refers to the information gathered through multiple choice questionnaire related to the level of shoulder pain and immobility of mastectomy patients.

Effectiveness

It refers to the outcome of Calisthenics therapy on the shoulder pain and immobility of mastectomy patient's response of pre test and post test.

Calisthenics Therapy

It refers to a form of dynamic exercise consisting of a variety of simple, often rhythmical movements. Its performed for a duration of 20 minutes. The following six exercises are selected for demonstration 1)Forward pinky slide exercise 2) Sideways pinky slide exercise 3) "T" and "Y" Stretch exercise 4) Snow Angel exercise 5) Butterfly wings exercise 6)Median Nerve Glides exercise.

Shoulder Pain

It refers to the pain comes from the shoulder joint usually worsens with activities or movement of arm and shoulder.

Sholder Immobility

It refers to difficulty to move arm and shoulder.

Mastectomy

The medical term for the surgical removal of one or both breast partially or completely with or without reconstruction.

Post-Operative Ward

It refers to the patients admitted in post-operative period is from fourth post-operative day till sutures are removed after mastectomy.

1.5. ASSUMPTIONS

The study assumptions that:-

Women following mastectomy are prone to experience pain and reducing daily physical activities.

Selected Calisthenics interventions for women after mastectomy will reduce shoulder pain and immobility.

1.6. HYPOTHESIS

H1   There will be significant difference between pre test and post test level of shoulder pain and immobility of mastectomy patients.

H2   There will be significant association between post test level of shoulder pain and immobility of mastectomy patients with selected demographic variables.

1.7. DELIMITATIONS

The study is limited to

❖   The data collection period is only 4 weeks.

❖   Study is limited to only 60 samples.

1.8. CONCEPTUAL FRAME WORK

Conceptual models are made up of concept, which are describing mental images of phenomena or prepositions which are statements about concepts. This represents schematic representation of some relationship among phenomena.

Imogene king model is a human process that can be observed in many situations when two or more people interact, such as in the family and in social events **(King, 1996).** As nurses, we bring knowledge and skills that influence our perceptions, communications, and interactions in performing the functions of the role. Transaction process provides the theoretical knowledge base to implement this method. According to this one assesses the patient and the environment and makes a nursing diagnosis, the concepts of perception, communication, and interaction represent knowledge the nurse uses to gather information and make a judgment. A transaction is made when the nurse and patient decide mutually on the goals to be attained, agree on the means to attain goals that represent the plan of care, and then implement the plan. Evaluation determines whether or not goals were attained.

Based on Imogene king proposed a theory which offers insight to nurse's interaction with individual and groups within the environment. It highlights the importance of client's perception in decision that influences care and focuses on both the process of nurse client interaction and the outcomes of care. The major concepts includes

PERCEPTION

This involves each person's representation of reality. Researcher perceives and assess the severity of shoulder pain and immobility and need of Calisthenics therapy to reduce shoulder pain and immobility among mastectomy patients.

JUDGEMENT

Judgement is the decision made both researcher and patients. The researcher decided to assess the shoulder pain and immobility among mastectomy patients by using SPADI scale and to perform Calisthenics' therapy to patient undergoing mastectomy and the patients decided to participate in the study.

ACTION

The researcher action is to perform Calisthenics therapy to patients undergoing mastectomy with shoulder pain and immobility and decide to perform the exercise with the help of researcher.

REACTION

Reaction helps in setting a mutual goal. Here the researcher and patient set a mutual goal. The mutual goal is reduction of shoulder pain and immobility.

INTERACTION

The patient involves a process of perception and communication. The Researcher identifies the patients undergoing mastectomy with

shoulder pain and immobility and maintain good interaction with the patients and encouraged them to practice exercise.

TRANSACTION

It is the purposeful interaction leading to goal attainment. The researcher reassesses shoulder pain and immobility after intervention by using shoulder pain and immobility score.

PERCEPTION: Researcher perceived the severity of shoulder pain and immobility and need of Calisthenics therapy to reduce shoulder pain and immobility among mastectomy patients

Pretest assessment of shoulder pain and immobility by using SPADI scale

Researcher

Judgement Researcher decided to perform active and passive Calisthenics therapy

Patient

Judgement: Patient decided to participate in the study

Perception: Patient experiences shoulder pain and immobility and need of Calisthenics therapy

Action Readiness to perform and demonstrate Calisthenics therapy

Effectivenes of Calisthenics therapy on shoulder pain and immobility among mastectomy patients

Reduction of shoulder pain and immobility among mastectomy patients performing Calisthenics therapy

Reaction: Reduction of shoulder pain and immobility

Interaction: Encourage the patients to perform Calisthenics therapy

Transaction: Post test assessment of shoulder pain and immobility by using SPADI scale

Action: Readiness to perform Calisthenics therapy

Feed back

Fig 1.2 CONCEPTUAL FRAME WORK BASED ON IMOGENE KING'S GOAL ATTAINMENT THEORY

14

CHAPTER-II
REVIEW OF THE LITERATURE

A review of literature on the research topic helps the researcher to familiarize themselves with the knowledge base. It is an important step in research with a background for understanding current knowledge on topic and illuminates the significance of the new study. Highly extensive review was made to strengthen the present study and to lay down the foundation, which helps to reveal the prevailing situation of the similar studies in different areas.

REVIEW OF LITERATURE IS PRESENTED UNDER FOLLOWING HEADINGS

SECTION A :Literature related to risk factors of breast cancer

SECTION B :Literature related to complications after mastectomy

SECTION C :Literature related to exercise on mastectomy

LITERATURE RELATED TO RISK FACTORS OF BREAST CANCER

Francis Agbokey et al. (2019) were conducted a descriptive cross-sectional study at Komfo Anokye Teaching Hospital in Kumasi, Ghana, from June 2014 to July 2014. Thirty-five participants were purposively selected. Participants' knowledge about signs and symptoms of breast cancer after their diagnosis was high but low for risk factors. Screening for breast cancer through self-breast examination was infrequently performed prior to their diagnosis. Some patients reported late due to misinterpretation of signs and symptoms, cultural influences and fear of losing their breast to surgery, physician delay, health providers' laxity, and disinterest in breast cancer. There is poor knowledge of the risk factors for developing breast cancer.

Hiroshi Isozaki et al. (2019) were carried out a study of impact of the surgical modality for axillary lymph node dissection on post-operative drainage and seroma formation after total mastectomy. The surgical procedures for axillary lymph node dissection should be considered in the optimal axillary lymph node dissection technique used in the lymph vessels ligation for avoid prolonged fluid discharge. For the patients without drainage, careful postoperative treatment should be given to avoid infectious seroma formation, even for patients who underwent total mastectomy with sentinel lymph node retrieval.

Carolyn Taylor et al. (2017) were conducted a systematic literature review revealed that the data of lung and heart doses in breast cancer regimens published during 2010 to 2015. Second, individual patient data meta-analyses of 40,781women randomly assigned to breast cancer radiotherapy versus no radiotherapy for incident lung cancer and cardiac mortality. The lung or heart in the trials and the 2010 to 2015 doses were combined and applied to current smoker and non-smoker lung cancer and cardiac mortality rates in population-based data. For long-term smokers, the absolute risks of modern radiotherapy may outweigh the benefits, yet for most non-smokers, the benefits of radiotherapy far outweigh the risks of breast cancer.

Joy Melnikow et al. (2016) were carried out a systematic review of reproducibility of breast imaging reporting and data system density categorization and test performance and clinical outcomes of supplemental screening with breast ultrasonography, magnetic resonance imaging and digital breast chemosynthesis in women with dense breasts and negative mammography results quality assessment and abstraction of 24 studies from 7 countries. Three good-quality studies reported reproducibility of BI-RADS density 13% to 19% of women were re categorized between "dense" and "non-dense" at subsequent screening.

A.Gupta Shridhar et al. (2015) were conducted a systemic study on a structured literature search using combined keywords was undertaken on bibliographic databases including MEDLINE, Cochrane Database of Systematic Reviews, Cumulative Index to Nursing and Allied Health . Searches were restricted to research published in English language peer-reviewed journals through December, 2014 in India. A total of 7066 women aged 15–70 years showed varied levels of awareness on risk factors such as family history , reproductive history and obesity . Literacy levels on risk factors did not improve over the 8-year period (2005–2013).Our review revealed low cancer literacy of breast cancer risk factors among Indian women, irrespective of their socio-economic and educational background.

Sandra M et al. (2015) were conducted a study on randomly assigned patients with metastatic breast cancer who had not received previous chemotherapy or anti-HER2 therapy for their metastatic disease to receive the Pertuzumab combination or the placebo combination. The median overall survival was 56.5 months.95% confidence interval in the group receiving the pertuzumab combination, as compared with 40.8 months in the group receiving the placebo combination, a difference of 15.7 months. In patients with HER2-positive metastatic breast cancer, the addition of pertuzumab to trastuzumab and docetaxel, as compared with the addition of placebo, significantly improved the median overall survival to 56.5 months and extended the results of previous analyses showing the efficacy of this drug combination.

Janine T.Hidding et al. (2014) were established that a systematic literature search using the databases of PubMed, Embase, CINAHL and Cochrane from 2000 to October 2012, according to the PRISMA guidelines. Included were studies with patients with stage I– III breast cancer, treated with surgery and additional treatments like radiotherapy, chemotherapy and hormonal therapy. The following health outcomes

17

were extracted: reduced joint mobility, reduced muscle strength, pain, lymphedema and limitations in daily activities. Outcomes were divided in within the first 12 months and 12 months post-operatively. Patients treated with ALND are at the highest risk of developing impairments of the arm and shoulder. Reduced ROM and muscle strength, pain, lymphedema and decreased degree of activities in daily living were reported.

Sarah-Jane Dawsonet et al. (2013) were carried out a study the analysis of Circulating Tumour DNA to Monitor Metastatic Breast Cancer suggested that Circulating tumour DNA was successfully detected in 29 of the 30 women (97%) in whom somatic genomic alterations were identified; CA 15-3 and circulating tumour cells were detected in 21 of 27 women (78%) and 26 of 30 women (87%), respectively. Circulating tumour DNA levels showed a greater dynamic range, and greater correlation with changes in tumour burden, than did CA 15-3 or circulating tumor cells. This proof-of-concept analysis showed that circulating tumour DNA is an informative, inherently specific, and highly sensitive biomarker of metastatic breast cancer.

LITERATURE RELATED TO COMPLICATIONS AFTER MASTECTOMY

Naman Chandrakar et al. (2019) were established a prospective and observational study in the Department of Surgery of Acharya Vinoba Bhave Rural Hospital attached to Jawaharlal Nehru Medical College. Forty-one patients of carcinoma breast were treated with modified radical mastectomy from September 2013 to September 2015.The mean age of cases was 50.90 years with a standard deviation of 11.61 years. Only 1 male patient was diagnosed with carcinoma breast and 40 female patients about 41 total cases. In all the 41 cases chief complaint was lump in breast, followed by axillary swelling in 11 cases and history of pain in 8 cases, ecchymosis of the flap was seen in

8 patients. The 10 cases had surgical site infection, Minimal seroma collection was seen in 9 cases. 3 cases had pain at the surgical site.

Lene Nyhoj Heidemann et al. (2018) were conducted a systematic review and reported in line with the preferred Reporting Items for Systematic Reviews and Meta-Analyses statement. Nine of 1,039 studies were eligible for inclusion yielding 778 procedures. The quality was acceptable for all included studies. The meta-analysis found the rate of skin necrosis to be 11%, nipple necrosis 5%, infection in 12%, hematoma in 1%, treated seroma in 5%, explantation 4%, and unplanned return to the operating room in 9%. The use of a cellular dermal matrix in nipple-sparing mastectomy and implant-based breast reconstruction can be done with acceptable complication rates in selected patients.

Anu Thomas et al. (2018) were conducted a quantitative descriptive correlational design with non probability convenience sampling technique was used to collect data from 60 post mastectomy women. The setting used for the study was Gynaecological Oncology OPD at Amrita Institute of Medical Sciences , Kochi, Kerala, India. Data collection was done from November 2016 to December 2016. Quality of life of 21 patients was high and 39 patients had moderate quality of life. There was a significant correlation found between disability score and quality of life and with all the domains of quality of life like physical , psychological , social and spiritual . Also a significant association was found between arm function and the clinical variables like oedema and radiation therapy .

Takalkar Unmesh Vidyadhar et al .(2018) were conducted a brief view of breast related lymphedema, As overall survival of breast cancer is improving with advanced therapeutic modalities, incidence of long-term complications is rising. Lymphedema of arm has received significant attention because of its challenging management. Hence

identification of risk factors for lymphedema and implementation of prevention strategies is vital among breast cancer survivors.

Reshma Jagsi, Jin et al. (2017) were carried out a study for claims-based MarketScan database, we described complications in 14,894 women mastectomy for breast cancer from 1998-2007 who 2637 were received immediate autologous reconstruction , 3007 were immediate implant-based reconstruction , or 9250 are no reconstruction within the first two postoperative years . Radiation was not associated with infection in any surgical group within the first six months but was associated with an increased risk of infection in months 7-24 in all three groups . In months 7-24, radiation was associated with higher odds of implant removal in patients with implant reconstruction and fat necrosis in those with autologous reconstruction.

Janine et al. (2014) were conducted a systemic review of treatment related impairments in arm and shoulder in patients with breast cancer is the period from 2000 to October 2012 studies with patients with stage I– III breast cancer, treated with surgery and additional treatments (radiotherapy, chemotherapy and hormonal therapy). The following health outcomes were extracted, reduced joint mobility, reduced muscle strength, pain, lymphedema and limitations in daily activities. Reduced ROM and muscle strength, pain, lymphedema and decreased degree of activities in daily living were reported most frequently in relation to ALND.

LITERATURE RELATED TO EXERCISE ON MASTECTOMY

Ashwini.K.N et al. (2018) were carried out a quasi-experimental study, with pre and post-test research design without control group approach was undertaken among breast cancer patients who undergo mastectomy at Kidwai Memorial Institute of Oncology, Bangalore . A total of 50 pre-operative breast cancer patients were selected using convenient sampling

method.. In pre-test, the overall knowledge score is 36.48% whereas after implementation of video assisted teaching programme, the post-test knowledge score had improved is 77.6% and the gain in knowledge was statistically significant. It was noted that knowledge on post mastectomy exercises had significant association with demographic variables like type of family and family history of cancer at p<0.05 level.

Gehan H Soliman et al (2018), were conducted a study was carried out on 90 adult female patients after modified radical mastectomy at the surgical department at Menoufia University and Shebin El Kom Teaching Hospitals. A quasi experimental research design was used. Four tools were utilized for data collection Structured interviewing questionnaire: developed by the researchers to assess patient's socio demographic, clinical data and knowledge. Activities of Daily Living scales The Pain Disability Index, Observational checklist. There were a highly statistically differences among pre, post and follow up interventions regarding to pain index disability score, and total Katz index (independence in activities of daily living) as well as instrumental activities of daily living.

Sri Aurobindo Prasad Das et al. (2018) were conducted a systemic study revealed that a total of 75 patients were included in the study in accordance to inclusion criteria. They were randomized into exercise group are 38 and no exercise group are 37. Patients in the exercise group were given a set of 19 active or active assisted ranges of motion exercises and strengthening exercises with frequent follow up. The other group were did not receive any strict exercise, they were given a few free hand exercise when they had some shoulder complaints based on treating physician discretion. Demographic parameters were comparable between the groups. Pain score, shoulder ROM was better in the exercise group compared to no exercise group. The incidence of lymphedema was higher in no exercise group compared to exercise group and this was extremely significant. .

Andrea Lipsett et al .(2017) were carried out a study randomized controlled trials that investigated the effect of exercise during adjuvant RT on fatigue for breast cancer patients were searched using Nine studies 802 participants were included. A meta-analysis, including results for 738 participants, revealed that exercise was statistically more effective at reducing fatigue than the control intervention. Statistically significant benefits of supervised, combined aerobic resistance exercise on fatigue were achieved. Suggested that combined aerobic-resistance exercise shows promise in alleviating fatigue with further investigation into alternative exercise modes required.

Degroef et al. (2017) were conducted a study (ACS) investigate the efficacy of physical therapy for upper extremity impairments after surgical intervention for breast cancer. Eighteen randomized controlled studies were chosen for review regarding the efficacy of passive mobilization, myofascial therapy, manual stretching, and exercise therapy after breast cancer treatment. In the studies reviewed, physical therapy began at least 6 weeks post-surgical intervention. Combining general exercise with stretching was confirmed effective on range of motion by 2 studies. One study showed the effect of passive mobilization with massage was null for pain or impaired ROM. Early intervention was found to be beneficial for shoulder ROM in 3 studies, but 4 other studies supported delayed exercise to promote wound healing longer.

Jenna Smith et al. (2017) were carried out a qualitative descriptive study on Health care professionals who work with women with BC. It was used to answer the research question. A moderator guided the focus group using a semi-structured script measurement. The focus group was recorded and transcribed. The transcript was coded independently using topic and analytical coding. Three main issues came forth during analysis. These included a lack of (1) exercise programming and equipment available within the cancer care institution

(2) communication with rehabilitation professionals and (3) effective exercise education strategies available for patients with BC. Specific strategies were suggested to overcome each issue. As purposeful sampling was used for recruitment, it is possible that participants agreed to be in this study because they had positive views on the need to incorporate exercise more effectively into practice.

Duygu Soydas Yesilyurt et al. (2016) were carried out a descriptive study in the general surgery clinics of a university health centre for medical research and practice with 72 voluntary patients. The mean age of the patients was 52.66 years, 87% were married, 58% had primary school education, 76% had moderate economic status, and 53% had undergone simple mastectomy, 76% regarding breast cancer and treatment options, and in the range of 54-68%, patients wanted information on the effects of surgery on the body, shoulder and arm exercises, breast self-examination, the effects of breast cancer on family and work life, lymphedema and prevention interventions. We recommend that patients with mastectomy should be informed about topics including care interventions, breast cancer and treatment options, effects of surgery, and reducing these effects.

Zeinab F.Bahgat et al. (2016) were conducted a quasi-experimental design was utilized in this study with a total of 90 women who had primary breast cancer and scheduled for operation at Tanta Cancer Centre, affiliated to Ministry of Health, Gharbia governorate, Egypt Women were approached at the female surgical wards and followed up in the outpatient clinics at the same center. Sample was divided into three groups, control group was received routine hospital care, study group 1 who managed by physical exercises and study group 2 who managed by physical exercises and compression garment postoperatively conclude indicated that there were statistical significant differences between study and control groups regarding knowledge,

23

subjective and objective outcome measures of upper limb function, with minimal evidence of shoulder pain among studied group 1 and no evidence of lymphedema among study group 2.

Sanaz Shiravi et al. (2015) were conducted a study revealed that one of the common side effects of breast cancer treatment is upper extremity lymphedema of the same side. Secondary lymphedema is a chronic disease leading to low function of the limb and disorder in the quality of life. The experimental group took part in an 8 week exercise program including a 10 min warm up by stretching and a 20 min cycling on ergo meter at 55 to 70 percent target heart beat rate intensity and then a 10 min cool down by stretching which was held 3 sessions a week. Findings of the present research revealed that the experimental group participants' shoulder joint mobility had a significant difference with the control group after 8 weeks of aerobic exercise in three actions of flexion, abduction and external rotation.

Christina M et al. (2015) were carried out a study over the past 2 decades, great strides have been made in the field of exercise-oncology research, particularly with breast cancer. This area of research is particularly important since there are 2.8 million breast cancer survivors who are in need of an intervention that can offset treatment-related side effects. Exercise plays a vital role in improving cardiopulmonary function, psychological events, muscular strength, and endurance in breast cancer survivors, and thus should be considered as a key factor of lifestyle intervention to reverse negative treatment-related side effects.

Martina et al. (2015) were conducted a study to assess effects of resistance exercise on fatigue and quality of life in breast cancer patients undergoing adjuvant chemotherapy 101 breast cancer patients starting chemotherapy were randomly assigned to resistance exercise or a relaxation control group. Both interventions were supervised,

group‑based, 2/week over 12 weeks. The primary endpoint fatigue was assessed with a 20‑item multidimensional questionnaire to Quality of life. In conclusion, resistance exercise appeared to mitigate physical fatigue and maintain Quality of Life during chemotherapy beyond psychosocial effects inherent to supervised group based settings.

Atilla soran et al. (2014) were conducted a study on the importance of detection of subclinical lymphedema for the Prevention of Breast Cancer-Related Clinical Lymphedema after axillary lymph node dissection for 186 patients who underwent ALND between 2010 and 2013 through our lymph oedema monitoring program. Baseline measurements were obtained and at 3–6 month intervals for 5 years. Patients diagnosed with subclinical lymph oedema received short-term physical therapy, compression garments, and education about exercise, elevation, infection precautions, BMI, and hand usage. The majority of the women underwent mastectomy (61%) and received chemotherapy (89%) and radiotherapy (77%). Received early intervention which reduces the incidence of clinical LE from 36.4% to 4.4%. This may have implications for quality of life and health care costs.

Kristen M. Cavanaugh (2014) were conducted a study of literature review of several current research articles was performed. This report reviews four studies evaluating the effects of restricted activity versus progressive exercise and stretching activities on development of lymphedema. The results show that there is no difference in the risk of developing lymphedema when following activity guidelines. All four of the studies reviewed report results of either a decrease in the development of lymphedema or no increased risk of development of shoulder pain when early exercise regimens are incorporated into postoperative care, concluded that the four research articles show promising results that support future change in practice guidelines.

Mary Lou Galantino et al. (2013) were carried out a study exercise interventions for upper limb dysfunction due to breast cancer treatment those completed 18 of 20 exercise sessions and was able to self-monitor when she experienced changes in upper extremity function and returned for physical therapy as planned at 3 and 6 months. According to the DASH, her disability improved from a score of 64% to a score of 27% (improvement of 37%). Given that a difference of 15 points on the DASH has been reported to be of clinical importance.

Nadia Mohamed Taha et al. (2013) were conducted a quasi experimental design study effect of educational program regarding therapeutic exercises on women's pain, fatigue and shoulder function undergoing mastectomy were conducted at Oncology Center Mansoura University. Purposive sample included (80) patients with preliminary diagnosis of breast cancer, were admitted to female surgical units, scheduled for Modified radical mastectomy and were divided random equally into study and control groups. There were a statistical significance difference between the two groups in relation to information, fatigue severity, pain intensity, shoulder pain and disability, and performance post program and follow-up after one month.

By Kristen et al (2012) were carried out a literature review focus the effects of restricted activity versus progressive exercise and stretching activities on development of lymphedema. Here results show that there is no difference in the risk of developing lymphedema when following activity guidelines. All four of the studies reviewed report results of either a decrease in the development of lymphedema or no increased risk of development of lymphedema when early exercise regimens are incorporated into postoperative care.

CHAPTER – III
RESEARCH METHODOLOGY

This chapter deals with the description of research methodology adopted by the investigator. Methodology is a systematic way to solve research problems. It helps the researcher to project a blue print of the research undertaken. Research methodology involves the systematic procedure by the researcher, which starts from initial identification of the problem to its final conclusion. The methodology of research indicates the general pattern of organizing the procedure for gathering valid and reliable data for the purpose of investigation. This study was undertaken to assess the effectiveness of Calisthenics therapy on shoulder pain and immobility among mastectomy patients admitted in postoperative wards, Rajiv Gandhi Government General Hospital Chenni-03.

This chapter includes research approach, research design, settings of the study, population, sampling technique, criteria for selection of samples, sample size, description of the tool, validity of the tool, pilot study and procedure for data collection and plan for data analysis.

3.1. RESEARCH APPROACH

Quantitative approach

3.2. RESEARCH DESIGN

Pre experimental one group pre test and post test only design was selected in order to evaluate the effectiveness of Calisthenics therapy. The research design is represented diagrammatically as follows

01	X	02
Pre assessment	Calisthenics therapy	Post assessment

O1 - Pre test
O2 - Post test
X   - Calisthenics therapy on shoulder pain and immobility

3. 3   STUDY SETTINGS

The study was conducted in post-operative wards at Rajiv Gandhi Government General Hospital, Chennai-03. It is the one of the apex institution in South East Asia. This hospital has almost all specialties and super specialties where tremendous education and pioneering research are carried out.

3.4 DURATION OF THE STUDY

4 weeks.

3.5 STUDY POPULATION

3.5.1. Target Population

The post mastectomy patients admitted in post-operative wards at Rajiv Gandhi Government General Hospital, Chennai-03.

3.5.2 Accessible Population

The post-operative patients are available during the period of data collection.

3.6 SAMPLE

The post mastectomy patients admitted in post-operative wards at Rajiv Gandhi Government General Hospital,Chennai-03.

3.7 SAMPLE SIZE

A total number of 60 post mastectomy patients were selected for the study.

3.8 SAMPLING CRITERIA

3.8.1 Inclusion Criteria

1)   Patients who have undergone mastectomy.

2)   Patients in 4th post- operative day without drainage tube.

3)   Patients who are willing to participate in the study.

4)   Patients who have above 30years of age.

5)   Patients who can understand and speak Tamil and English

3.8.2 Exclusion Criteria

1)   Patients those who are critically ill.

2)   Patients on drainage tube with fluid drainage.

3)   Patients who have already recovered from post-operative complications.

4)   Patients who had previously attended class on mastectomy exercise.

3.9 SAMPLING TECHNIQUE

The sampling technique used in this study was non-probability purposive sampling.

3.10 RESEARCH VARIABLES

3.10.1 Independent Variables

Calisthenics therapy intervention

3.10.2 Dependent Variables

Shoulder pain and immobility of mastectomy patients.

3.11. DEVELOPMENT AND DESCRIPTION OF THE TOOL

3.11. 1. Description of Data Collection Tool

The tool prepared in the study was based on the information gathered from the review of literature, objectives of the study. An interview was conducted by using Interview schedule to collect the data.

3.11.2 Development of the Tool

The researcher developed the tool on the basis of objectives of the study, Tool was developed after extensive review of literature from various textbook journals, internets and discussion and guidance from the experts in the field of nursing and medical experts in Rajiv Gandhi Government General Hospital, Chennai-03. The tool was developed in English and translated in to tamil. Congruency was maintained in translation.

Tool consists of two sections

Section A: Demographic Data

Structured interview schedule was used to collect demographic data. This section consists of demographic variables such as age in years, religion, marital status, educational status, occupation, income, diet, place of living, presence of comorbidity.

Section B: Shoulder pain and disability scale

Shoulder pain and disability scale was used to assess the shoulder pain and immobility and scoring was done according to the level of shoulder pain and disability.

3.11.3 SCORING INTERPRETATION

3.1. SPADI scale Scoring interpretation

PAIN(50)		DISABILITY(80)		SPADI TOTAL(130)	
Score	Shoulder pain	Score	Shoulder disability	score	Overall
0	No pain	0	No disability	0	No pain
1-15	Mild	1-24	Limited	1- 39	Mild
16-30	Moderate	25-48	Medium	40-78	Moderate
31-45	Severe	49-72	High	79-117	Severe
46-50	Extreme	73-80	Extreme	118-130	Extreme

3.12 VALIDITY OF THE TOOL

The tool was validated by panel of Doctors expert in General surgery and faculty members in Medical Surgical Nursing experts. Few suggestions were given by experts and the tool was modified accordingly. After the modifications they agreed this tool for assessing effectiveness of Calisthenics therapy on shoulder pain and immobility among mastectomy patients.

3.12.3 Reliability of the Tool

The reliability of the tool was checked by using test retest method and the reliability value for shoulder and disability scale was r = 0.86. This show that the tool was highly reliable and feasible for conducting the main study.

3.14 HUMAN RIGHTS AND ETHICAL CONSIDERATIONS

The study was approved by the ethical committee constituted by the college. Permission was obtained from the Head of the institution to conduct the study. The study was conducted after obtaining approval from the ethics committee, Madras Medical College, Chennai-03. The respondents were explained about the purpose and need of the study. They were assured that their details and answers will be used only for the research purpose. Further they were ensured that their details will be kept confidentially. Thus the investigator followed the ethical guidelines, which were issued by the ethics committee. Written consent was obtained from all participants before conducting the study.

3.15 PILOT STUDY

After obtaining permission from the Director Clinical and Academic affairs. The pilot study was conducted at Rajiv Gandhi Government General Hospital, Chennai-03 from 06.08.18 to 12.08.18. Totally 6 mastectomy patients who were all fulfilled the inclusion criteria were included for the pilot study samples. After establishing

rapport with samples, self-introduction was given. The purpose of the study was explained and the consent was obtained from the participants. Interview was conducted by the investigator using interview schedule to assess the shoulder pain and disability and give the Calisthenics therapy for approximately 15 minutes for 3 times per day for 7 day,the investigator to complete the intervention. The results revealed that the tool was feasible and easy to practicable. The pilot study suggested that the main study was carried out without any modification after pilot study. Pilot study is a trial run for the main study, to test the reliability, practicability and feasibility of the study. The samples on which the pilot study was conducted were excluded in the main study.

3.16 DATA COLLECTION PROCEDURE

Formal permission to conduct the pilot study and main study was obtained from the Dean and Director of General Surgery in Rajiv Gandhi Government General Hospital, Chennai. The period of the study was extended for four weeks; the data was collected from Monday to Saturday 8am to 4 pm. using non probability purposive sampling technique 60 samples were selected who fulfilled the selection criteria.

The investigator introduced her to the selected sample of the mastectomy patients and written consent was obtained from each participant after giving assurance of confidentiality. Then the post mastectomy patients were assessed about the shoulder pain and immobility by use of SPADI scale. Each day data was collected from available samples and the samples of 3 or 5 samples were gathered as a group.

The pre test data was collected for 10 minutes. The Calisthenics therapy was implemented on the same day for 20 minutes. The mastectomy patients participated with interest and they were alert and enthusiastic. Certain points were repeated for better understanding and doubts were clarified and intervention given to the mastectomy patients 3 times per day.

32

After 7 days of interval post test was conducted for 10 minutes among the same samples using the same scale and evaluated the effectiveness of shoulder pain and immobility among mastectomy patients at Rajiv Gandhi Government General Hospital, Chennai.

3.17 PLAN FOR DATA ANALYSIS

Descriptive and inferential statistics were used for data analysis.

3.17.1 Descriptive Statistics

1) Frequency and percentage distribution was used to assess demographic variables and level of shoulder pain and immobility score.

2) Frequency, percentage distribution, mean and standard deviation was used to assess level of shoulder pain and immobility score.

3.17.2 Inferential Statistics

Quantitative SPADI score in pre test and post test were compared using student's paired t-test.

Quantitative level of SPADI score in pre test and post test were compared using Stuart-Maxwell test /extended Mc Nemar test.

Association between demographic variables and SPADI score were analyzed using pearson chi-square test.

Differences and generalization of SPADI reduction score between pre test and post test score was calculated using and mean difference with 95% CI and proportion with 95% CI.

Simple bar diagram, Multiple bar diagram, Pie diagram and Box plot were used to represent the data .

$P \leq 0.05$ was considered statistically significant. All statistical test are two tailed test.

FIG.3.1: SCHEMATIC REPRESENTATION OF THE RESERCH METHODOLOGY

Research Approach: Quantitative approach

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Research Design: Pre experimental one group pre test and post test only design

↓

Setting Of The Study: General Surgery Department, Rajiv Gandhi Government General Hospital , Chennai-03

↓

Study Population: Mastectomy patients admitted in postoperative wards

↓

Sampling Technique: Non-probability purposive sampling

↓

Sample Size: 60 mastectomy patients

↓

Description Of The Tool: Demographic data, SPADI Scale

↓

Data Collection : Assessment of Demographic data and SPADI Scale

↓

Intervention: Calisthenics Therapy

↓

DATA ANALYSIS: Descriptive and inferential analysis

↓

FINDINGS AND CONCLUSION

34

CHAPTER –IV
DATA ANALYSIS AND INTERPRETATION

Data analysis and interpretation is the core step in research process. The importance of analysis and interpretation of the collected data is to systematically organize, classify and summarize it, so that the results can be interpreted and comprehended to give all the answers that triggered the research. This chapter deals with analysis and interpretation of data collected from 60 mastectomy patients admitted in Rajiv Gandhi Government General Hospital, Chennai-03. The data collected were edited tabulated, analyzed, interpreted and the findings were presented in the forms of tables and figures.

ORGANIZATION OF DATA

The data has been tabulated and analyzed according to the objectives and interpreted in the following sections.

Section-A: Distribution of the demographic variables of mastectomy patients admitted in Rajiv Gandhi Government General Hospital Chennai -03.

Section-B: Assessment of pre test level of shoulder pain and immobility of mastectomy patients.

Section-C: Comparison of pre test and post test level of shoulder pain and immobility of mastectomy patients.

Section-D: Assessment of the effectiveness of Calisthenics therapy on shoulder pain and immobility of mastectomy patients.

Section-E: Association between level of shoulder pain and immobility with demographic variables of mastectomy patients.

SECTION- A: DISTRIBUTION OF THE DEMOGRAPHIC VARIABLES OF MASTECTOMY PATIENTS ADMITTED IN POST OPERATIVE WARDS AT RGGGH.

Table-4.1 Frequency distribution of demographic variables of mastectomy patients

Demographic variables		No of patients	%
Age	30 -40 years	11	18.33%
	41 -50 years	16	26.67%
	51 -60 years	25	41.67%
	> 60 years	8	13.33%
Religion	Hindu	38	63.33%
	Muslim	10	16.67%
	Christian	12	20.00%
Marital status	Single	5	8.33%
	Married	36	60.00%
	Widowed	14	23.34%
	Divorced	5	8.33%
Educational Status	Professionals	0	0.00%
	Graduate	2	3.33%
	Diploma	6	10.00%
	High school	13	21.67%
	Middle school	15	25.00%
	Primary school	16	26.67%
	Illiterate	8	13.33%
Occupation	Legislators, Senior Official & Managers	0	0.0%
	Professionals	0	0.0%
	Technicians and Associate Professionals	0	0.0%
	Clerks	8	13.33%
	Skilled Workers and Shop& Market Sales Workers	9	15.00%
	Craft & Related Trade Workers	13	21.67%
	Plant& Machine Operators and Assemblers	6	10.00%
	Elementary Occupation	16	26.67%
	Unemployed	8	13.33%

Demographic variables		No of patients	%
Income per month	< Rs.5000	20	33.34%
	Es.5001 - 10000	18	30.00%
	Rs.10001 -15000	11	18.33%
	Rs.15001 -20000	6	10.00%
	>Rs.20000	5	8.33%
Diet pattern	Vegetarian	13	21.67%
	Non Vegetarian	47	78.33%
Menstrual history	Regular menstrual history	11	18.33%
	Irregular menstrual history	14	23.34%
	Attained menopause	35	58.33%
Place in living	Urban	23	38.33%
	Rural	24	40.00%
	Semi urban	13	21.67%
Co-morbidity	Yes	10	16.67%
	No	50	83.33%
Type of morbidity	Diabetes	7	11.67%
	Hypertension	3	5.00%
	Nil	50	83.33%

Table 4.1shows the frequency and percentage distribution of the demographic variables of mastectomy patients.

Those ages were divided into four age groups. It reveals distribute from 30-40years is 11 (18.33%), the age from 41-50 years is 16(26.67%), the age from 51-60years is 25(41.67%), the age from >60years 8 (13.33%).

The mastectomy patients were divided into three groups based on religion. It reveals Hindu is 38(63.33%), Muslim is 10 (16.67%), Christian is 12 (20%).

Considering marital status of the mastectomy patients 5(8.33%) were single, 36(60%) were married 14(23.34%) were widowed, 5(8.33%) were divorced. Majority of them married.

Educational status was divided into six groups. With respect to the education 2 (3.33%) have graduate, 6(10%) have diploma, 13 (21.67%) have High school, 15(25%) have middle school, 16(26.67%) have primary school, 8 (13.33%) have illiterate.

The mastectomy patients were divided into six groups according to occupation. It reveals 8 (13.33%) were clerks, 9 (15%) were skilled workers and shop and market sales workers13 (21.67%) were craft and related trade workers, 6(10%) were plants and machine operators and assemblers, 16(26.67%) elementary occupation, 8 (13.33%) unemployed.

The mastectomy patient was divided into five groups according to the salary they paid monthly. In that 20(33.34%) of less than Rs.5000, 18(30%) of Rs.5001-10000, 11(18.33%) of Rs.10001-15000, 6(10%) of Rs.15001-20000, 5(8.33%) of more than Rs.20000.

On the basis of the diet pattern divided into two groups' vegetarian and Non vegetarian. In that 13(21.67%) were belongs to vegetarian and 47(78.33%) were belongs to non-vegetarian.

Based on their menstrual history were divided into three groups. In this 11 (18.33%) had regular menstrual history, 14(23.34%) had irregular menstrual history, 35(58.33%) had attained menopause. On the basis of place of living were divided into three groups. In this 23 (38.33%) had urban, 24(40%) had rural, 13(21.67%) had semi urban.

According to involvement of co morbidity, 10 (16.67%) had comorbidity, 50(83.33%) had no co morbidity. In this 7(11.67%) had diabetes mellitus, 3 (5%) had hypertension.
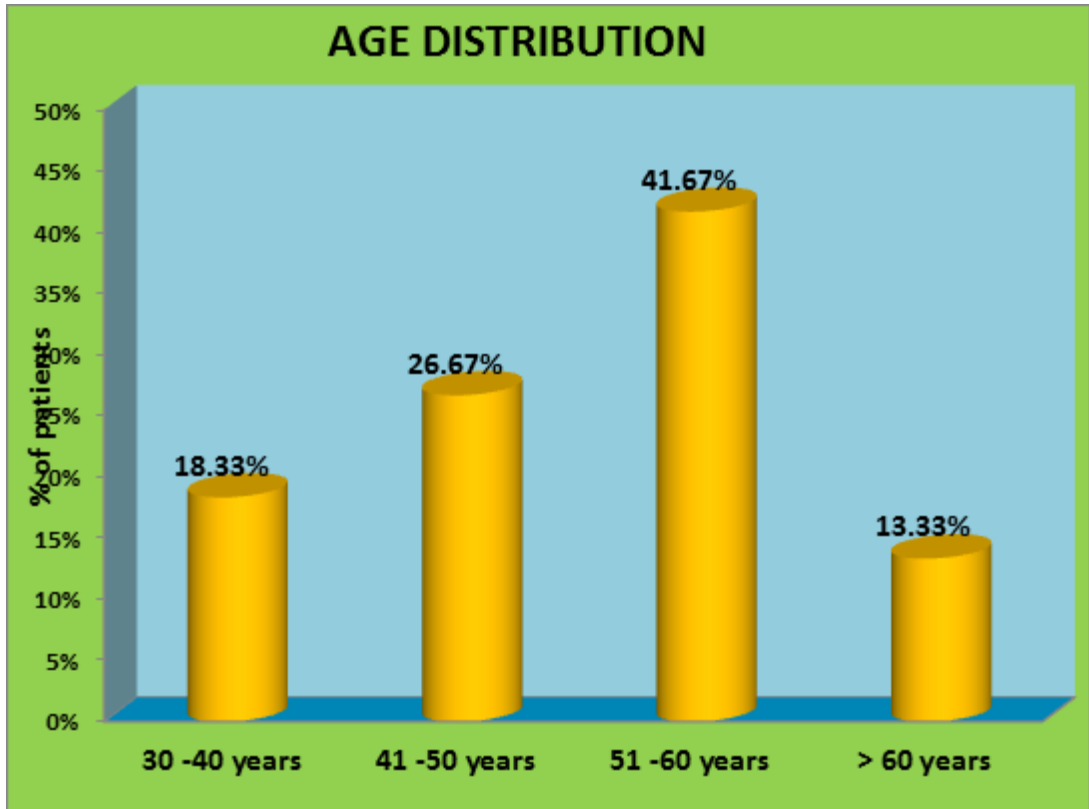
Figure 4.1 shows age wise percentage and distribution of mastectomy patients
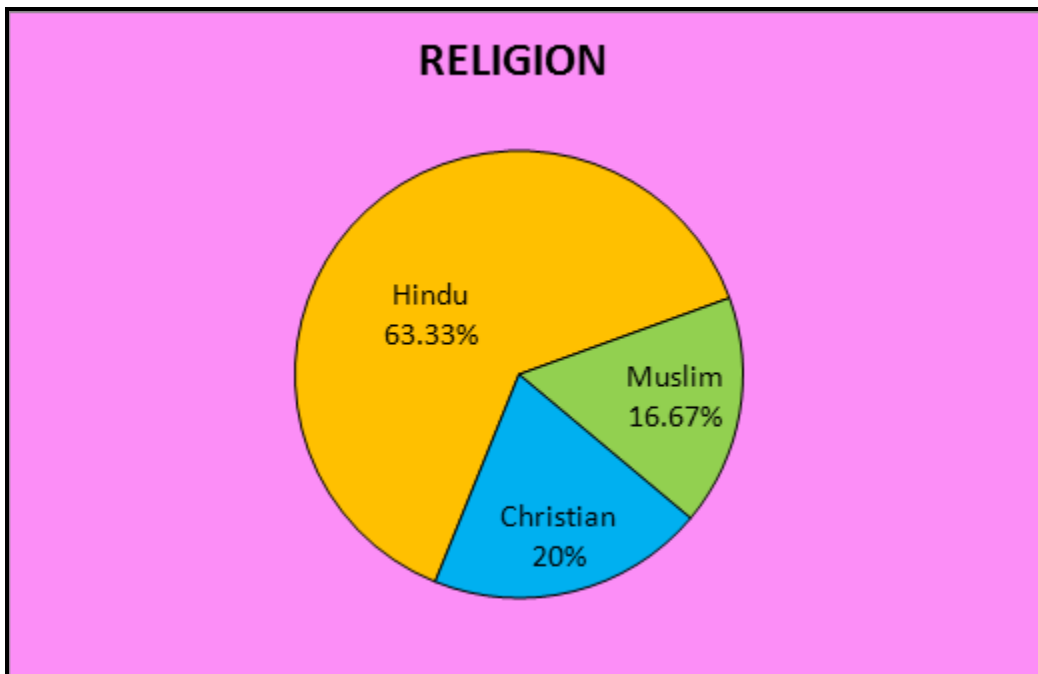
Figure 4.2 shows religion wise percentage and distribution of mastectomy patients
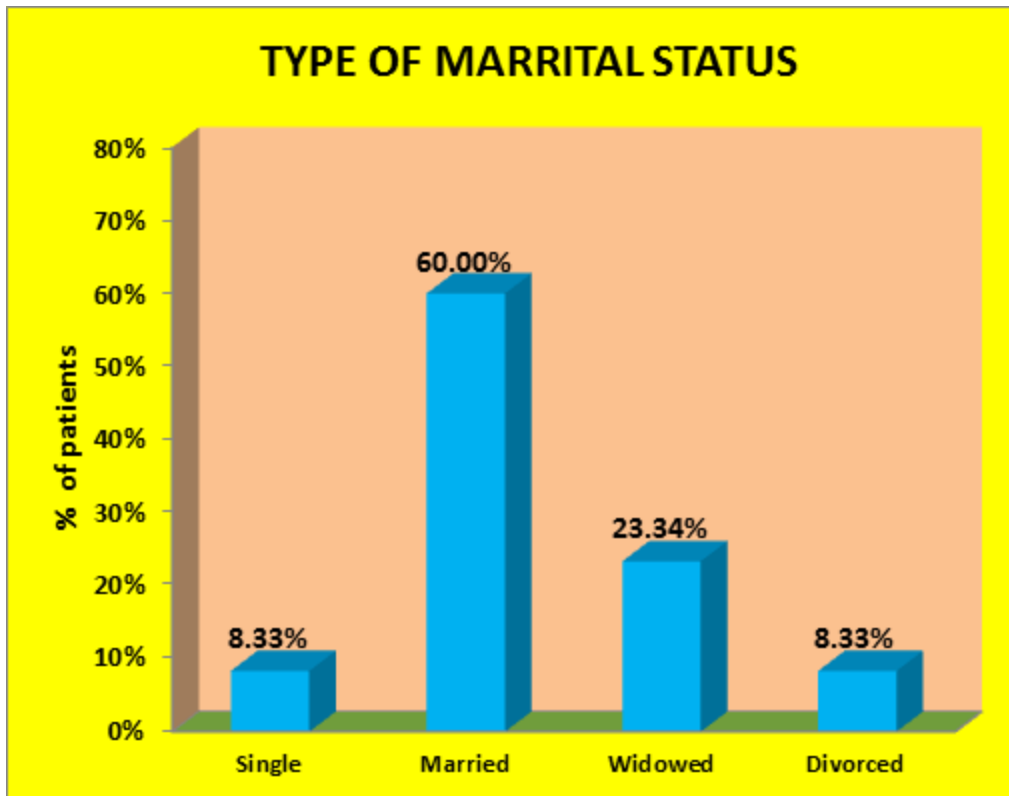
Figure 4.3 shows percentage and distribution of marital status of mastectomy patients
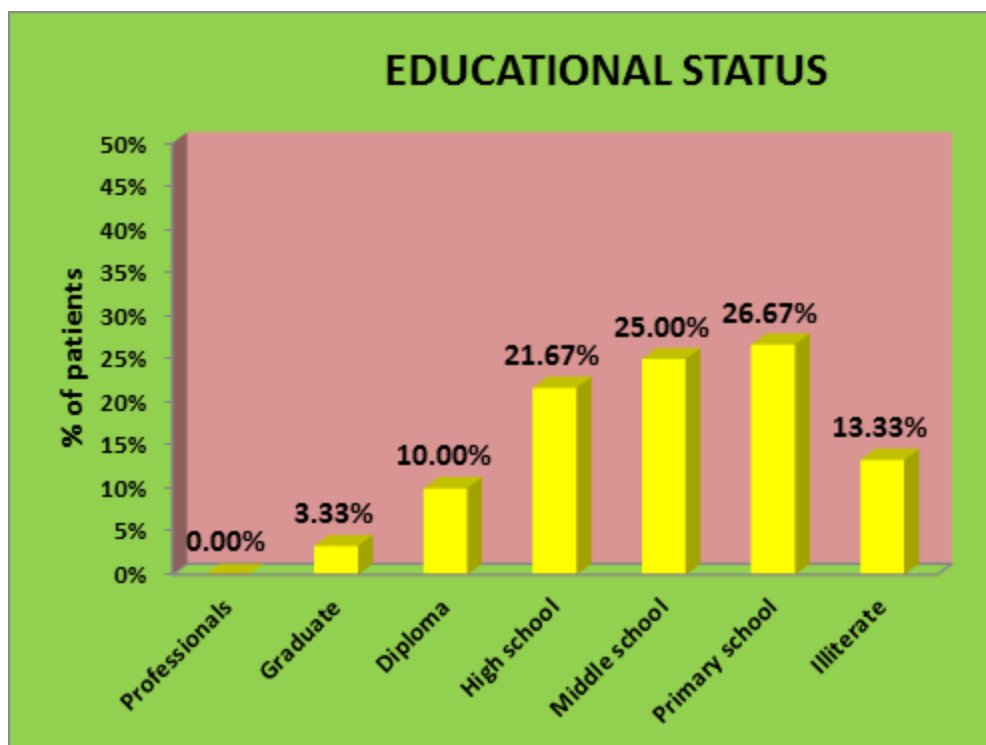
Figure 4.5 shows percentage and distribution of occupational status of mastectomy patients.
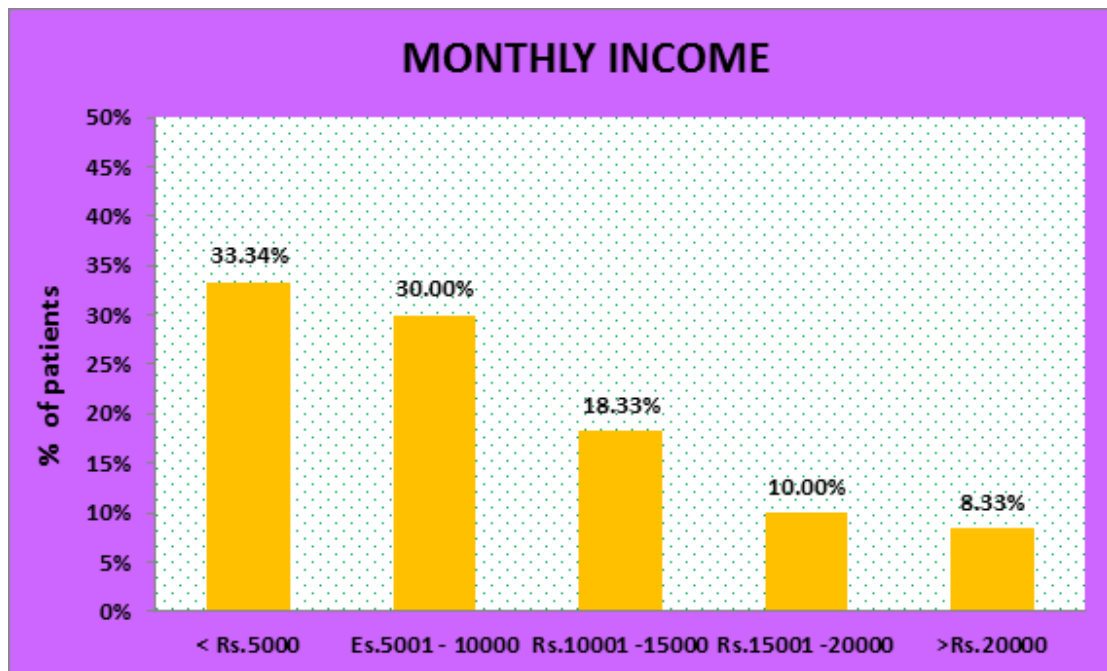
Figure 4.6 shows percentage and distribution of monthly income of mastectomy patients
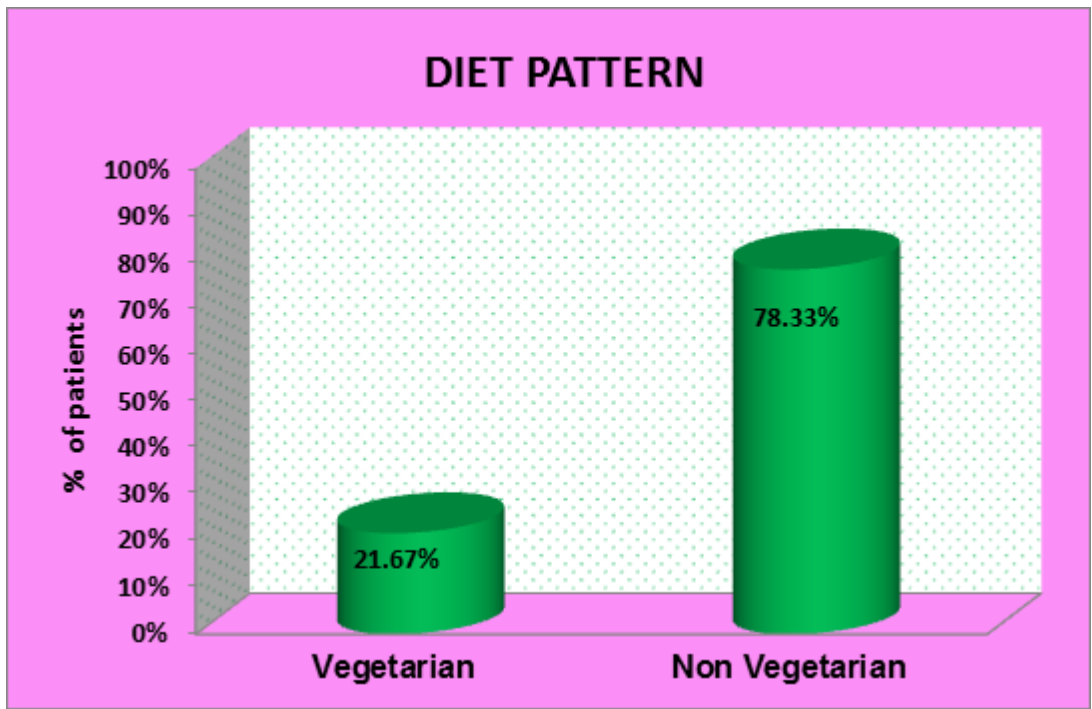
Figure 4.7 show percentage and distribution regarding diet pattern of mastectomy patients
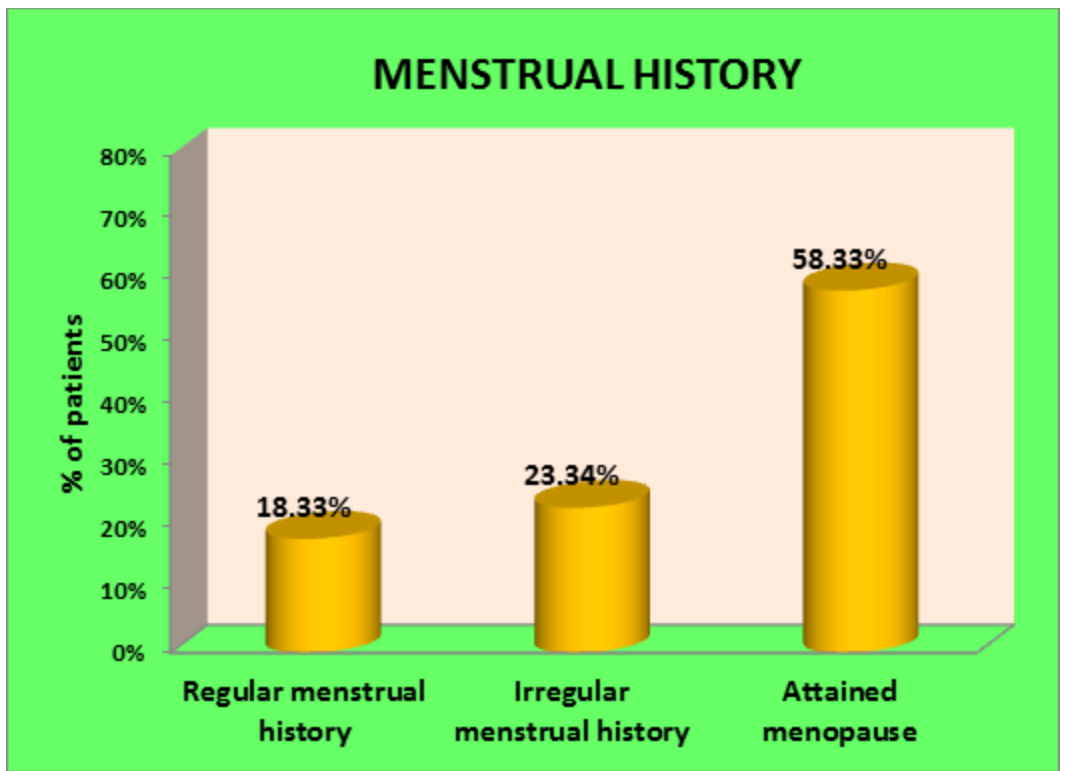
Figure 4.8 show percentage and distribution of menstrual history of mastectomy patients.
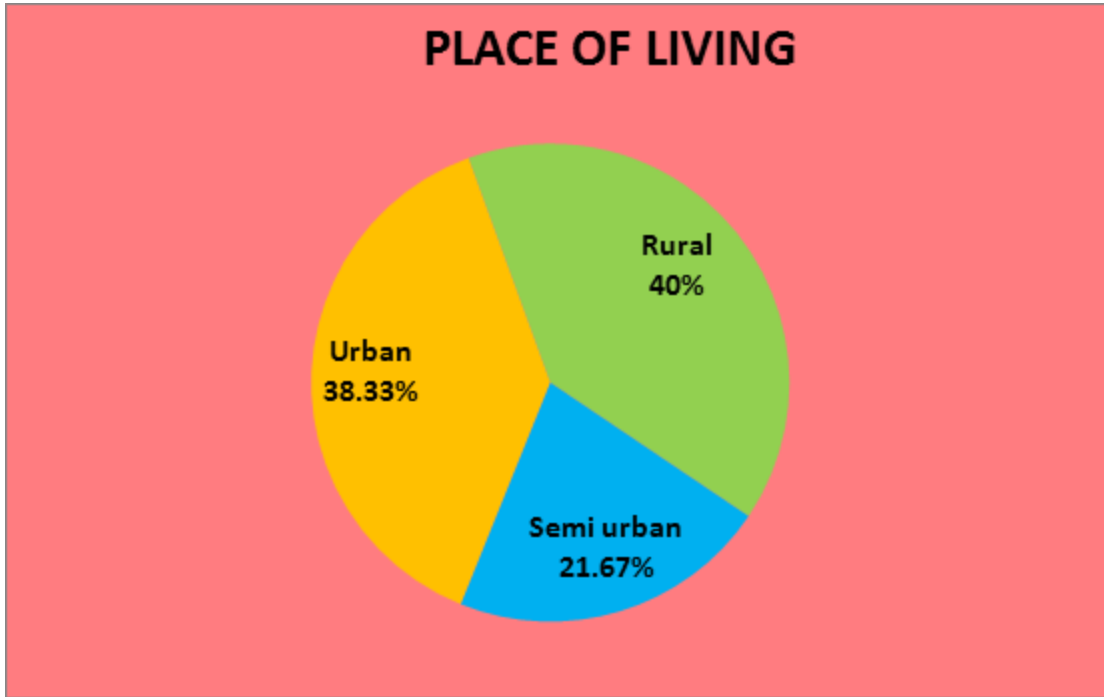
Figure 4.9 shows percentage and distribution of place of living of mastectomy patients.
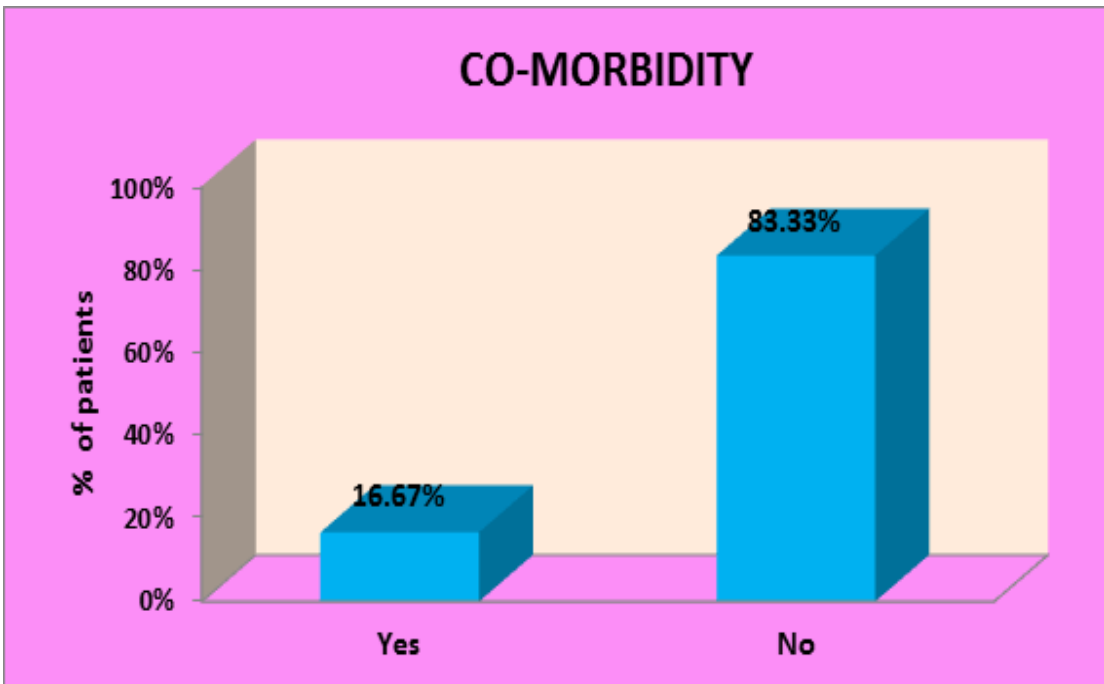
Figure 4.10 shows percentage and distribution of co morbidity of mastectomy patients

43
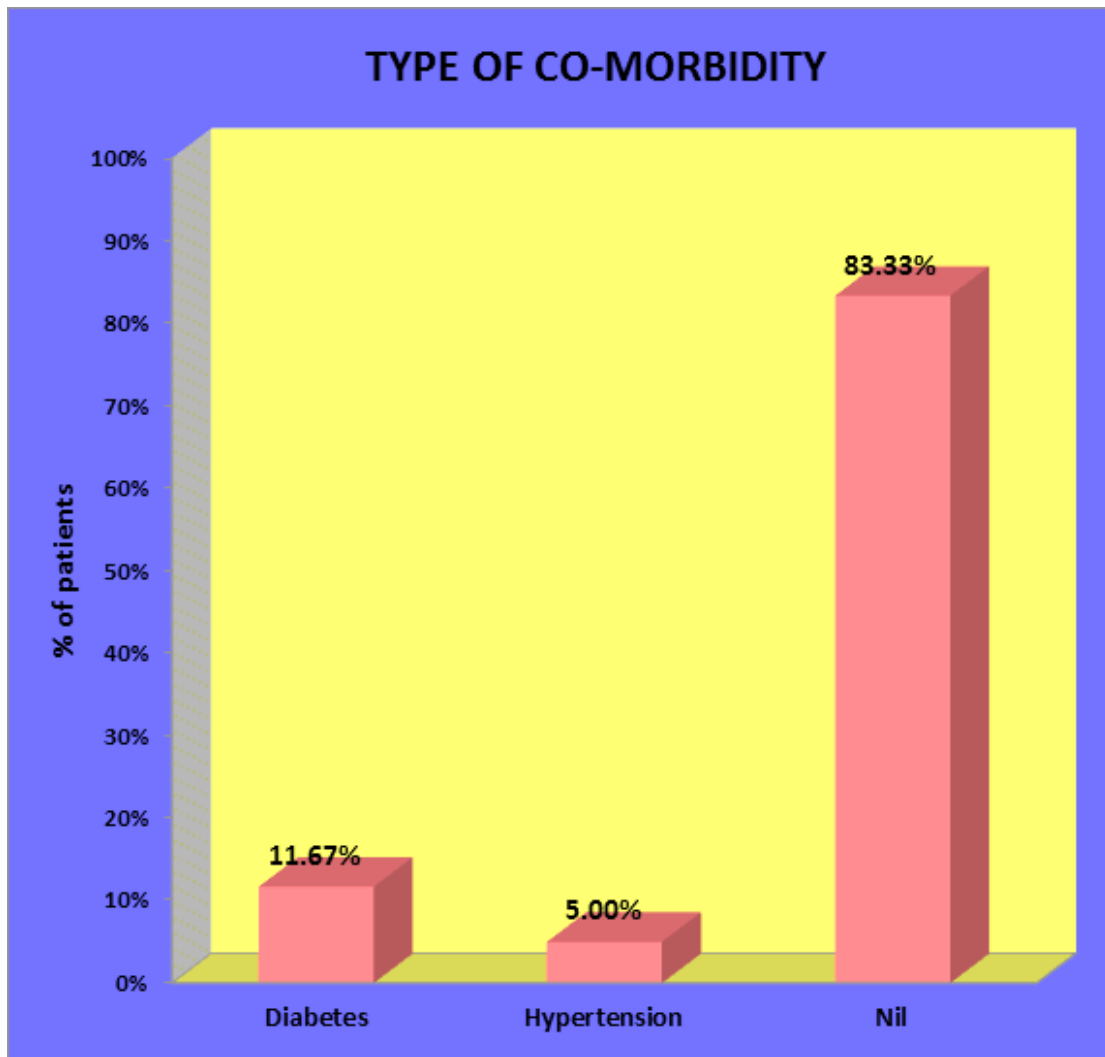
Figure 4.11 shows percentage and types of co morbidity of mastectomy patients

Table-4.2: Frequency and percentage distribution of each domain wise pre test level of shoulder pain and immobility score among mastectomy patients.

	Domains	Min – Max score	SCORE		
			Mean	SD	% of mean score
Shoulder pain	At its worst?	0 -10	7.18	1.67	71.80%
	When lying on the involved side?	0-10	6.85	1.75	68.50%
	Reaching for something on a high shelf?	0-10	6.95	1.71	69.50%
	Touching the back of your neck?	0-10	7.07	1.71	70.70%
	Pushing with the involved arm?	0-10	7.42	1.72	74.20%
	TOTAL	0-50	35.47	8.22	70.94%
Immobility	Washing your hair?	0 -10	7.05	1.72	70.50%
	Washing your back	0 -10	6.95	1.73	69.50%
	Putting on an undershirt or Jumper?	0-10	6.90	1.76	69.00%
	Putting on a shirt that Buttons down the front?	0-10	6.92	1.73	69.20%
	Putting on your pants?	0-10	7.37	1.83	71.70%
	Placing an object on a high shelf?	0-10	6.92	1.76	69.20%
	Carrying a heavy object of 10 pounds (4.5 kilograms)?	0-10	7.30	1.73	73.00%
	Removing something from your back pocket?	0-10	7.37	1.79	73.70%
	TOTAL	0-10	56.78	3.51	70.99%
SPADI	Over all TOTAL	0-130	92.25	21.68	70.97%

Table 4.2 shows the pre test score 70.94% of them are having shoulder pain, 70.99% of them are having immobility and overall SPADI score is 70.97%.

SECTION-B: ASSESSMENT OF PRE TEST LEVEL OF SHOULDER PAIN AND IMMOBILITY OF MASTECTOMY PATIENTS.

Table-4.3: Frequency and percentage distribution of pre test level of pain and immobility score

Pain score	n	%	Immobility score	n	%	Overall SPADI score	n	%
No pain	0	0.0%	No disability	0	0.0%	Nil	0	0.0%
Mild	3	5.0%	Limited	4	6.7%	Mild	3	5.0%
Moderate	8	13.3%	Medium	6	10.0%	Moderate	7	11.7%
Severe	49	81.7%	High	50	83.3%	Severe	50	83.3%
Extreme	0	0.0%	Extreme	0	0.0%	Extreme	0	0.0%
TOTAL	60	100.0%	TOTAL	60	100.0%	TOTAL	60	100.0%

Table 4.3 shows each domain wise pre test level of shoulder pain and immobility, it considering pain score, 81.7% of them are having severe pain ,13.3% of them are having moderate pain, 5% of them are having mild pain, and considering immobility score, 83.3% of them are having high disability, 10.0% of them are having moderate score , and 6.7% of them are having limited disability score, considering over all SPADI score, 83.3% of them are having severe score , 11.1% of them are having moderate score, 5.0% of them having mild level of score .

46
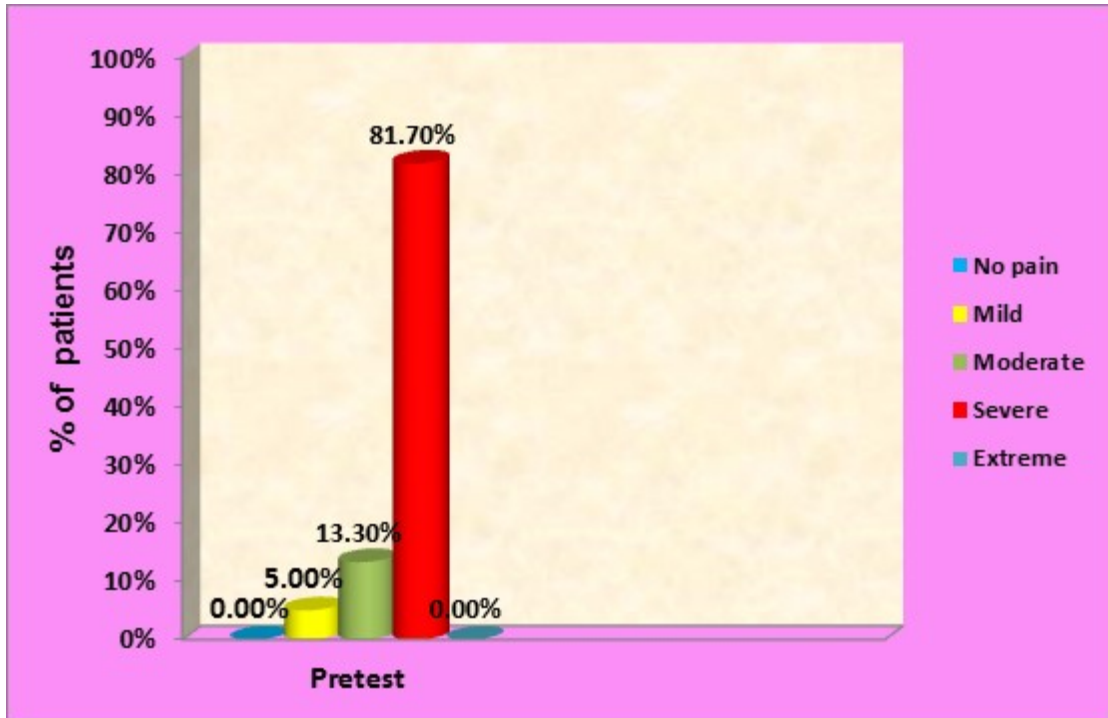
Figure4. 12 shows pre test level of shoulder pain score of mastectomy patients
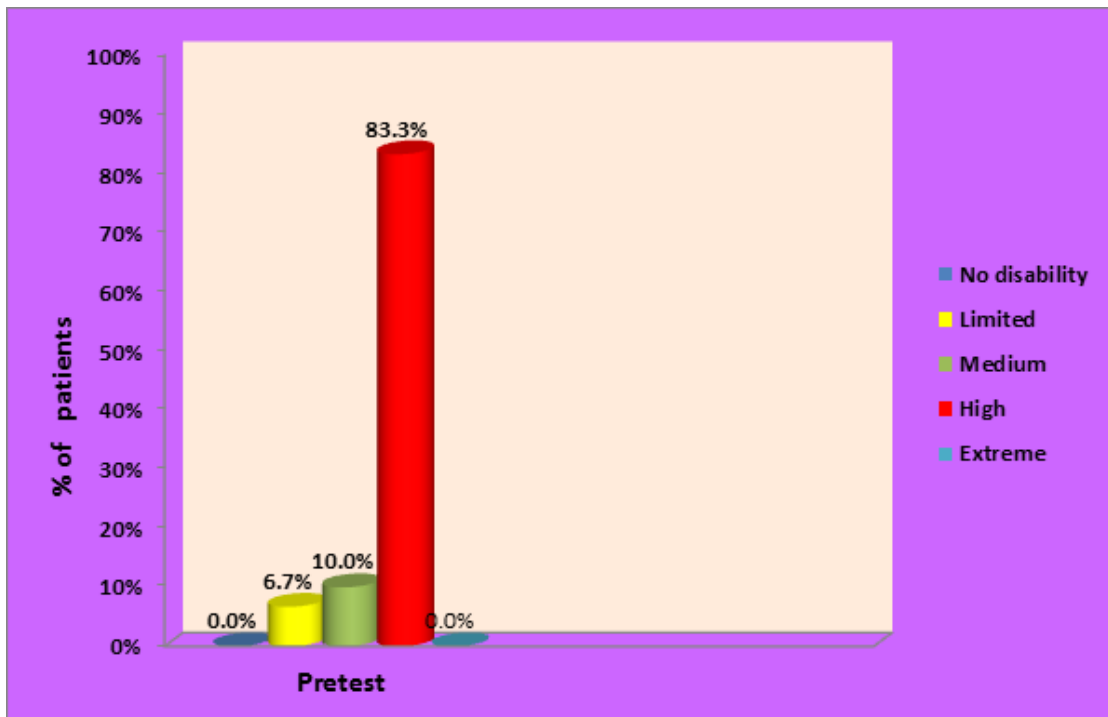
Figure 4.13 shows pre test level of immobility score of mastectomy patients
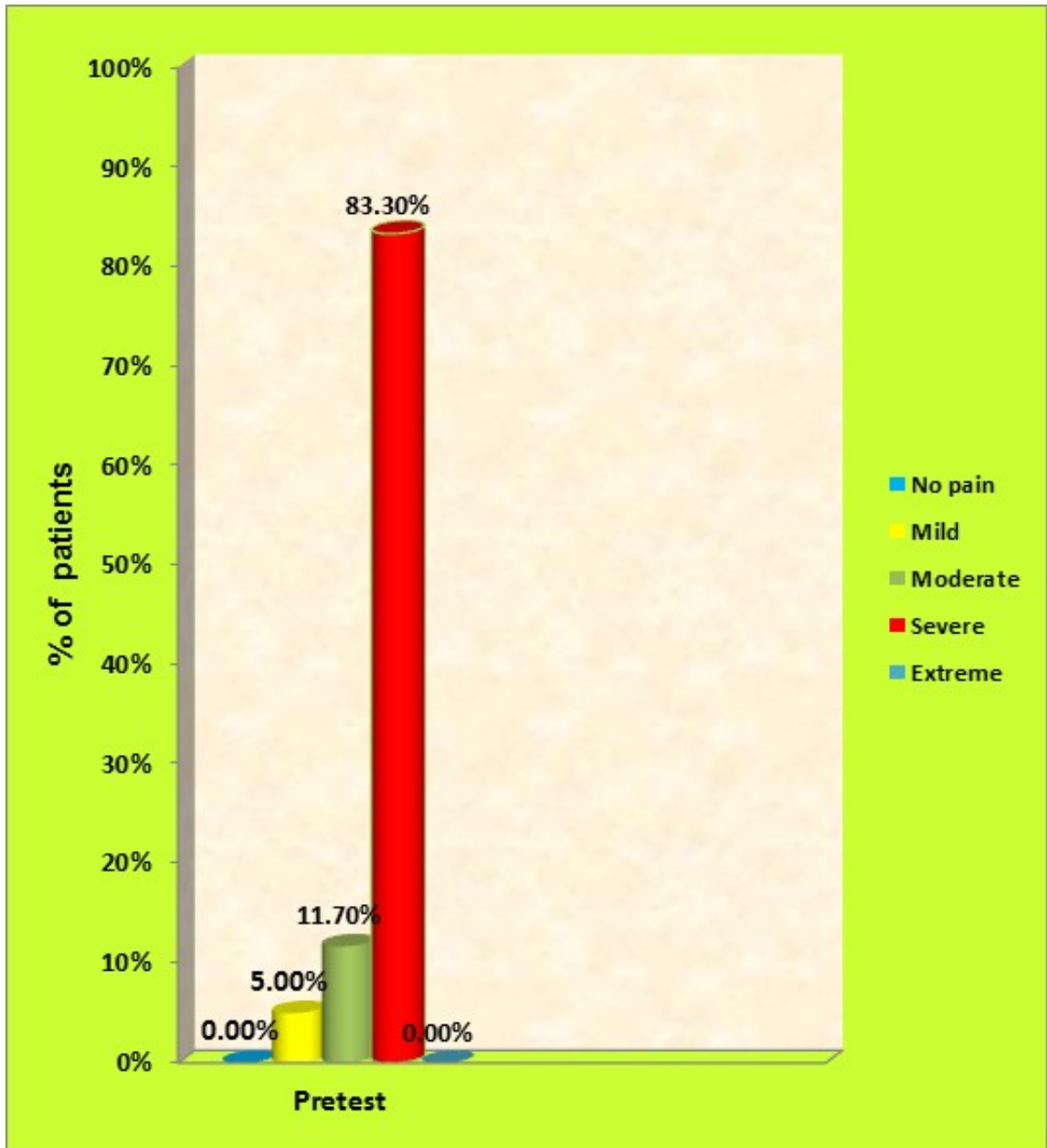
Figure 4.14 show pre test level of SPADI score

SECTION-C: COMPARISON OF PRE TEST AND POST TEST LEVEL OF SHOULDER PAIN AND IMMOBILITY OF MSTECTOMEY PATIENTS

Table-4.4: Frequency and percentage of each domain wise distribution of post test level of shoulder pain and immobility score among mastectomy patients

	Domains	Min – Max score	Score		
			Mean	SD	%of mean score
Shoulder pain	At its worst?	0 -10	3.20	1.25	32.00%
	When lying on the involved side?	0 - 10	2.97	1.09	29.70%
	Reaching for something on a high shelf?	0 - 10	2.80	1.16	28.00%
	Touching the back of your neck?	0 - 10	3.18	1.07	31.80%
	Pushing with the involved arm?	0 - 10	3.30	1.22	33.00%
	TOTAL	0 -50	15.45	4.39	30.90%
Immobility	Washing your hair?	0 -10	3.03	.80	30.30%
	Washing your back	0 -10	2.92	1.21	29.20%
	Putting on an undershirt or jumper?	0 -10	3.12	1.12	31.20%
	Putting on a shirt that buttons down the front?	0 -10	2.98	1.17	29.80%
	Putting on your pants?	0 -10	2.92	1.05	29.20%
	Placing an object on a high shelf?	0 -10	3.25	1.33	32.50%
	Carrying a heavy object of 10 pounds (4.5 Kgs)	0 -10	3.85	1.02	38.50%
	Removing something from your back pocket	0 -10	2.61	1.03	26.10%
	TOTAL	0 -80	24.68	6.77	30.86%
SPADI	Overall Total (Pain+ Immobility)	0 -130	40.13	11.02	30.88%

Table 4.4 shows each domain wise post-test 30.90% of them are having shoulder pain , 30.86% of them are having immobility and overall score is 30.88%.

Table-4.5: Post test Level of Shoulder Pain and Immobility Score

Pain score			Immobility score			Overall SPADI score		
	n	**%**		**n**	**%**		**n**	**%**
No pain	0	0.0%	No disability	0	0.0%	Nil	0	0.0%
Mild	44	73.3%	Limited	46	76.7%	Mild	45	75.0%
Moderate	13	21.7%	Medium	11	18.3%	Moderate	12	20.0%
Severe	3	5.0%	High	3	5.3%	Severe	3	5.0%
Extreme	0	0.0%	Extreme	0	0.0%	Extreme	0	0.0%
TOTAL	60	100.0%	TOTAL	60	100.0%	TOTAL	60	100.0%

Table 4.5 shows post level of shoulder pain and immobility considering pain score, 73.3% of them having mild pain, 21.7% of them are having moderate pain, 5% of them are having severe pain and considering immobility score, 76.7% of them having limited disability, 18.3% of them are having moderate disability, 5.3% of them are having high disability score and considering combination of pain and immobility score, 75% of them having mild level of score, 20% of them are having moderate level of score, 5% of them are having severe level of score.
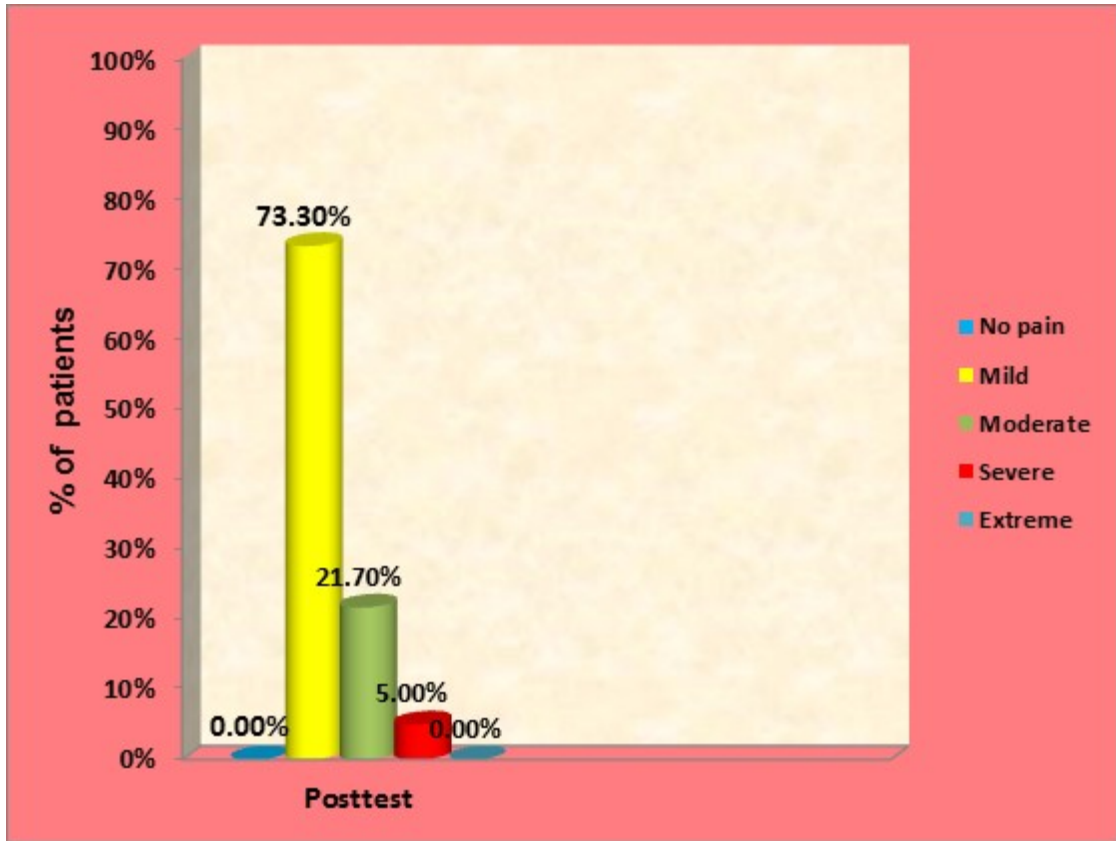
Figure 4. 15 shows post -test level of shoulder pain
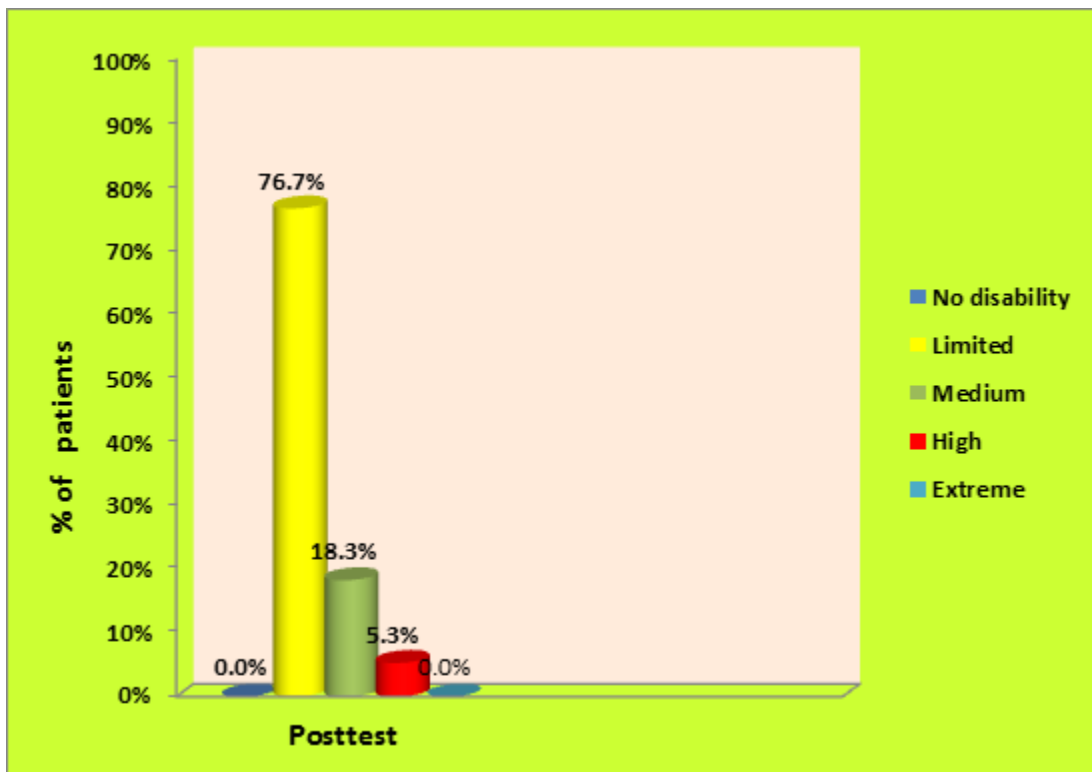
Figure 4.16 shows post-test level of immobility
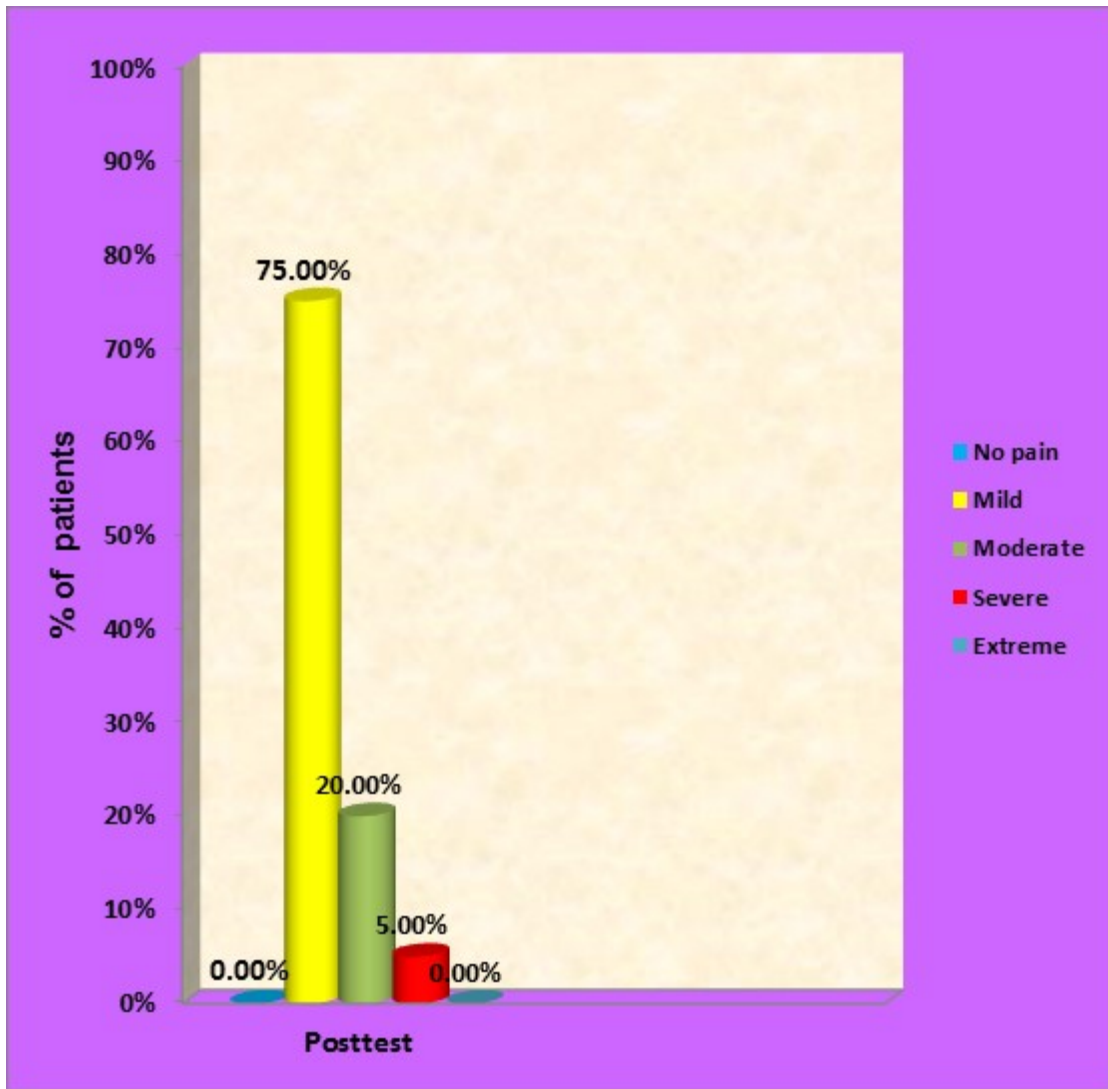
Figure-4.17 shows post test level of overall SPADI score

Table-4.6:Comparison of Pre test and Post test Score

S. No	Score	Pre test		Post test		Mean Difference	Student's paired t-test
		Mean	SD	Mean	SD		
1	Pain score	35.47	8.22	15.45	4.39	20.02	t=19.67P=0.001 *** DF= 59 , Significant
2	Immobility score	56.78	13.51	24.68	6.77	32.10	t=20.25 P=0.001 *** DF= 59 , Significant
	Overall SPADI score	92.25	21.68	40.13	11.02	52.12	t=21.53P=0.001 *** DF= 59 , Significant

***Very high significant at P=0.001

Table 4.6   shows comparing the pre test and post test and it is considering pain score, in pre test the patients are having 35.47 score and in post test they are having 15.45 score, so the difference is 20.12 (P=0.001) . According to mobility score, in pre test the patients are having 56.78 score and in post test they are having 24.68 score, so the difference is 32.10 (P= 0.001). Considering Overall SPADI score, in pre test the patients are having 92.25 score and in post test they are having 40.13 score. So the difference is 52.12 (P= 0.001). Therefore the above findings   difference is large and statistically significant difference.
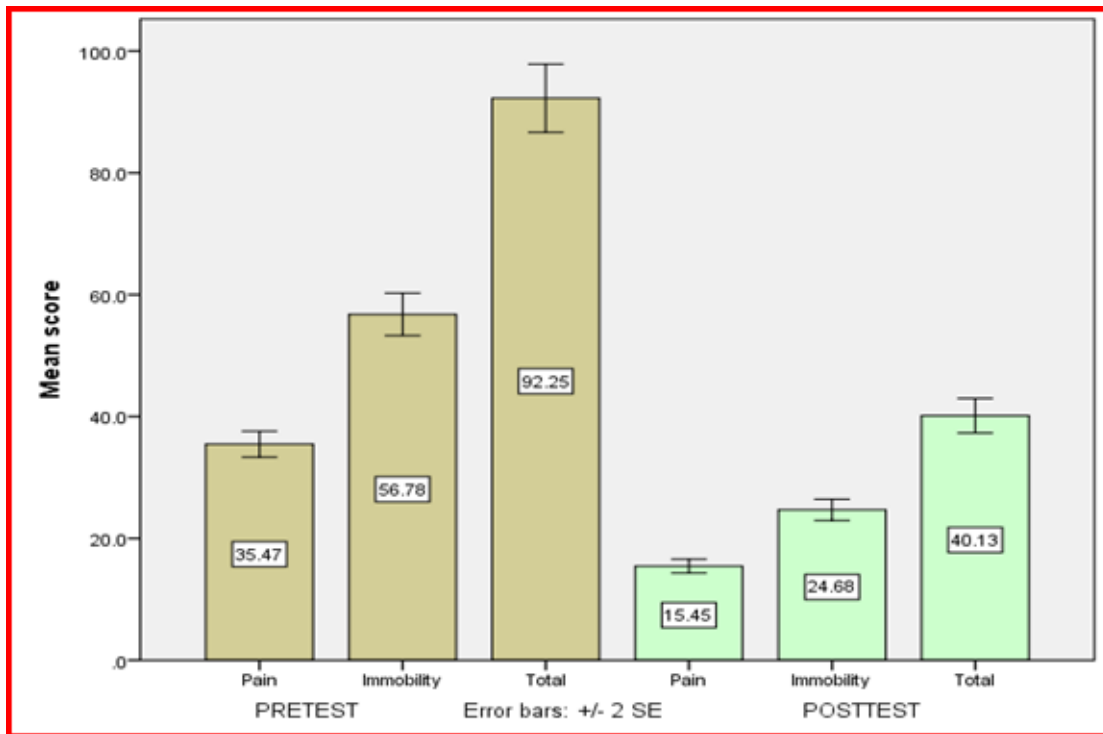
Figure 4.18 shows Box Plot Compares pre test and post test level of shoulder pain and immobility score of mastectomy patients.

Table-4. 7: Each Domain Wise Pre test And Post test Percentage Of Pain And Mobility Score

	Domain	Pre-test	Posttest	% of reduction score
shoulder pain	At its worst?	71.80%	32.00%	39.80%
	When lying on the involved side?	68.50%	29.70%	38.80%
	Reaching for something on a high shelf?	69.50%	28.00%	41.50%
	Touching the back of your neck?	70.70%	31.80%	38.90%
	Pushing with the involved arm?	74.20%	33.00%	41.20%
	TOTAL	70.94%	30.90%	40.04%
immobility	Washing your hair?	70.50%	30.30%	40.20%
	Washing your back?	69.50%	29.20%	40.30%
	Putting on an undershirt or jumper?	69.00%	31.20%	37.80%
	Putting on a shirt that buttons down the front?	69.20%	29.80%	39.40%
	Putting on your pants?	71.70%	29.20%	42.50%
	Placing an object on a high shelf?	69.20%	32.50%	36.70%
	Carrying a heavy object of 10 pounds (4.5 kilograms)?	73.00%	38.50%	34.50%
	Removing something from your back pocket?	73.70%	26.10%	47.60%
	TOTAL	70.99%	30.86%	40.13%
SPADI	Overall Total(Pain+ Immobility)	70.97%	30.88%	40.09%

Table 4.7 shows pre test and post test percentage of shoulder pain and immobility of mastectomy patients. It is considering pain score, in pre test patients are having 70.94% of pain score and in post test they are having 30.90% pain score, difference of reduction score is 40.30% . According to immobility score, in pre test patients are having 70.99% of pain score and in post test they are having 30.86% pain score, difference of reduction score is 40.13% of immobility score. It is considering overall SPADI score, in pre test patients are having 70.97% of score and in post test they are having 30.88% score, difference of reduction score is 40.09%.
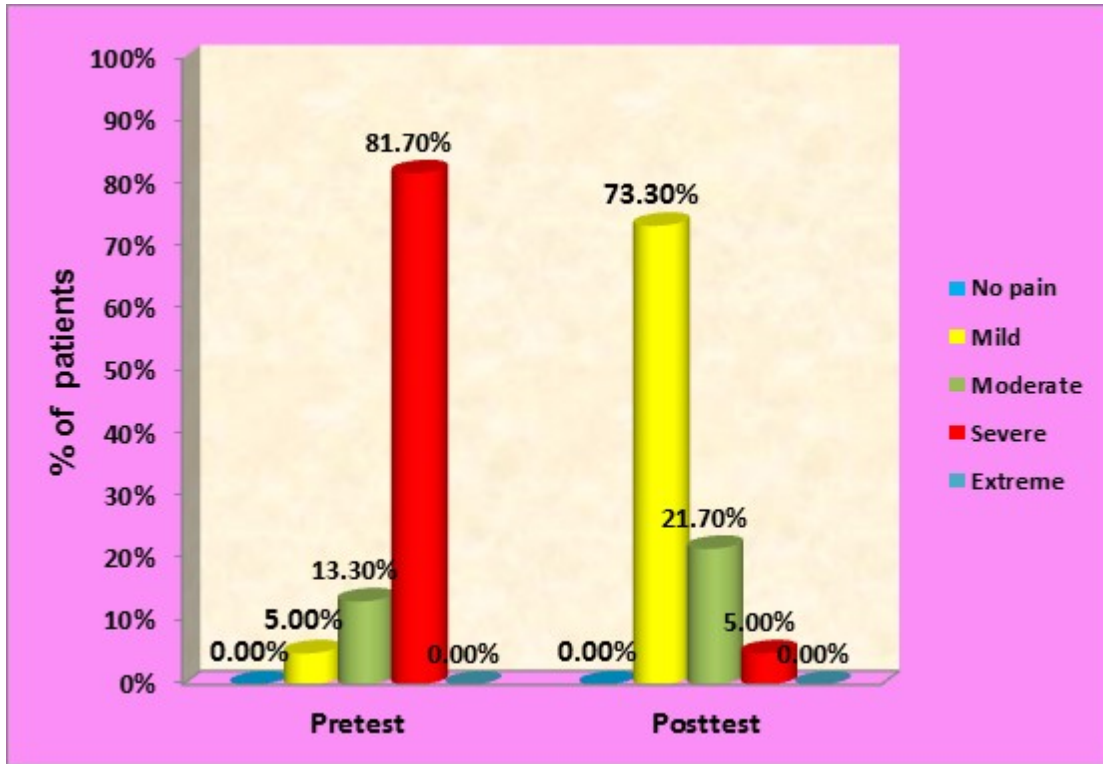
Figur4. 19 shows pre test and post test level of pain score
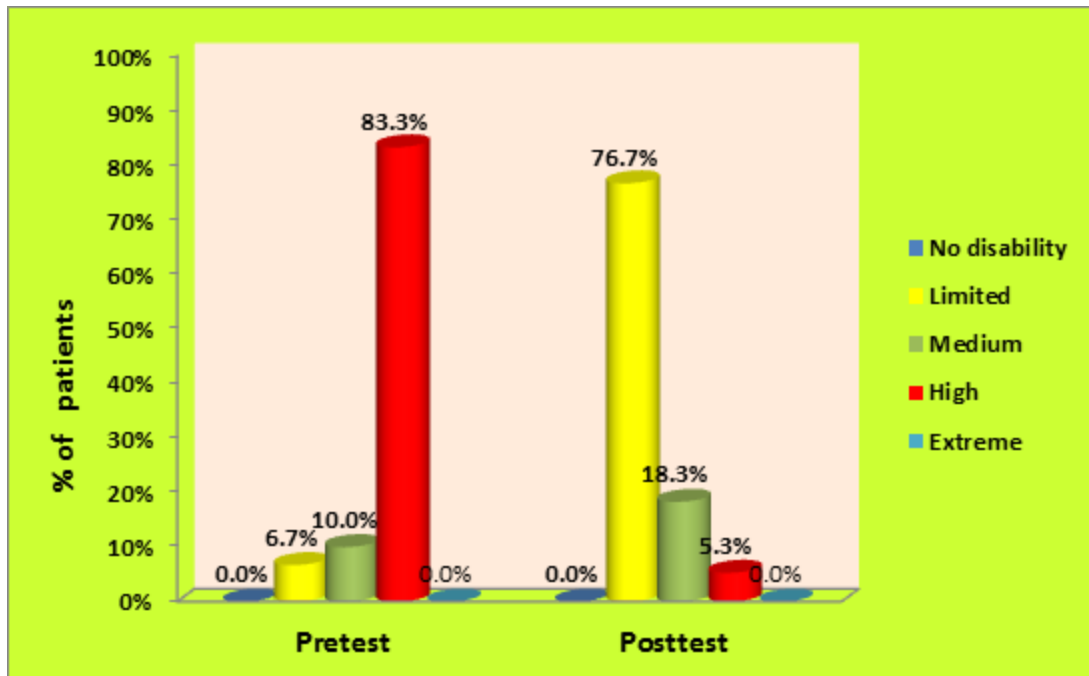
Figure 4.20 show pre test and post test score level of immobility score
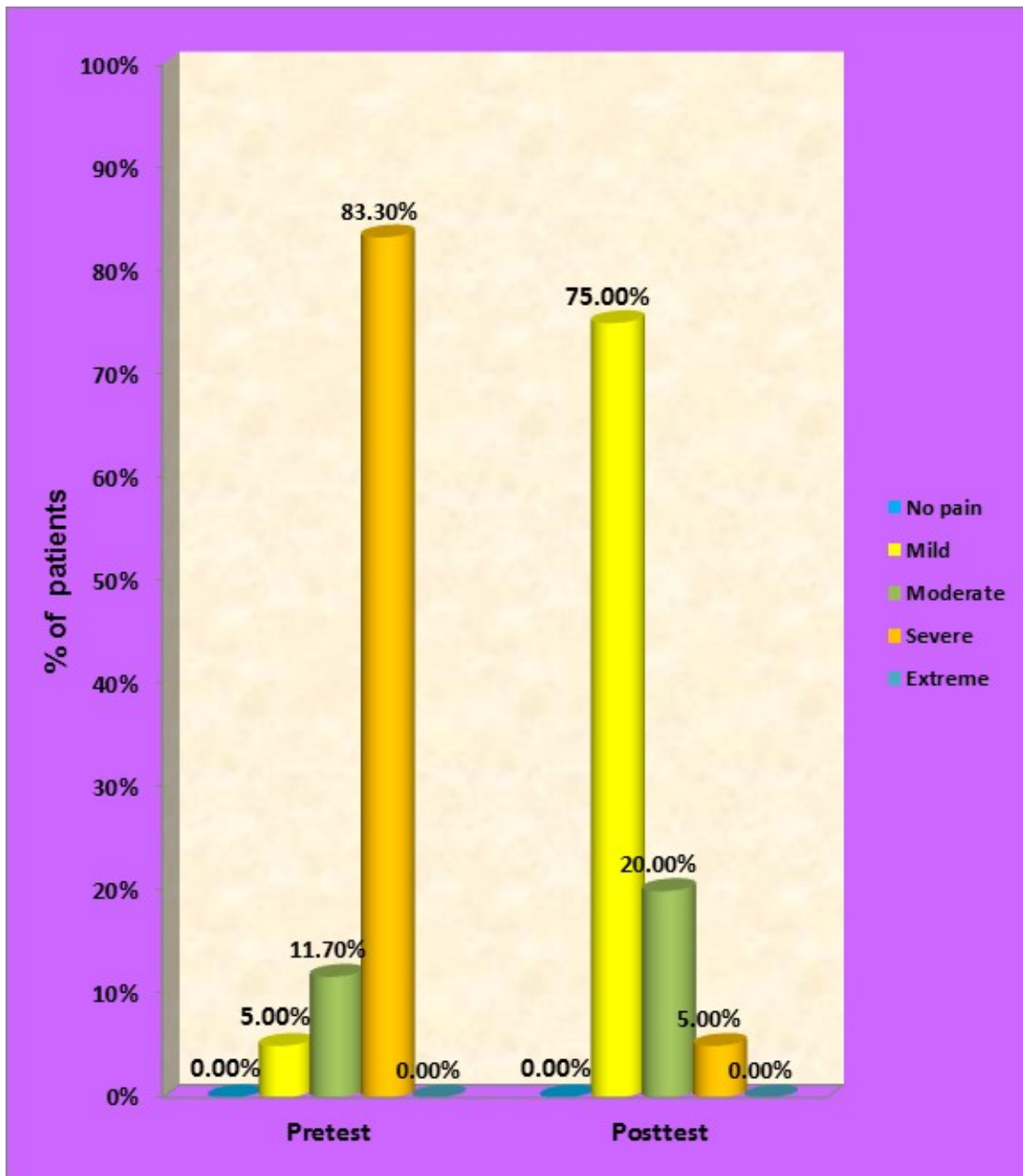
Figure 4.21 shows pre test and post test overall level of SPADI scale

SECTION-D: ASSESSMENT OF THE EFFECTIVENESS OF CALISTHENICS THERAPY OF MASTECTOMY PATIENTS.

Table 4.8: Frequency and percentage distribution of effectiveness of Calisthenics therapy and generalization of SPADI reduction score

		Max score	Mean score	Mean Difference of SPADI score with 95% Confidence interval	Percentage of SPADI reduction score with 95% Confidence interval
Pain	Pre test	50	35.47	20.02 (17.98 – 22.05)	40.04% (35.96% – 44.10%)
	Posttest	50	15.45		
Immobility	Pre test	80	56.78	32.10 (28.76– 35.43)	40.13% (35.95% – 49.21%)
	Posttest	80	24.68		
SPADI	Pre test	130	92.25	52.11 (46.77 – 57.45)	40.08% (35.98% – 44.19%)
	Posttest	130	40.13		

Table 4.8 8shows the effectiveness of Calisthenics therapy on mastectomy patients,   after having Calisthenics therapy the patients are reduced 40.04% pain score, 40.13% of immobility score and overall 40.0% reduction of score than   pre   test score. Differences and generalization of SPADI reduction score between pretest and post test score was calculated   using and mean difference with 95% CI and proportion with 95% CI.

SECTION-E: ASSOCIATION BETWEEN POST TEST LEVEL OF SHOULDER PAIN AND IMMOBILITY WITH DEMOGRAPHIC VARIABLES OF MASTECTOMY PATIENTS

Table-4.9: Frequency and percentage distribution of association between post test level of pain score and their demographic variables

Demographic variables		Post test level of pain score						N	Chi square test
		Mild		Moderate		Severe			
		n	%	n	%	n	%		
Age	30 -40 years	7	63.66%	4	36.34%	0	0.00%	11	χ2=15.71 P=0.01**(S)
	41 -50 years	14	87.50%	2	12.50%	0	0.00%	16	
	51 -60 years	21	84.00%	3	12.00%	0	0.00%	25	
	> 60 years	2	25.00%	4	50.00%	2	25.00%	8	
Religion	Hindu	32	84.21%	4	10.53%	2	5.26%	38	χ2=7.02 P=0.13 (NS)
	Muslim	8	80.00%	2	20.00%	0	0.00%	10	
	Christian	6	50.00%	5	41.67%	1	8.33%	12	
Marital status	Single	2	40.00%	3	60.00%	0	0.00%	5	χ2=10.21 P=0.13 (NS)
	Married	24	66.67%	9	25.00%	3	8.33%	36	
	Widowed	13	92.86%	1	7.14%	0	0.00%	14	
	Divorced	5	100.00%	0	0.00%	0	0.00%	5	
Educational Status	Professionals	0	0.00%	0	0.00%	0	0.00%	0	χ2=15.93 P=0.10 (NS)
	Graduate	2	100.00%	0	0.00%	0	0.00%	2	
	Diploma	5	83.33%	1	16.67%	0	0.00%	6	
	High school	7	53.85%	5	38.46%	1	7.69%	13	
	Middle school	13	86.67%	1	6.67%	1	6.67%	15	
	Primary school	14	87.50%	1	6.25%	1	6.25%	16	
	Illiterate	3	37.50%	5	62.50%	0	0.00%	8	

Demographic variables		Post test level of pain score						N	Chi square test
		Mild		Moderate		Severe			
		n	%	n	%	n	%		
Occupation	Legislators, Senior Official &Managers	0	0.00%	l0	0.00%	0	0.00%	0	χ2=3.56 P=0.31 (NS)
	Professionals	0	0.00%	0	0.00%	0	0.00%	0	
	Technicians and Associate Professionals	0	0.00%	0	0.00%	0	0.00%	0	
	Clerks	6	75.00%	2	25.00%	0	0.00%	8	
	Skilled Workers and Shop & Market Sales Workers	9	100.00%	0	0.00%	0	0.00%	9	
	Craft & Related Trade Workers	10	76.92%	1	7.69%	2	15.38%	13	
	Plant& Machine Operators and Assemblers	4	66.67%	2	33.33%	0	0.00%	6	
	Elementary Occupation	9	56.25%	7	43.75%	0	0.00%	16	
	Unemployed	6	75.00%	1	12.50%	1	12.50%	8	
Income per month	< Rs.5000	16	80.00%	3	15.00%	1	5.00%	20	χ2=14.68 P=0.14 (NS)
	Es.5001 - 10000	14	77.78%	3	16.67%	1	5.56%	18	
	Rs.10001 - 15000	6	54.55%	4	36.36%	1	9.09%	11	
	Rs.15001 - 20000	3	50.00%	3	50.00%	0	0.00%	6	
	>Rs.20000	5	100.00%	0	0.00%	0	0.00%	5	
Diet pattern	Vegetarian	8	61.54%	3	23.08%	2	15.38%	13	χ2=7.58 P=0.47 (NS
	Non Vegetarian	36	76.60%	10	21.28%	1	2.13%	47	

Demographic variables		Post test level of pain score						N	Chi square test
		Mild		Moderate		Severe			
		n	%	n	%	n	%		
Menstrual history	Regular menstrual history	7	63.64%	3	27.27%	1	9.09%	11	χ2=3.90 P=0.14 (NS)
	Irregular menstrual history	11	78.57%	3	21.43%	0	0.00%	14	
	Attained menopause	26	74.29%	7	20.00%	2	5.71%	35	
Place in living	Urban	18	78.26%	5	21.74%	0	0.00%	23	χ2=12.72 P=0.01* (S)
	Rural	17	70.83%	7	29.17%	0	0.00%	24	
	Semi urban	9	69.23%	1	7.69%	3	23.08%	13	
Co-morbidity	Yes	5	50.00%	3	30.00%	2	20.00%	10	χ2=6.67 P=0.03* (S)
	No	39	78.00%	10	20.00%	1	2.00%	50	
Type of morbidity	Diabetes	5	71.43%	1	14.29%	1	14.29%	7	χ2=1.84 P=0.76(NS)
	Hypertension	2	66.67%	1	33.33%	0	0.00%	3	
	Nil	37	74.00%	11	22.00%	2	4.00%	50	

Table no 4. 9 shows the association between post test level of pain score and according to their demographic variables younger age patients, urban area patients and no co morbidity patients are reduced more pain score than others. The analysis revealed that there was a significant association in post test level of pain with selected demographic variables like younger age patients, urban area patients and no co morbidity. Hence the stated hypothesis was accepted.

Figure 4.22 show association between the patients post test level of pain score and their age

Figure 4.23 shows association between the patients post test level of pain score and their place of living

Figure 4.24 shows association between the patients post test level of pain score and their co morbidity

Table-4.10: Frequency and percentage distribution of association between post test level of immobility score and their demographic variables

Demographic variables		Post test level of immobility score						N	Chi square test
		Limited		Medium		High			
		n	%	n	%	n	%		
Age	30 -40 years	10	90.90%	1	9.10%	0	0.00%	11	χ2=20.48 P=0.01** (S)
	41 -50 years	14	87.50%	2	12.50%	0	0.00%	16	
	51 -60 years	18	72.00%	7	28.00%	0	0.00%	25	
	> 60 years	4	50.00%	1	12.50%	3	37.50%	8	
Religion	Hindu	18	78.26%	3	13.04%	2	8.70%	38	χ2=4.73 P=0.31 (NS)
	Muslim	12	92.31%	1	7.69%	0	0.00%	10	
	Christian	16	66.67%	7	29.17%	1	4.17%	12	
Marital status	Single	2	40.00%	3	60.00%	0	0.00%	5	χ2=9.35 P=0.15 (NS)
	Married	28	77.78%	5	13.89%	3	8.33%	36	
	Widowed	11	78.57%	3	21.43%	0	0.00%	14	
	Divorced	5	100.00%	0	0.00%	0	0.00%	5	
Educational Status	Professionals	0	0.00%	0	0.00%	0	0.00%	0	χ2=9.21 P=0.51 (NS)
	Graduate	2	100.00%	0	0.00%	0	0.00%	2	
	Diploma	6	100.00%	0	0.00%	0	0.00%	6	
	High school	9	69.23%	4	30.77%	0	0.00%	13	
	Middle school	11	73.33%	3	20.00%	1	6.67%	15	
	Primary school	14	87.50%	1	6.25%	1	6.25%	16	
	Illiterate	4	50.00%	3	37.50%	1	12.50%	8	

Demographic variables		Post test level of immobility score						N	Chi square test
		Limited		Medium		High			
		n	%	n	%	n	%		
Occupation	Legislators, Senior Official &Managers	0	0.00%	0	0.00%	0	0.00%	0	χ2=9.84 P=0.45 (NS)
	Professionals	0	0.00%	0	0.00%	0	0.00%	0	
	Technicians and Associate Professionals	0	0.00%	0	0.00%	0	0.00%	0	
	Clerks	6	75.00%	2	25.00%	0	0.00%	8	
	Skilled Workers and Shop& Market Sales Workers	9	100.00%	0	0.00%	0	0.00%	9	
	Craft & Related Trade Workers	11	84.62%	1	7.69%	1	7.69%	13	
	Plant& Machine Operators and Assemblers	4	66.67%	1	16.67%	1	16.67%	6	
	Elementary Occupation	11	68.75%	5	31.25%	0	0.00%	16	
	Unemployed	5	62.50%	2	25.00%	1	12.50%	8	
Income per month	< Rs.5000	16	80.00%	3	15.00%	1	5.00%	20	χ2=7.54 P=0.47 (NS)
	Es.5001 - 10000	15	83.33%	2	11.11%	1	5.56%	18	
	Rs.10001 - 15000	9	81.82%	1	9.09%	1	9.09%	11	
	Rs.15001 - 20000	3	50.00%	3	50.00%	0	0.00%	6	
	>Rs.20000	3	60.00%	2	40.00%	0	0.00%	5	
Diet pattern	Vegetarian	10	76.92%	1	7.69%	2	15.38%	13	χ2=4.60 P=0.10 (NS)
	Non Vegetarian	36	76.60%	10	21.28%	1	2.13%	47	

Demographic variables		Post test level of immobility score						N	Chi square test
		Limited		Medium		High			
		n	%	n	%	n	%		
Menstrual history	Regular menstrual history	10	90.91%	1	9.09%	0	0.00%	11	χ2=2.16 P=0.70 (NS)
	Irregular menstrual history	11	78.57%	2	14.29%	1	7.14%	14	
	Attained menopause	25	71.43%	8	22.86%	2	5.71%	35	
Place in living	Urban	22	95.65%	1	4.35%	0	0.00%	23	χ2=9.91 P=0.04*(S)
	Rural	16	66.67%	7	29.17%	1	4.17%	24	
	Semi urban	8	61.53%	3	23.07%	2	15.38%	13	
Co-morbidity	Yes	5	50.00%	3	30.00%	2	20.00%	10	χ2=7.40 P=0.02*(S)
	No	41	82.00%	8	16.00%	1	2.00%	50	
Type of morbidity	Diabetes	5	71.43%	1	14.29%	1	14.29%	7	χ2=1.96 P=0.74 (NS)
	Hypertension	2	66.67%	1	33.33%	0	0.00%	3	
	Nil	39	78.00%	9	18.00%	2	4.00%	50	

Table no 4. 10 shows the association between post test level of immobility score and according to their demographic variable younger age patients, urban area patients and no co morbidity patients are reduced more pain score than others. The analysis revealed that there was a significant association in level of immobility with selected demographic variables like younger age patients, urban area patients and no comorbidity. Hence the stated hypothesis was accepted.
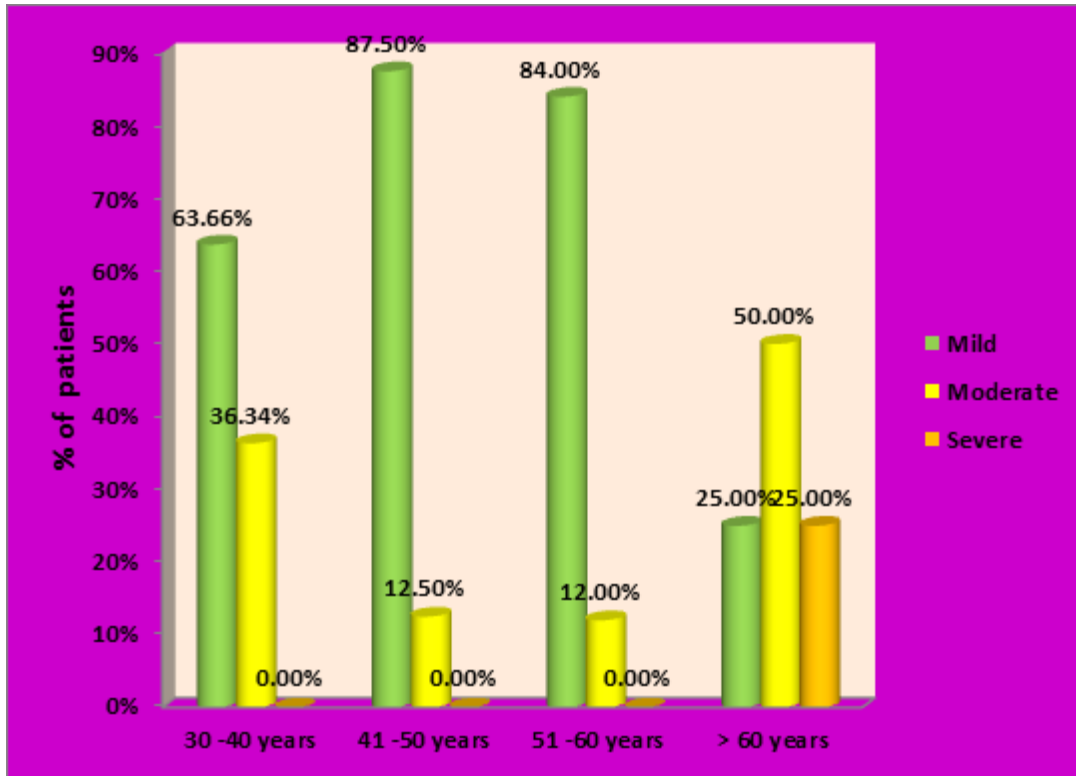
Figure 4.25 shows association between patients post test level of immobility score and their age
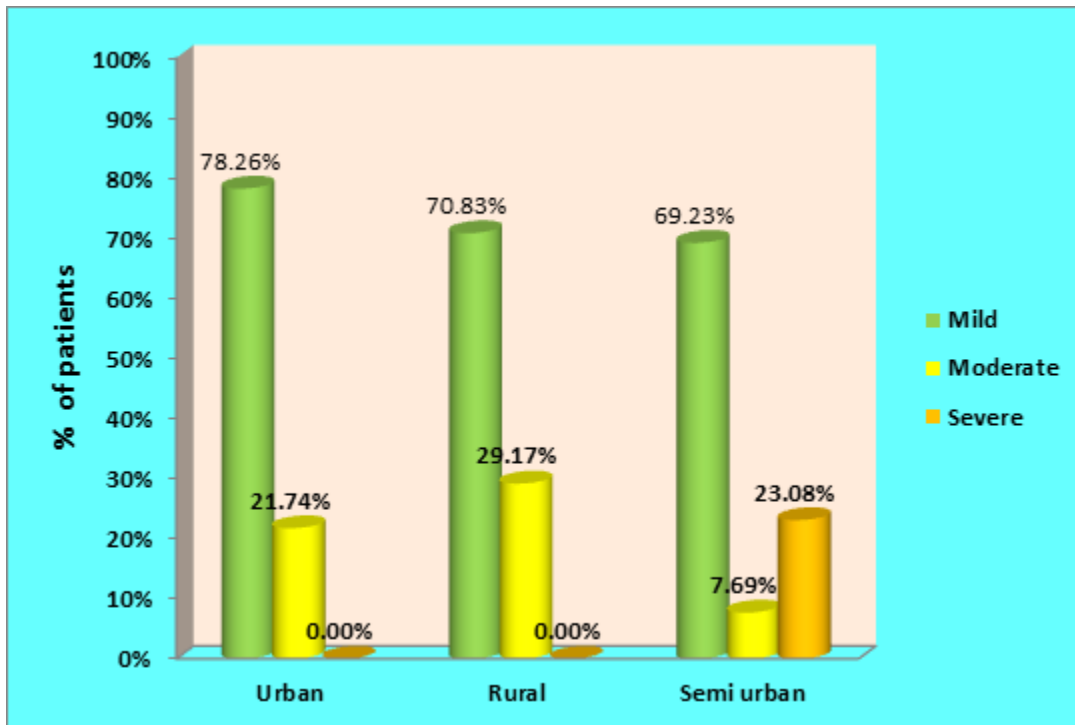

Figure 4.26 shows association between patients post test level of immobility score and their place of living
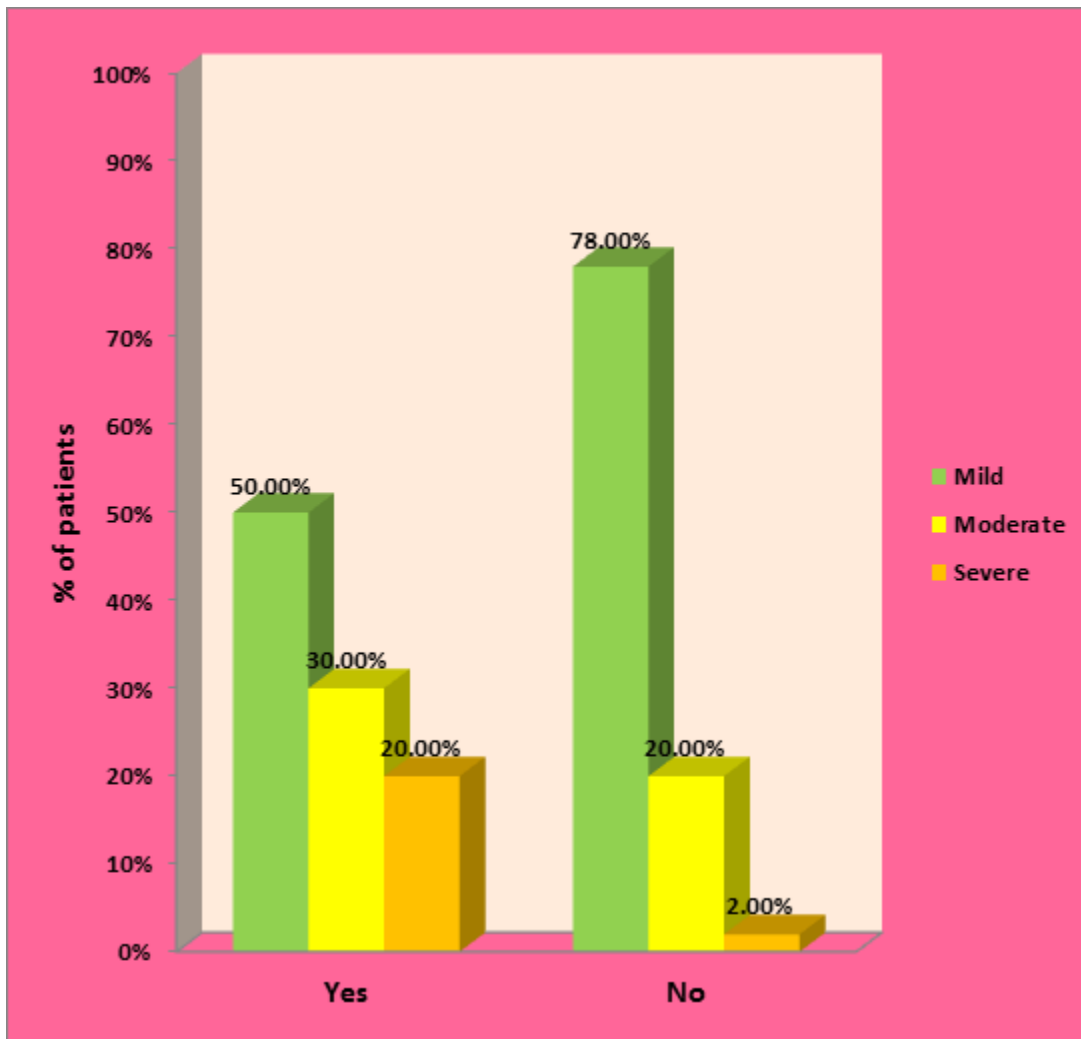
67

Figure 4.27 shows association between patients post test level of immobility score and their co morbidity

Table-4.11: Frequency and percentage distribution of association between post test level of overall SPADI Score and their demographic variables

Demographic variables		Post test level of SPADI score						N	Chi square test
		Limited		Medium		High			
		n	%	n	%	n	%		
Age	30 -40 years	10	90.90%	1	9.10%	0	0.00%	11	$\chi2=9.91$ P=0.04* (S)
	41 -50 years	14	87.50%	2	12.50%	0	0.00%	16	
	51 -60 years	19	76.00%	5	20.00%	1	4.00%	25	
	> 60 years	2	25.00%	4	50.00%	2	4.00%	8	
Religion	Hindu	32	84.21%	4	10.52%	2	5.26%	38	$\chi2=7.26$ P=0.12 (NS)
	Muslim	7	70.00%	3	30.00%	0	0.00%	10	
	Christian	6	50.00%	5	41.67%	1	8.33%	12	
Marital status	Single	2	40.00%	3	60.00%	0	0.00%	5	$\chi2=8.71$ P=0.19 (NS)
	Married	26	72.22%	7	19.44%	3	8.33%	36	
	Widowed	12	85.71%	2	14.29%	0	0.00%	14	
	Divorced	5	100.00%	0	0.00%	0	0.00%	5	
Educational Status	Professionals	0	0.00%	0	0.00%	0	0.00%	0	$\chi2=11.51$ P=0.19(NS)
	Graduate	2	100.00%	0	0.00%	0	0.00%	2	
	Diploma	6	100.00%	0	0.00%	0	0.00%	6	
	High school	9	69.23%	4	30.77%	0	0.00%	13	
	Middle school	12	80.00%	2	13.33%	1	6.67%	15	
	Primary school	12	75.00%	2	12.50%	2	12.50%	16	
	Illiterate	4	50.00%	4	50.00%	0	0.00%	8	

Demographic variables		Post test level of SPADI score						N	Chi square test
		Limited		Medium		High			
		n	%	n	%	n	%		
Occupation	Legislators, Senior Official &Managers	0	0.00%	0	0.00%	0	0.00%	0	$\chi2=8.48$ P=0.58 (NS)
	Professionals	0	0.00%	0	0.00%	0	0.00%	0	
	Technicians and Associate Professionals	0	0.00%	0	0.00%	0	0.00%	0	
	Clerks	6	75.00%	2	25.00%	0	0.00%	8	
	Skilled Workers and Shop & Market Sales Workers	8	88.89%	0	0.00%	1	11.11%	9	
	Craft & Related Trade Workers	11	84.62%	1	7.69%	1	7.69%	13	
	Plant& Machine Operators and Assemblers	4	66.67%	2	33.33%	0	0.00%	6	
	Elementary Occupation	11	68.75%	5	31.25%	0	0.00%	16	
	Unemployed	5	62.50%	2	25.00%	1	12.50%	8	
Income per month	< Rs.5000	15	75.00%	3	15.00%	2	10.00%	20	$\chi2=11.26$ P=0.19 (NS)
	Es.5001 - 10000	15	83.33%	2	11.11%	1	5.56%	18	
	Rs.10001 - 15000	9	81.82%	2	18.18%	0	0.00%	11	
	Rs.15001 - 20000	2	33.33%	4	66.67%	0	0.00%	6	
	>Rs.20000	4	80.00%	1	20.00%	0	0.00%	5	
Diet pattern	Vegetarian	10	76.92%	1	7.69%	2	15.38%	13	$\chi2=4.4$ P=0.09 (NS)
	Non Vegetarian	35	74.47%	11	23.40%	1	2.13%	47	

70

Demographic variables		Post test level of SPADI score						N	Chi square test
		Limited		Medium		High			
		n	%	n	%	n	%		
Menstrual history	Regular menstrual history	10	90.91%	1	9.09%	0	0.00%	11	χ2=3.54 P=0.47 (NS)
	Irregular menstrual history	11	78.57%	3	21.43%	0	0.00%	14	
	Attained menopause	24	69.23%	8	22.86%	3	8.57%	35	
Place in living	Urban	20	43.47%	3	13.04%	0	0.00%	23	χ2=15.23 P=0.01** (S)
	Rural	16	66.67%	8	33.33%	0	0.00%	24	
	Semi urban	9	69.23%	1	7.69%	3	23.08%	13	
Co-morbidity	Yes	5	50.00%	5	50.00%	0	0.00%	10	χ2=7.00 P=0.03* (S)
	No	40	80.00%	7	14.00%	3	6.00%	50	
Type of morbidity	Diabetes	5	71.43%	2	28.57%	0	0.00%	7	χ2=1.27 P=0.87 (NS)
	Hypertension	2	66.67%	1	33.33%	0	0.00%	3	
	Nil	38	76.00%	9	18.00%	3	6.00%	50	

Table no 4. 11 shows post test level of SPADI score and their demographic variables like younger age patients, Urban area patients and no co morbidity patients are reduced more SPADI score than others. The analysis revealed that there was a significant association in level of SPADI score with selected demographic variables like younger age patients urban area patients and no comorbidity. Hence the stated hypothesis was accepted.
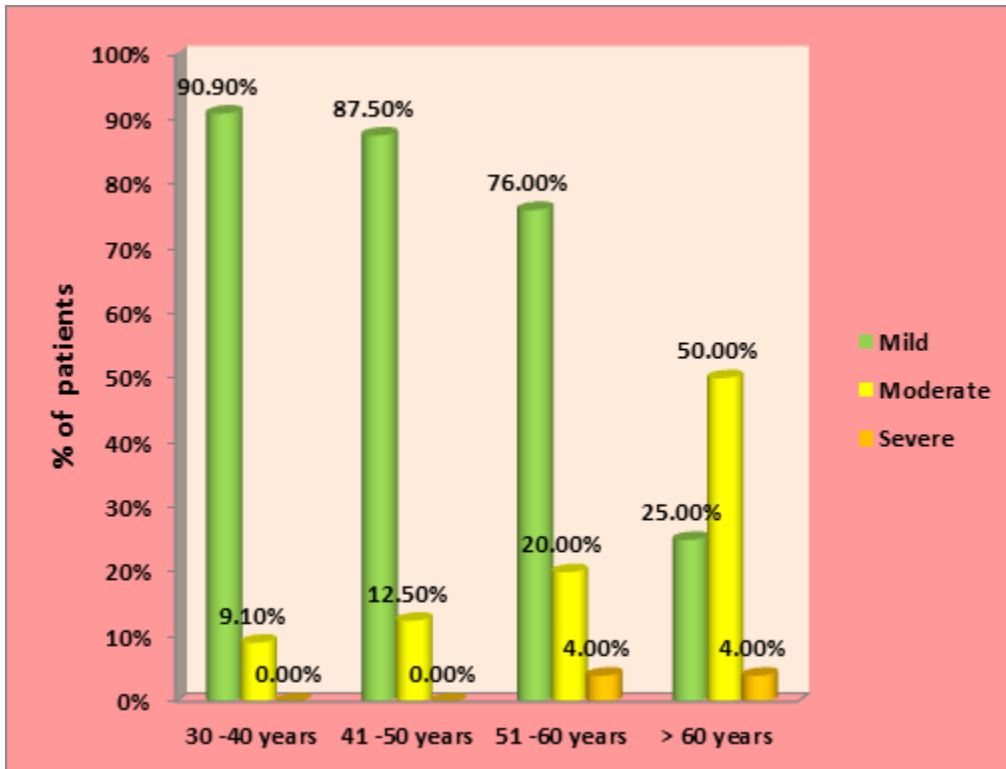
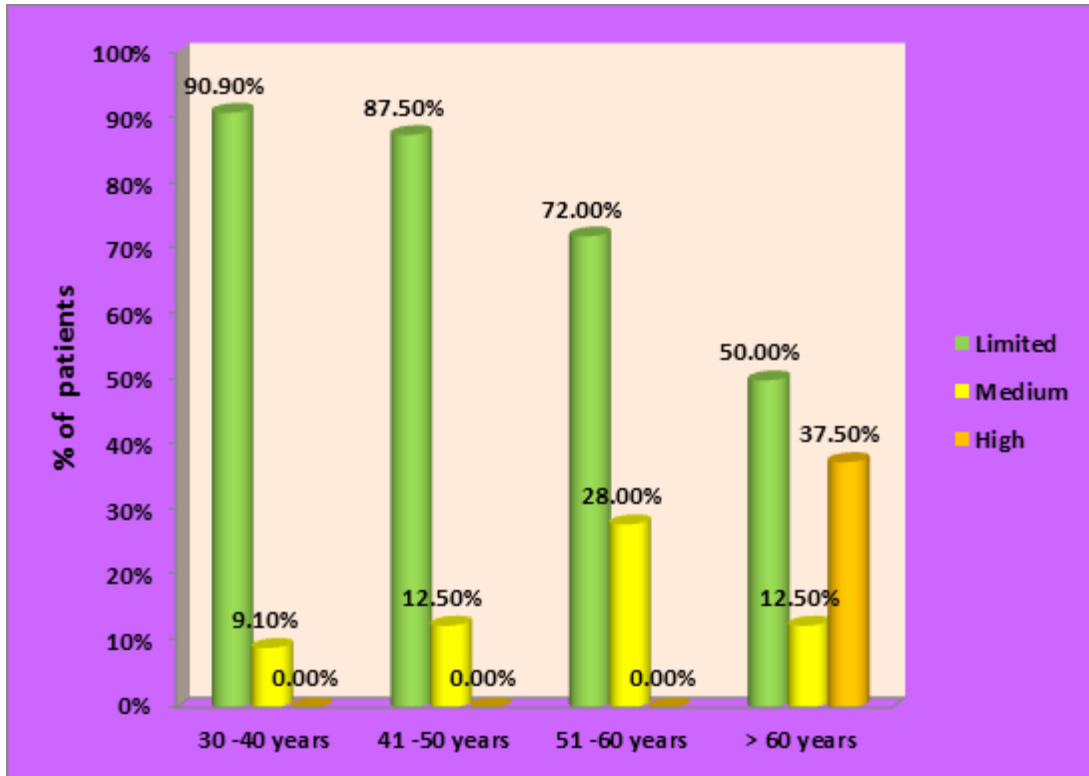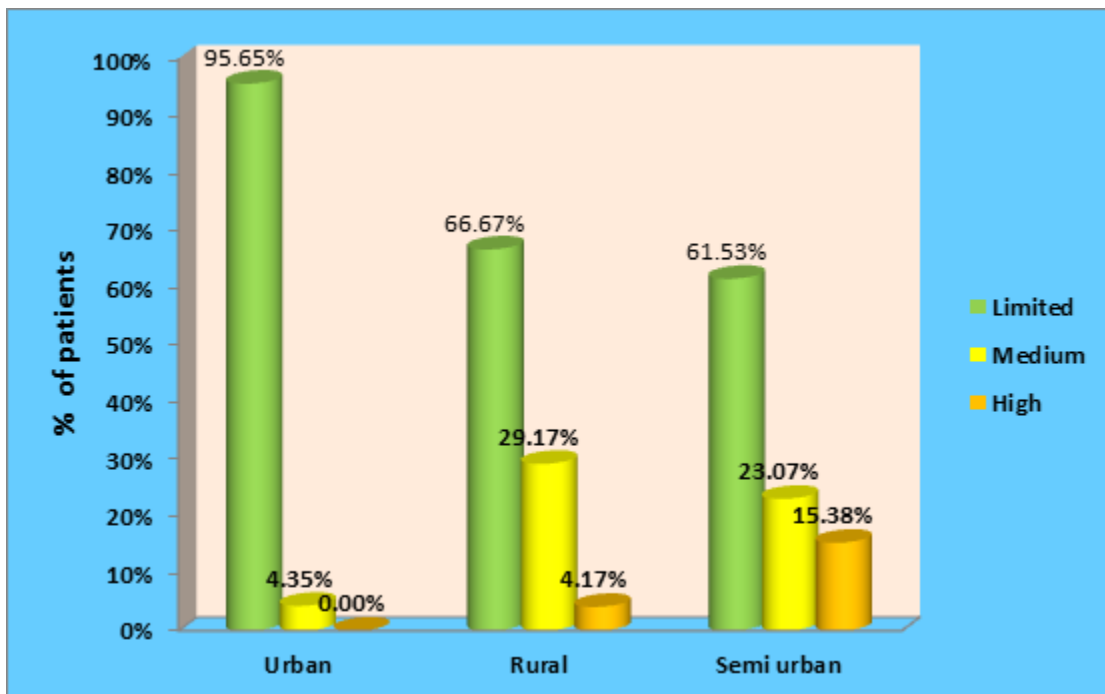*Figure 4.28 shows association between patients post test level of SPADI score and their age*
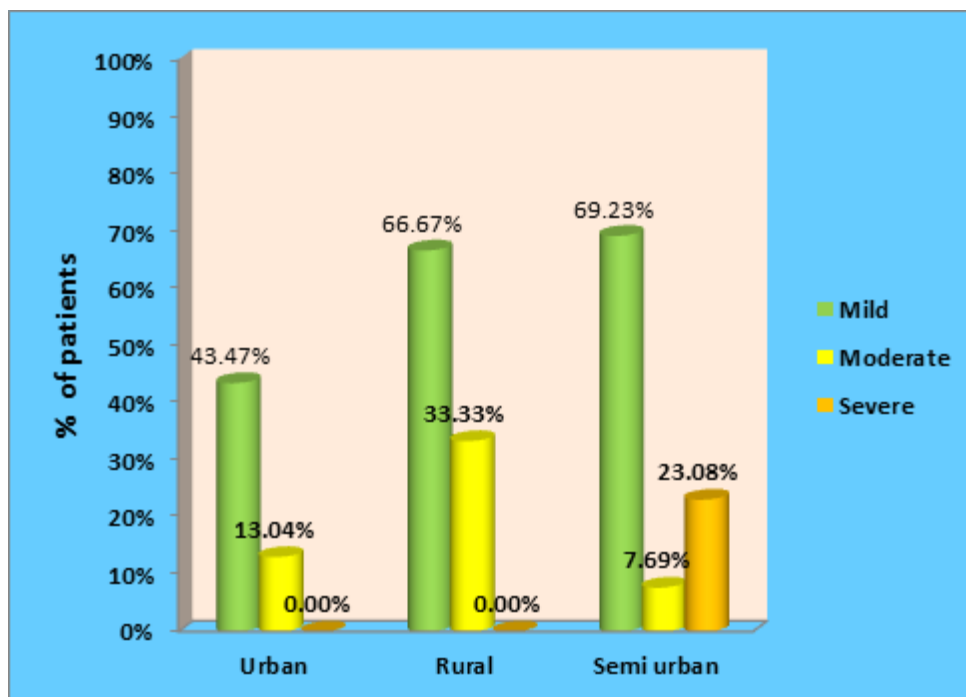
Figure 4.29 shows association between patients post test level of SPADI score and their place of living

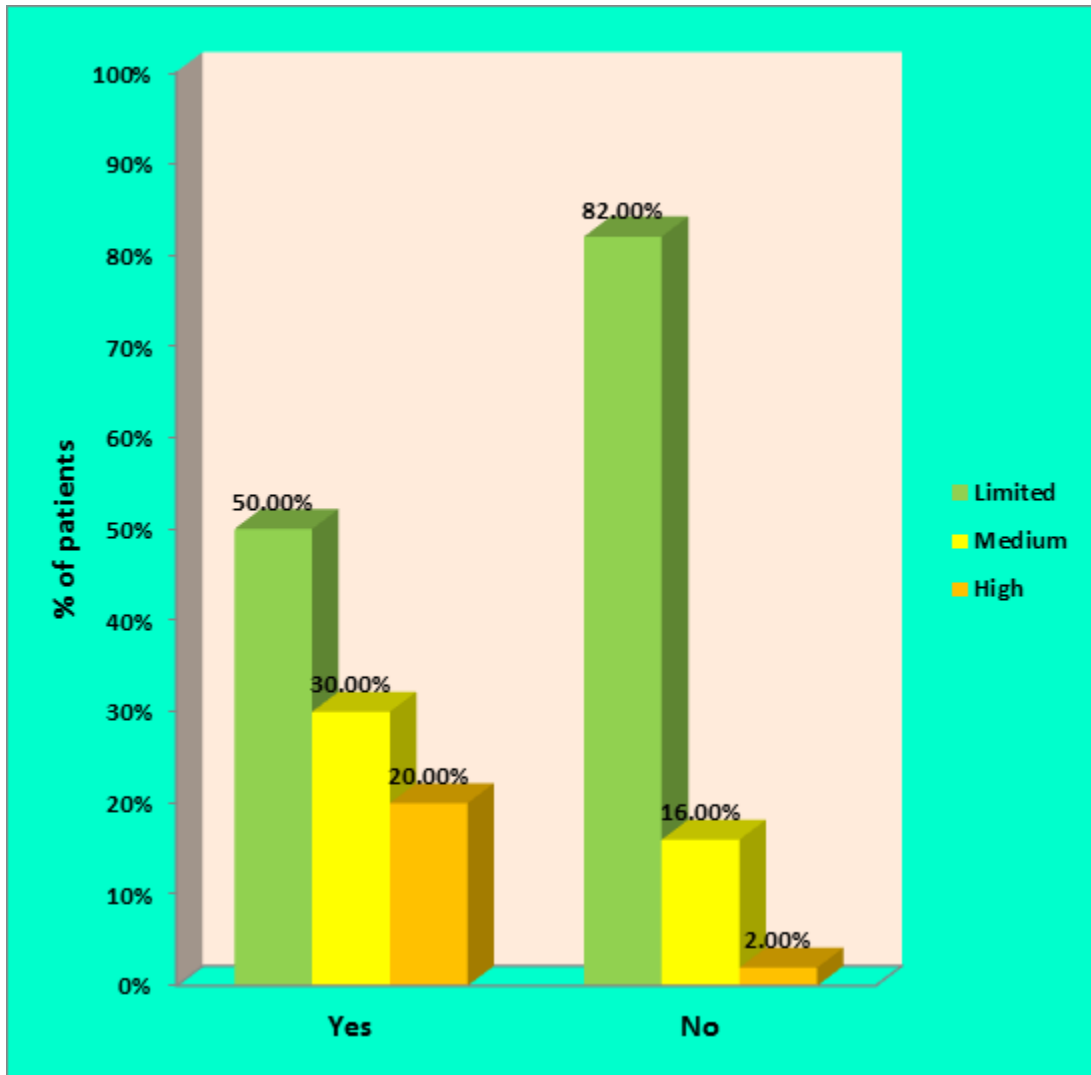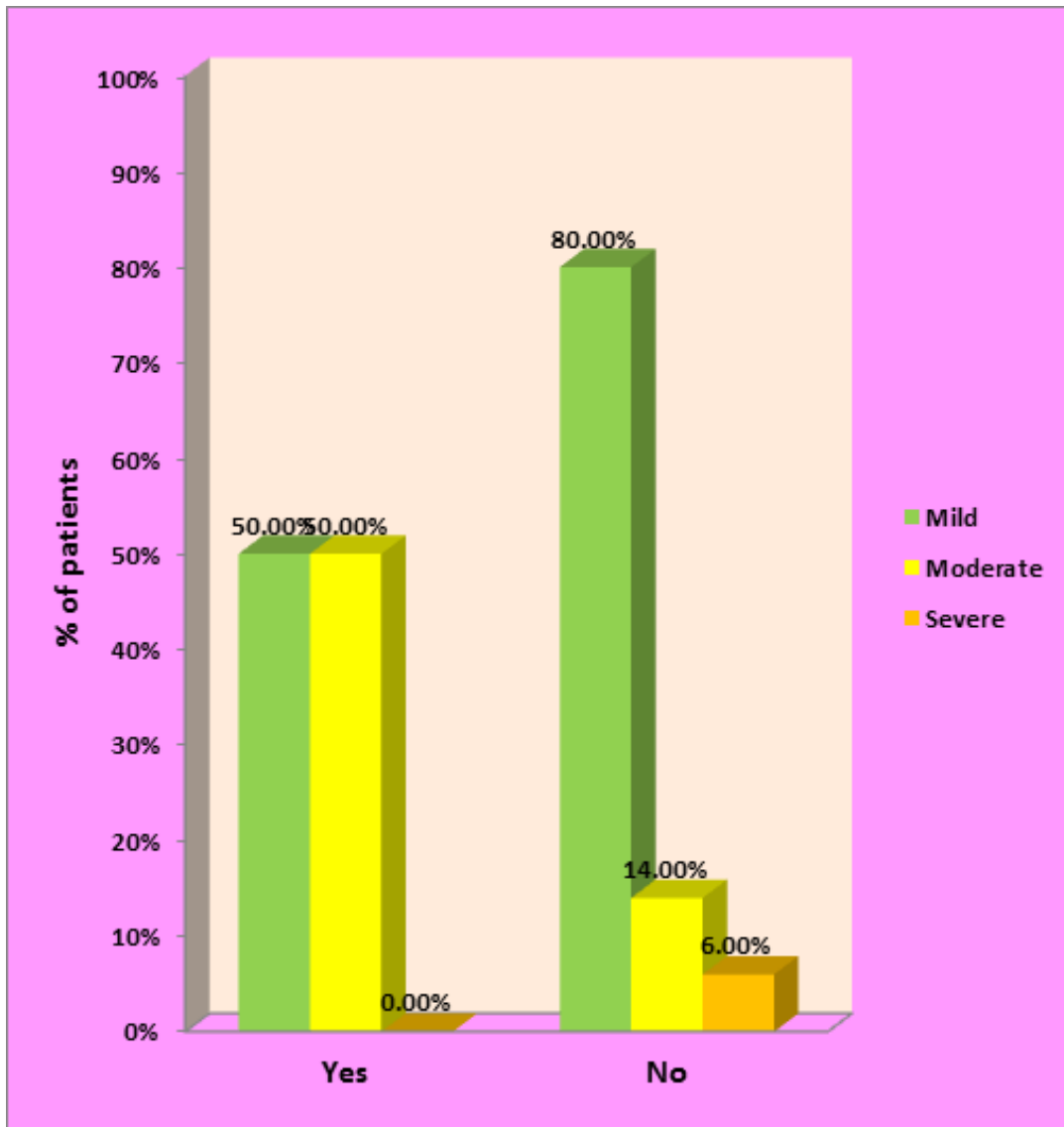*Figure 4.30 shows association between patients post test level of SPADI score and their co morbidity*

CHAPTER-V
DISCUSSION

The present study was conducted to evaluate the effectiveness of Calisthenics therapy on level of shoulder pain and immobility among mastectomy patients admitted in Rajiv Gandhi Government General Hospital, Chennai-03. A total of 60 mastectomy patients were selected by non- probability purposive sampling technique. The pre test was conducted to assess the shoulder pain and immobility among mastectomy patients by using SPADI scale. Each day data was collected from available samples and the samples of 3 or 5 were gathered as a group. The intervention protocol included Forward pinky slide exercise, Sideways pinky slide exercise, "T" and "Y" Stretch exercise, Snow Angel exercise, Butterfly wings exercise and Median Nerve Glides exercises termed as Calisthenics therapy among mastectomy patients.

The intervention was demonstrated by the researcher for 20 minutes (3 minutes for each exercise) and it was re-demonstrated by the mastectomy patients under researcher supervision. Intervention was given three times a day for the period of 7 days. After 7 days of interval post test was conducted among the same samples using the same scale. The data was analyzed by using descriptive and inferential statics.

Findings based on demographic characteristics

❖ 41.67% of participants were 51-60 years old.

❖ 63.33% of participants from Hindus.

❖ 26.67% of participants were primary school.

❖ 26.67% of participants were elementary occupation.

❖   78.67% of participants were   non vegetarian.

❖   30% of participants were   income Rs. 5001-10000.

❖   58.33% of participants were attained menopause.

❖   40% of participants from living rural area.

❖   83.33% of participants were not in co-morbidity.

The first objective was to assess the pre interventional status of shoulder pain and immobility of mastectomy patients

The present study revealed that the level of pre interventional status of the shoulder pain and immobility of mastectomy patients showed 83.3% of them have severe pain and high disability score, 11.7% of them have moderate pain and medium disability score, 5% of mastectomy patients have mild pain and limited disability score.

The above study   findings were supported by the following studies conducted **by Hiroshi Isoki et al. (2019)** in their study found that the total mastectomy with axillary lymph node dissection group, logistic regression analysis revealed that body mass index, 1-week drainage volume, and surgical modality were independently correlated with prolonged fluid discharge (20%) and cause shoulder dysfunction(75%). **Anu Thomas1 et al. (2018)** in their study suggested that the quality of life of mastectomy patients consist of 35% patients was high and 65% patients had moderate quality of life. In this study discuss with all domains of quality of life like physical , psychological, social , and spiritual correlation with disability of arm function(65%) and clinical variables like edema (23%). Hence being mastectomy patients have disability in arm function and patients experienced more pain after surgery. **Naman Chandrakar et al. (2018)**   in their study showed that Majority of the cases chief complaint was lumb in the breast, following axillary swelling in 26.83% , history of pain in 39.2%,

altered sensation was observed in 21.95%. The present study strongly predicted to assess the state of shoulder pain and immobility of mastectomy patients which act as a major cause of arm dysfunction.

Hence, nurses are more responsible in caring mastectomy patients with shoulder pain and disability to prevent complication at an earlier stage.

The second objective to evaluate the effectiveness of Calisthenics therapy (post test) on the level of shoulder pain and immobility of mastectomy patients.

The study finding depicts that the pre-test mean value was 92.25 score and in post test mean value was 40.13 score with the difference of 52.11. The difference is large and statistically significant difference.

The above findings were supported by the another study conducted by **Sri Aurobindo Prasad das et al. (2018)** in their study found that the patients in the exercise group were given a set of active assisted range of motion exercises and strengthening exercises with frequent follow up. Pain score, shoulder ROM were better in the exercise group compared to no exercise group and this difference was found to be significant ($p < 0.001$). **Salwa A. Mohamed et al. (2016)** in their study found that a highly significant difference in patients level pain intensity, shoulder movement and functional status of the study group as compared to the control group ($p < 0.05$). This means that the educational program had positive effect in reducing patients' pain, improve shoulder movement, post program and after three month of implementation of the exercise program. **Sanaz Shiravi et al. (2015)** in their study found that aerobic exercise activity has a significant effect on shoulder joint mobility among patients affected by secondary lymphedema after breast cancer treatmen ($P < 0.05$)

The above studies reveled that exercise intervention is more effective on improving upper limb function as level as improve functional status and overall quality of life. Thus Calisthenics therapy is more effective in reduction of shoulder pain and disability.

The third objective is to compare pre test and post test level of shoulder pain and immobility among mastectomy patients.

The study findings revealed that the comparision of overall SPADI score before and after the administration of Calisthenics therapy, in pre test patients have 92.25 score and in post test they have 40.13 score, so the difference is 52.11. The difference is large and statistically significant difference.

The study depicts pre-test percentage of shoulder pain and immobility of mastectomy patients,considering pain score, in pre test patients have 70.94% of pain score and in post test they have 30.90% pain score, difference of reduction score is 40.30% and considering immobility score, in pre test patients have 70.99% of disability score and in post test they have 30.86% disability score, difference of reduction score is 40.13% of immobility score and regarding overall SPADI score, in pre test patients have 70.97% of pain score and in post test they have 30.88% pain score, difference of reduction score is 40.09% .

The above findings were supported by the another study conducted by **Jennifer Zocca et al. (2018)** in their study found that the appropriate use of physical therapy may significantly improve a patient's functional status, pain relief and better quality of life. They advise that physical therapy and rehabilitation are the main stay of treatment of these pain symptoms, while interventions may be used to alleviate pain symptoms during therapy. **Gehan HSoliman et al. (2018)** investigated the effect of a planned educational programme regarding post mastectomy exercises on living activities among breast cancer patients There were a highly statistically differences among pre, post and follow up interventions regarding to pain index disability score, and total Katz index (independence in activities of daily living) as well as instrumental activities of daily living. **Christina M Dieli et al. (2015)**

from their study high lighted that participation in regular exercise, preferably both aerobic exercise and range of motion exercise modes, can alleviate some cancer treatment-related side effects and improve survivorship.

Hence H1 there will be significant difference between pre test and post test level of shoulder pain and immobility of mastectomy patients is accepted. The above study findings correlate that the therapeutic exercises are significant and have a positive impact on women's information and decreasing of shoulder pain and stiffness in the mastectomy patients.

The fourth objective is to associate the post test level of shoulder pain and immobility with selected demographic variables

The study depicts the association between post test level of painand immobility score and their demographic variables like younger age patients X^2 =9.91 , P=0.04 (S), urban area patients X^2 =3.54, P= 0.01, X^2=1.27. P=0.87 and no co morbidity patients are reduced more pain and immobility score than others. The analysis revealed that there was a significant association in post test level level of pain and immobility with selected demographic variables like younger age patients, urban area patients and no comorbidity.

The above findings were supported by the another study conducted by **Ashwini.K.N et al. (2018)** in their quasi experimental study found that with pre and post test research design without control group , after implementation of video assisted teaching programme, the post test knowledge score had improved which is 77.6% and the gain in knowledge was statistically significant. It was noted that knowledge on post mastectomy exercises had significant association with demographic variables like urban and family history of cancer. **Duygu Soydas Yesilyurt et al. (2016)** in their study revealed   that the mean age of the

patients was 39 years(82%) were having symptoms and post-surgical problems. **Caroly tylo et al. (2017)** in their study revealed that estimated absolute risk from modern radiotherapy lung cancer and cardiac morbidity can determine the net effect of mortality of the patients. The estimated combined risks from radiotherapy are a few percentage points if smoking continues, which may outweigh the reduction in breast cancer mortality.

Hence H2 There will be significant association between post test level of shoulder pain and immobility of mastectomy patients with selected demographic variables is accepted. To conclude the pre test level of shoulder pain and immobility is found to be clinically significant and after the Calisthenics therapy the post test level of shoulder pain and immobility has decreased .It is found to be statistically significant.

Hence nurses have to competency of assessing the early complication especially shoulder pain and disability. Thus Calisthenics therapy is considered as a safe and non- pharmacological treatment for arm dysfunction. The present study has limits in the small number of patients and the short time application and long lasting effects suggest that the protocol might have the potentialities to be useful treatment in a post mastectomy recovery of upper limb dysfunction, to improve quality of life and muscle performance, by favoring greater adhesion to physical activity.

CHAPTER –VI
SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATION AND LIMITATIONS

In this chapter the summary of the study, conclusion, recommendations for further research and implications for nursing practice are presented.

6.1. SUMMARY

The main focus the study was to assess the effectiveness of Calisthenics therapy on level of shoulder pain and immobility among mastectomy patients admitted in Rajiv Gandhi Government General Hospital, Chennai - 03.

The design adopted for the study was pre experimental one group pre test and post test only design in nature and the conceptual framework was based on **imogene king's goal attainment theory** , the study tool contains the demographical, and SPADI (Shoulder Pain and Disability Index) scale which had the maximum score is 10. Data was collected by interview schedule. A total of 60 mastectomy clients were selected from Rajiv Gandhi Government General Hospital, Chennai - 03 by using non- probability purposive sampling technique. The content validity of the tool on assessment of SPADI scale was obtained from experts and the pilot study was conducted.

The study was conducted at Rajiv Gandhi Government General Hospital, Chennai -03. Prior permission from the Dean and the Head of the institution was obtained. The mastectomy patients who fulfilled the inclusion criteria were selected as samples and intervention given for 3 times a day and data were collected and after getting concern from the subject analysis was done using descriptive and inferential statistics the obtained results were presented using the tables and figures.

The pre test level of shoulder pain and immobility of mastectomy patients

The data shows that majority of the patients, 81.7% of them have severe pain score, 13.3% of them have moderate pain score ,5% of them have   mild pain score and regarding immobility score, 83.3% of them have high disability score, 10% of them have moderate score 6.7% of them have   limited disability score, and   considering combination of pain and immobility score, 83.3% of them have severe score, 11.1% of them have moderate   score , 5% of them have mild score.

The effectiveness of Calisthenics therapy (post test)on the level of shoulder pain and immobility of mastectomy patients

The findings shows that in post test   73.3% patients have mild pain score, 21.7% of them   have moderate pain score , 5.0% of them have severe pain score and considering immobility score, 76.7% of them have limited disability score, 18.3% of them have moderate score , 5.3% of them have high score and regarding combination of pain and immobility score, 75% of them have   mild   score, 20% of them have moderate level of score , 5% of them have severe level of score .

Comparision of pre test and post test level of shoulder pain and immobility among mastectomy patients.

The study findings revealed that the comparision of overall SPADI score before and after the administration of Calisthenics therapy, in pre test patients have 92.25 score and in post test they have   40.13 score, so the difference is 52.11. The difference is large and statistically significant difference.

The study depicts pre test percentage of shoulder pain and immobility of mastectomy patients. Considering pain score, in pre-test patients have 70.94% of pain score and in post test they have 30.90% pain score, difference of reduction score is 40.30%   and considering immobility score, in pre test patients   have   70.99% of disability score

81

and in post test they have 30.86% disability score, difference of reduction score is 40.13% of immobility score and regarding overall SPADI score, in pre test patients have 70.97% of SPADI score and in post test they have 30.88% SPADI score, difference of reduction score is 40.09% .

There is significant differences between pre test and post test score was obtained with mean difference of 95%CI and proportion with 95%.

There is statically significant in decreasing shoulder pain on mastectomy patients from 35.47 to 15.45 that is p=0.001 ,considering immobility score frome 56.78 to 24.68 that is p=0.001,and SPADI score from 92.25 to 40.13 that is p=0.001.The difference is large and statistically significant.

Association between the post test level of shoulder pain and immobility with selected demographic variables

The major findings of the study were the following:

❖ Majority of the mastectomy patients(41.67%) were in the age group of 50-60 years

❖ Belongs to marital status , most of them have married womans (60%)

❖ Majority of the mastectomy patients(26.67%) were belongs to primary school qualification

❖ Belongs to diet pattern , 78.33% were non vegetarian.

❖ Regarding menstrual history, 58.33% was attained menopause.

❖ Majority of the mastectomy patients (83.33%) were not having co morbidity

- ❖ The study depicts the association between post test level of pain score and their demographic variables. Younger age patients X2 =9.91 , P=0 .04 (S), Urban area patients X2 =3.54 ,P= .0.01 X2=1.27. P=0.87 and no co morbidity patients are reduced more pain score than others. There was a significant association found between the level of shoulder pain and immobility on mastectomy patients and demographic variables such as age ,place of living and not in co-morbididty.

6.2 IMPLICATIONS OF THE STUDY

The study findings have its implication in several branches of nursing namely nursing education, nursing practice, nursing administration and nursing research. By the evaluating the effectiveness of Calisthenics therapy on level of shoulder pain and immobility among mastectomy patients the investigator received a clear picture regarding the different steps to be taken in different fields to improve the same.

NURSING PRACTICE

- ❖ Validated forms for assessing the risk for complication can be incorporated into nursing care areas a routine or early detection measures.

- ❖ Non pharmacological measurements of reducing pain and immobility are cost effective and best means of pain relief which can be practiced easily during painful procedure.

- ❖ Nurses can use a video teaching programme regarding Calisthenics therapy in pre operative education programme.

- ❖ Calisthenics therapy can be practiced in nursing especially oncology nursing speciality.

❖ Nurses can identify the importance of Calisthenics therapy and it can be used as an adjuvant to pharmacological therapy in reducing shoulder pain and immobility.

❖ Nurses can teach Calisthenics therapy to improve the functional performance of the mastectomy patients who are suffering from shoulder pain and immobility.

❖ Emerging professional activity to develop breast care nurse. It aimed to develop early identification and preventive measure for complication.

NURSING EDUCATION

❖ In service education program should be conducted for nurses and help them to gain knowledge regarding Calisthenics therapy.

❖ Provide exposure to various non-pharmacological measures and therapies and update the nursing curriculum.

❖ Nurse educator can encourage students to make new ideas in managing the shoulder pain and immobility among mastectomy patients incorporating with other relaxational therapies.

❖ Periodic continuing nursing education programs can be arranged regarding non pharmacological measures and other therapies to using on reduction of shoulder pain and immobility among mastectomy patients during the preoperative period itself.

NURSING ADMINISTRATION

❖ The nurse administrator can organize and conduct various continuing nursing education programs and in-service education programs on non pharmacological and other therapies for the management of shoulder pain and immobility on mastectomy patients.

❖ The Nurse administrator can post the nurses with expertise knowledge and skill in treating post mastectomy female clients.

❖ The nurse administrator should take initiatives to make protocol of Calisthenics therapy for patients undergoing mastectomy patients.

NURSING RESEARCH

❖ Generalisation of the study result can be made by large samples in radiotherapy patients.

❖ Disseminate the findings through conference, seminars, publication in journals .

❖ Findings of the study can be utilized for conducting further observational studies.

❖ The findings of the study can help to improve the scientific body of professional knowledge upon which further research can be conducted.

❖ Documents the breast cancer events helps to suggest more information on breast cancer survivors for further research.

6.3 RECOMMENDATIONS FOR FURTHER RESEARH

❖ A similar study can be conducted on a large sample to generalizethe findings.

❖ A similar study can be replicated in different settings.

❖ A comparative study can be conducted between different pain reducing measures.

- ❖ A study can be done to assess the knowledge and practice of Calisthenics therapy among the health care professionals in the hospitals.

- ❖ An experimental study can be done on the effect of Calisthenics therapy on functional performance of patients undergoing mastectomy patients with shoulder pain and immobility.

- ❖ A study can be done to assess the effectiveness of structured teaching programme on reducing shoulder pain and immobility among nurses.

6.4. LIMITATIONS OF THE STUDY

- ❖ In this study patient undergoing mastectomy patients in the post-operative wards at Rajiv Gandhi Government General Hospital were only selected.

- ❖ The number of sample is limited to 60 in the present study. The study was confined to a small sample in a single setting which limits the study.

- ❖ The study did not assessed the attitude and practice of the preventive behaviors of mastectomy complications.

6.5 CONCLUSION

Breast cancer is a complex disease which has been survival for women population improve over the last 20 years. But newly diagnosed breast cancer patients experience feelings of shock, fear, anxiety, disbelief. However unexpected and shocking life events such as breast cancer can make women feel that their bodies have betrayed them and family members and friends helping women to deal with all aspects of disease treatment regimen. Most of them do not possess either adequate knowledge or self-care to care themselves postoperatively.

This study conducted effectiveness of Calisthenics therapy in reducing shoulder pain and immobility among mastectomy patients admitted in post-operative wards. This Calisthenics therapy can alleviate perceived distress for women however this impact on woman quality life and reduce the recurrence of complication. It can be regularly practiced without any fear. The researcher suggest that it can be adopted by every health professional to reduce pain and immobility of patients during post-operative periods.

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QUESTIONNAIRES FOR REDUCTION OF SHOULDER PAIN AND IMMOBILITY OF MASTECTOMY PATIENTS

DEMOGRAPHIC VARIABLES

1. Age in years --------------------

a) 30-40
b) 41-50
c) 51-60
d) 61and above

2. Religion ------------------

a) Hindu
b) Muslim
c) Christian
d) Others

3. Marital status -------------------

a) Single
b) Married
c) Widowed
d) Divorce

4. Educational Status ---------------

a) Professionals
b) Graduate
c) Diploma
d) High school certificate
e) Middle school certificate
f) Primary school certificate
g) Illiterate

5. Occupation -------------------

a) Legislators, Senior Official &Managers
b) Professionals
c) Technicians and Associate Professionals
d) Clerks
e) Skilled Workers and Shop& Market Sales Workers
f) Craft & Related Trade Workers
g) Plant& Machine Operators and Assemblers
h) Elementary Occupation
i) Unemployed

6. Income per month in Rupees

   a) 5000
   b) 5001 - 10000
   c) 10001 -15000
   d) 15001 – 20000
   e) 20001 and above

7. Diet ----------------

   a) Vegetarian
   b) Non Vegetarian

8. Menstrual history ----------------

   a) Regular menstrual history
   b) Irregular menstrual history
   c) Attained menopause

9. Place in living -------------------

   a) Urban
   b) Rural
   c) Semi urban

10. Presence of any morbidity --------------

   a) Yes
   b) No
      If yes, -----------------------

SHOULDER PAIN AND DISABILITY INDEX (SPADI)

The Shoulder Pain and Disability Index (SPADI) is a self-administered questionnaire that consists of two dimensions, one for pain and the other for functional activities. The pain dimension consists of five questions regarding the severity of an individual's pain. Functional activities are assessed with eight questions designed to measure the degree of difficulty an individual has with various activities of daily living that require upper-extremity use. The SPADI takes 5 to 10 minutes for a patient to complete and is the only reliable and valid region-specific measure for the shoulder.

Scoring instructions

To answer the questions, patients place a mark on a 10cm visual analogue scale for each question. Verbal anchors for the pain dimension are 'no pain at all' and 'worst pain imaginable', and those for the functional activities are 'no difficulty' and 'so difficult it required help'. The scores from both dimensions are averaged to derive a total score.

Interpretation of scores

Total pain score: / 50 x 100 = %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 40)

Total disability score: / 80 x 100 = %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 70)

Total Spadi score: / 130 x 100 = %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 120)

The means of the two subscales are averaged to produce a total score ranging from 0 (best) to 100 (worst).

Pain scale

How severe is your pain?

Circle the number that best describes your pain where: 0 = no pain and 10 = the worst pain imaginable.

1)At its worst?

0	1	2	3	4	5	6	7	8	9	10

2) When lying on the involved side?

0	1	2	3	4	5	6	7	8	9	10

3) Reaching for something on a high shelf?

0	1	2	3	4	5	6	7	8	9	10

4) Touching the back of your neck?

0	1	2	3	4	5	6	7	8	9	10

5) Pushing with the involved arm?

0	1	2	3	4	5	6	7	8	9	10

Disability scale

How much difficulty do you have?

Circle the number that best describes your experience where: 0 = no difficulty and 10 = so difficult it requires help.

1)Washing your hair?

0	1	2	3	4	5	6	7	8	9	10

2) Washing your back?

0	1	2	3	4	5	6	7	8	9	10

3) Putting on an undershirt or jumper?

0	1	2	3	4	5	6	7	8	9	10

4) Putting on a shirt that buttons down the front?

0	1	2	3	4	5	6	7	8	9	10

5) Putting on your pants?

0	1	2	3	4	5	6	7	8	9	10

6) Placing an object on a high shelf?

0	1	2	3	4	5	6	7	8	9	10

7) Carrying a heavy object of 10 pounds (4.5 kilograms)

0	1	2	3	4	5	6	7	8	9	10

8) Removing something from your back pocket?

0	1	2	3	4	5	6	7	8	9	10

செவிலியர் கல்லூரி

சென்னை மருத்துவக் கல்லூரி, சென்னை–600 003.

திட்டமிட்ட நேர்காணல் முறை– தனிப்பட்ட விபரங்கள்

(குறிப்பு: பொருந்தக்கூடிய பொருத்தமான இடத்தில் பதில் அளிக்கவும். நீங்கள் வழங்கிய தகவல்கள் இரகசியமாக வைக்கப்பட்டு ஆராய்ச்சிக்கு மட்டுமே பயன்படுத்தப்படும்.

பகுதி-அ
சுய சமூகக் குறிப்பு

1) வயது (ஆண்டுகளில்)

அ) 30-40 ☐

ஆ) 41-50 ☐

இ) 51-60 ☐

ஈ) 61 வயதிற்கு மேல் ☐

2) மதம்

அ) இந்து ☐

ஆ) முஸ்லிம் ☐

இ) கிறிஸ்துவர் ☐

ஈ) மற்ற அனைத்தும் ☐

3) திருமண நிலை

அ) திருமணமாகாதவர் ☐

ஆ) திருமணமானவர் ☐

இ) விதவை ☐

ஈ) விவாகரத்தானவர் ☐

4) கல்வித்தகுதி

அ) தொழில் சார்ந்த படிப்பு ☐

ஆ) பட்டதாரி ☐

இ) பட்டயப்படிப்பு ☐

ஈ) மேல்நிலைக் கல்வி ☐

உ) நடுநிலைக் கல்வி ☐

ஊ) ஆரம்பக் கல்வி ☐

எ) படிப்பறிவின்மை ☐

5) தொழில்

  அ) உயர் அதிகாரி, மேலாளர் ☐

  ஆ) தொழில் செய்பவர் ☐

  இ) தொழில் நுட்பவியலாளர் ☐

  ஈ) எழுத்தர் ☐

  உ) கடை மற்றும் சந்தை விற்பனை தொழிலாளர் ☐

  ஊ) கைவினை மற்றும் இயந்திர ஆபரேட்டர்கள் ☐

  எ) அடிப்படைத் தொழிலாளர்கள் ☐

  ஏ) வேலையில்லாதவர்கள் ☐

6) மாத வருமானம் (ரூபாயில்)

  அ) ரூ.5000/- ☐

  ஆ) ரூ.5001 – ரூ.10000/- ☐

  இ) ரூ.10001 – ரூ.15000 ☐

  ஈ) ரூ.15001 – ரூ.20000 ☐

  உ) ரூ.20001 மற்றும் அதற்கு மேல் ☐

7) உணவு பழக்கவழக்கங்கள்

  அ) சைவம் ☐

  ஆ) அசைவம் ☐

8) மாதவிலக்கு நிலை

  அ) சீரான மாதவிலக்கு ☐

  ஆ) ஒழுங்கற்ற மாதவிலக்கு ☐

  இ) மாதவிடாய் நிலை ☐

9) இருப்பிடம்

  அ) நகர்புறம் ☐

  ஆ) கிராமம் ☐

  இ) புறநகர் பகுதி ☐

10) நீங்கள் ஏதேனும் நோய் உள்ளவரா?

  அ) ஆம் ☐

  ஆ) இல்லை ☐

  ஆம் எனில் ....

பகுதி-ஆ
தோள்பட்டை வலி மற்றும் இயலாமை குறியீட்டு அளவை பற்றிய கேள்வித்தாள்

1. தோள்பட்டை வலி பற்றிய குறியீடு அளவு

விபரம்	0	1	2	3	4	5	6	7	8	9	10
1) மோசமான நேரத்தில் வலி அளவு											
2) சம்பந்தப்பட்ட பகுதியில் படுக்கும்போது											
3) உயரமான அலமாரியில் ஏதேனும் எடுக்கும்போது											
4) பின்புற கழுத்துப்பகுதியை தொடும்போது											
5) சம்பந்தப்பட்ட பகுதியிலுள்ளவை வைத்து தள்ளும்போது											

2. தோள்பட்டை இயலாமை பற்றிய குறியீட்டு அளவு

விபரம்	0	1	2	3	4	5	6	7	8	9	10
1) உங்கள் முடி சலவை செய்யும்போது											
2) உங்கள் முதுகு கழுவும்போது											
3) கால்சட்டை அணியும்போது											
4) முன்பக்கம் சட்டை பொத்தான்களை கீழ்நோக்கி போடும்போது											
5) உங்கள் காலுறை அணியும்போது											
6) உயரமான அலமாரியில் ஒரு பொருளை வைக்கும்போது											
7) 4.5 கிலோகிராம் கனமான பொருளை சுமந்துகொண்டு செல்லும்போது											
8) உங்கள் பின்பாக்கெட்டில் இருந்து ஏதாவது நீக்கும் போது											

INFORMED CONSENT FORM

Investigator	: K. Chandra
Name of participant	:
Age	:
Date	:
Name of the institution	: RAJIV GANDHI GOVERNMENT GENERAL
	HOSPITAL, CHENNAI-3

Title of the study: "A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENT ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03".

Documentation of the informed consent:

- I ------------------ have read/it has been read for me, the information in this form. I was free to ask any questions and they have been answered. I am over 60 years of age and exercising my free power of choice, hereby give my consent to be included as a participant in the study.
- I have read and understood this consent form and the information provided to me.
- I have had the consent document explained in detail to me.
- I have been explained about the nature of my study.
- My rights and responsibilities have been explained to me by the investigator.
- I agree to cooperate with the investigator.
- I have not participated in any research study at any time.
- I am aware of the fact that I can out of the study at any time without having to give any reason.
- I hereby give permission to the investigators to release the information obtained from me as a result of participation in this study to the regulatory authorities, government agencies and Institutional ethics committee. I understand that they are publicly presented.
- My identity will be kept confidential if my data are publicly presented.
- I am aware that I have any question during this study; I should contact the concerned investigator.

Signature of Investigators   Signature of Participants

Date: Date:

INFORMATION TO PARTICIPANTS

Title : "A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENT ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03".

Name of the Participant :

Date :

Age :

Investigator : K. Chandra

Name of the institution : RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-3

You are invited to take part in this study. The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

You are being asked to Cooperative in this study being conducted in selected Institute of mental health hospital at Chennai.

What is the Purpose of the Research (explain briefly)

This research is conducted to evaluate to assess the effectiveness of calisthenics therapy on reduction of shoulder pain and immobility among mastectomy patients in post-operative wards, Rajiv Gandhi Government General Hospital, Chennai-3.

We have obtained permission from the Institutional Ethics Committee.

Study Procedures

- Study will be conducted after approval of ethics committee
- A written formal permission will be obtained from authorities of Rajiv Gandhi Government General Hospital at Chennai to conduct study.
- The purpose of study will be explained to the participants.
- The investigator will obtain informed consent.

Possible benefits to other people

The result of the research may provide benefits and also empathetic care to them by investigator.

Confidentiality of the information obtained from you

You have the right to confidentiality regarding the privacy of your personal details. The information from this study, if published in scientific journals or presented at scientific meetings, will not reveal your identity.

How will your decision not to participate in the study affect you?

Your decisions not to participate in this research study will not affect your activity of daily living, medical care or your relationship with investigator or the institution.

Can you decide to stop participating in the study once you start?

The participation in this research is purely voluntary and you have the right to withdraw from this study at any time during course of the study without giving any reasons.

Your Privacy in the research will be maintained throughout study. In the event of any publications or presentation resulting from the research, no personally identifiable information will be shared.

Signature of Investigator   Signature of Participants

Date   Date

சுயஒப்புதல் படிவம்

முறையான உடற்பயற்சிசிகிச்சை மூலம் மார்பக அறுவைசிகிச்கை செய்தவரின் தோள்பட்டை வலி மற்றும் அசைவில்லாதிருத்தல் தன்மையை குறைக்கும் திறன் குறித்த ஆய்வு

ஆய்வாளர் பெயர்   :   க. சந்திரா

பங்கேற்பாளர்   :

தேதி   :

வயது / பால்   :

> ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழு மனதுடனும் சுய நினைவுடனும் சம்மதிக்கிறேன்.

> ஆய்வாளர் மேற்கொள்ள போகும் பரிசோதனைகளை மிக தெளிவாக விளக்கிக் கூறினார்.

> எனக்கு விருப்பமில்லாத பட்சத்தில் ஆராய்ச்சியிலிருந்து எந்நேரமும் விலகலாம் என்பதை ஆய்வாளர் மூலம் அறிந்துகொண்டேன்.

> இந்த ஆராய்ச்சி ஒப்புதல் கடிதத்தில் உள்ள விவரங்களை நன்கு புரிந்து கொண்டேன். எனது உரிமைகள் மற்றும் கடமைகள் ஆராய்ச்சியாளர் மூலம் விளக்கப்பட்டது.

> நான் ஆராய்ச்சியாளருடன் ஒத்துழைக்க சம்மதிக்கிறேன். எனக்கு ஏதேனும் உடல்நலக்குறைவு ஏற்பட்டால் ஆராய்ச்சியாளரிடம் தெரிவிப்பேன்.

> நான் வேறு எந்த ஆராய்ச்சியிலும் தற்சமயம் இடம்பெறவில்லை என்பதை தெரிவித்துக்கொள்கிறேன்.

> இந்த ஆராய்ச்சியின் தகவல்களை வெளியிட சம்மதிக்கிறேன். அப்படி வெளியிடும்போது என் அடையாளம் வெளி வராது என்பதை அறிவேன்.

> எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கப்பட்டது.

ஆய்வாளர் கையொப்பம்   பங்கேற்பாளர் கையொப்பம்

தேதி:   தேதி:

ஆராய்ச்சி தகவல்கள்

முறையான உடற்பயற்சிசிகிச்சை மூலம் மார்பக அறுவைசிகிச்கை செய்தவரின் தோள்பட்டை வலி மற்றும் அசைவில்லாதிருத்தல் தன்மையை குறைக்கும் திறன் குறித்த ஆய்வு

ஆய்வாளர் பெயர் : க. சந்திரா

பங்கேற்பாளர் :

தேதி :

வயது / பால் :

❖ ஆயவாளர் மேற்கொள்ளும் ஆராய்ச்சியில் பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடன் சம்மதிக்கலாம்.

❖ இதில் பங்கேற்பதன் நோக்கம் அந்த ஆராய்ச்சியில் தகவல்களை தெரிந்து கொள்வதற்காகவும் , அதனை பயன்படுத்துவதற்காக மட்டும்தான்.

❖ இந்த ஆராய்ச்சியின் நோக்கம் முறையான உடற்பயிற்சியின் மூலம் முறையான உடற்பயற்சிசிகிச்சை மூலம் மார்பக அறுவைசிகிச்கை செய்தவரின் தோள்பட்டை வலி மற்றும் அசைவில்லாதிருத்தல் தன்மையை குறைக்கும் திறன் குறித்து அறியலாம்.

ஆராய்ச்சி மேற்கொள்ளும் முறை

இந்த ஆராய்ச்சியில் முறையான உடற்பயற்சிசிகிச்சை மூலம் மார்பக அறுவைசிகிச்சை செய்தவரின் தோள்பட்டை வலி மற்றும் அசைவில்லாதிருத்தல் தன்மையை குறைக்கும் திறன் குறித்த ஆய்வு

இதனால் ஆய்வாளருக்கான பயன்

❖ இந்த ஆய்விற்கு பின் முறையான உடற்பயற்சிகிச்சை மூலம் மார்பக அறுவைசிகிச்கை செய்தவரின் தோள்பட்டை வலி மற்றும் அசைவில்லாதிருத்தல் தன்மையை குறைக்கும் திறன் குறித்து அறியலாம்.

இதனால் பங்கேற்பாளருக்கான பயன்

❖ இந்த ஆய்வு முறையான முறையான உடற்பயற்சிசிகிச்சை மூலம் மார்பக அறுவைசிகிச்கை செய்தவரின் தோள்பட்டை வலி மற்றும் அசைவில்லாதிருத்தல் தன்மையை குறைக்கும் திறன் குறித்து அறியலாம்..

❖ ஆராய்ச்சியில் பங்கேற்கவில்லை என்றாலும், உங்களின் சராசரி வாழ்க்கை முறையில் எந்த வித மாற்றமும் ஏற்படாது என்பதை தெரிவிக்கிறேன்.

❖ இந்த ஆராய்ச்சியில் பங்கேற்க விருப்பம் இல்லை என்றால் உங்களின் முழு மனதுடன் நீங்கள் இந்த ஆராய்ச்சியில் இருந்து விலகி கொள்ளாலாம் என்பதை தெரிவிக்கிறேன்.

❖ இந்த ஆராய்ச்சியில் உங்களின் தகவல்களை பாதுகாப்பாக வைத்துக் கொள்கிறேன். என்பதை தெரிவித்துக்கொள்கிறேன்.

❖ இந்த ஆராய்ச்சியின் தகவல்களை வெளியிடும்போது உங்களை பற்றிய அடையாளங்கள் வெளிவராது என்பதை உறுதி கூறுகிறேன்.

ஆய்வாளர் கையொப்பம்   பங்கேற்பாளர் கையொப்பம்

தேதி:   தேதி:

CERTIFICATE OF PLAGIARISM

This is to certify that the dissertation work titled, "**A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03**" of the candidate **CHANDRA. K** for the partial fulfillment of M.Sc. Nursing Programme in the branch of MEDICAL SURGICAL NURSING has been verified for plagiarism through relevant plagiarism checker. We found that the uploaded thesis file from introduction to conclusion pages and rewrite shows _____% of Plagiarism (_____% uniqueness) in this dissertation.

CLINICAL SPECIALITY GUIDE / SUPERVISOR   **PRINCIPAL**
Mrs.V.K.R.Periyar Selvi, M.Sc(N).,   **Mrs.A.Thahira Begum, M.Sc(N).,MBA., M.Phil.,**
Reader in Medical Surgical Nursing,   Principal,
College of Nursing,   College of Nursing,
Madras Medical College,   Madras Medical College,
Chennai -03.   Chennai -03.

INTERVENTION

CALISTHENICS THERAPY

Calisthenics therapy is the form of active physical exercise (post mastectomy exercise) that prevents stiffness, numbness, lymphedema, contractures, releasing muscular tension, restoring strength and is helpful in recovering upper limb movement following post mastectomy surgery.

BENEFITS OF POST MASTECTOMY EXERCISE:

- ❖ Improved shoulder range of motion
- ❖ Improved shoulder strength
- ❖ Improved functional mobility
- ❖ Improved posture
- ❖ Decreased pain at the surgical site
- ❖ Decreased oedema on the affected side
- ❖ Improved sensation at the surgical site

GUIDELINES FOR DOING CALISTHENICS THERAPY:

- ❖ Duration: 20 Minutes.
- ❖ Each active exercise has to perform by the patients.

INSTRUCTIONS:

- ❖ Breath slowly and deeply during exercise.
- ❖ The exercise are setup that start them lying down, move to siting, and finish them standing up
- ❖ Do the exercises three times a day until the clients get back normal flexibility.
- ❖ Do the exercises slowly until the patients feel a gentle stretch. Hold each stretch at the end of the motion and slowly count 5(It's normal to feel some pulling as stretch the skin and muscles that have been shortened because of surgery).
- ❖ If joints or muscles hurt at any time stop the exercise.

PROCEDURE

1) Snow Angel Exercise

> ➢ Lie down on your back. If you need to support your neck, put a rolled-up towel under your head
> ➢ Your arms should be straight with the palms of your hands facing the ceiling.
> ➢ Slide your arms up and down on the floor. You should only move your arms as far as you can and still be comfortable.
> ➢ Hold for 5 seconds then relax.
> ➢ Do this exercise 5 times, 3 times a day

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2) "T" and "Y" Stretch Exercise

> ➢ Lie on your back with your arms stretched out to the side in a "T" position. You should feel a comfortable stretch across your chest.
> ➢ Hold this position for 5 seconds.
> ➢ Do this exercise 5 times, 3 times a day.
> ➢ Do this exercise with your arms stretched out to the side in a "Y" position. You should feel a comfortable stretch across your chest.
> ➢ Hold this position for 5 seconds.
> ➢ Do this exercise 5 times, 3 times a day.

Flaps
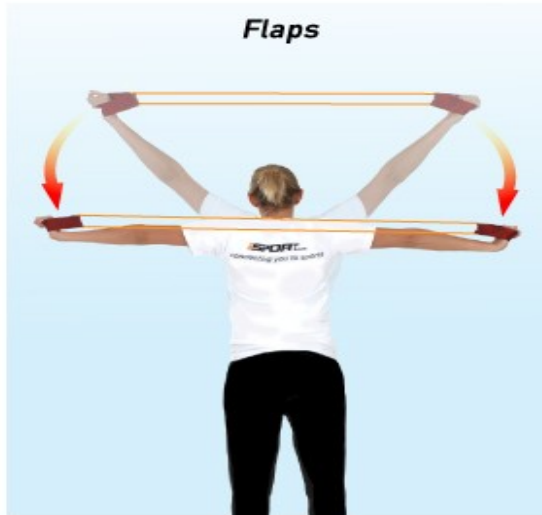
3. Butterfly Wings Exercise

- ➢ Lie on your back.
- ➢ Place your hands behind your head and clasp your fingers together.
- ➢ Slowly lower your elbows toward the floor until you feel a comfortable stretch across your chest.
- ➢ Hold for 5 seconds.
- ➢ Do this exercise 5 times, 3 times a day.

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4. Forward Pinky Slide Exercise

- ➢ Stand facing a wall. Extend your involved arm directly in front of you so that your forearm rests on the wall with your pinky against the wall.

- Take a step in towards the wall, allowing your arm to slide up so that your pinky is the only finger in contact with the wall.
- Continue until you feel a comfortable stretch.
- Hold this position for 5 seconds.
- Slowly step back and lower your arm down the wall until you have returned to the starting position.
- Do this exercise 5times, 3 times day.

5. Sideways Pinky Slide Exercise

- Stand close to a wall. Place your forearm and pinky against the wall. Slide your forearm and hand up the wall until you feel a comfortable stretch.
- Lean towards the wall for a stronger stretch.
- Hold for 5seconds.
- Slowly step back to lower your arm down the wall until you have returned to the starting position.
- Do this exercise 5 times, 3 times a day.

6. Median Nerve Glide Exercise

➢ Keep your shoulder down and raise your involved arm directly out to the side to shoulder height.

➢ Bend your elbow to 90 degrees.

➢ Rotate your arm back like you are going to throw a ball.

➢ Turn your palm towards your face.

➢ Bend your wrist back towards the floor.

➢ Extend your fingers.

➢ Straighten your elbow.

Once you feel the first change in sensation, you can include the following steps with this exercise.

➢ Bring your ear to the shoulder on the same side while straightening your elbow at the same time.

➢ Return your head and arm to the starting position then repeat in the other direction (ear to opposite shoulder while completely bending the elbow).

➢ Do these exercise 5 times, 3 times a day.

➢ You can also "stretch" the nerve by straightening your elbow while you keep your head in a neutral position until you feel a comfortable stretch. Hold this position for 5seconds.

➢ Do this exercise 5 times, 3 times a day.

➢ You can continue this stretch by bringing your ear to the opposite shoulder as you straighten your elbow.
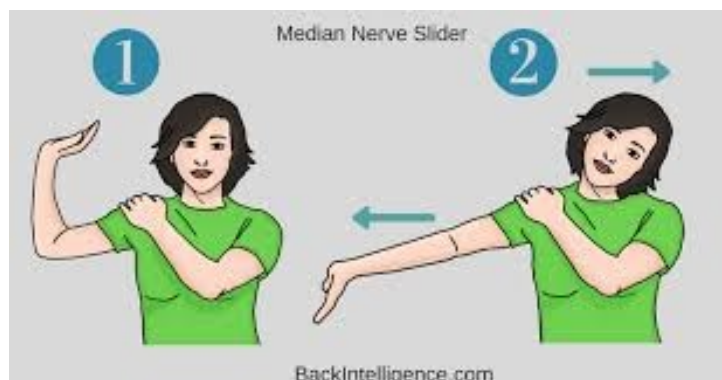
INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI 600 003

CERTIFICATE OF APPROVAL

To
K Chandra,
M.Sc. Nursing I Year,
College of Nursing,
Madras Medical College,
Chennai 600 003.

Dear K Chandra,

The Institutional Ethics Committee has considered your request and approved your study titled **"A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL CHENNAI - 03"** - **NO.34072018.**

The following members of Ethics Committee were present in the meeting held on **24.07.2018**   conducted at Madras Medical College, Chennai 3

1. Prof.P.V.Jayashankar   :Chairperson
2. Prof.R.Jayanthi,MD.,FRCP(Glasg) Dean,MMC,Ch-3   : Deputy Chairperson
3. Prof.Sudha Seshayyan,MD., Vice Principal,MMC,Ch-3   : Member Secretary
4. Prof.N.Gopalakrishnan,MD,Director,Inst.of Nephrology,MMC,Ch   : Member
5. Prof.S.Mayilvahanan,MD,Director,Inst. of Int.Med,MMC, Ch-3   : Member
6. Prof.A.Pandiya Raj,Director, Inst. of Gen.Surgery,MMC   : Member
7. Prof.Shanthy Gunasingh, Director, Inst.of Social Obstetrics,KGH   : Member
8. Prof.Rema Chandramohan,Prof.of Paediatrics,ICH,Chennai   : Member
9. Prof. Susila, Director, Inst. of Pharmacology,MMC,Ch-3   : Member
10. Prof.K.Ramadevi,MD., Director, Inst. of Bio-Chemistry,MMC,Ch-3   : Member
11. Prof.Bharathi Vidya Jayanthi,Director, Inst. of Pathology,MMC,Ch-3: Member
12. Thiru S.Govindasamy, BA.,BL,High Court,Chennai   : Lawyer
13. Tmt.Arnold Saulina, MA.,MSW.,   :Social Scientist
14. Thiru K.Ranjith, Ch- 91   : Lay Person

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary – Ethics Committee

REQUISITION LETTER

From

    K. Chandra,
    M.Sc. (N) II year Student,
    College of Nursing,
    Madras Medical College,
    Chennai- 03.

28-01-2019
Chennai-03.

To

    Director,
    Institute of General Surgery,
    Rajiv Gandhi Government General Hospital,
    Chennai -03.

Through

    The Principal,
    College of Nursing,
    Madras Medical College,
    Chennai- 03.

Respected Madam,

Sub: **College of Nursing - Madras Medical College, Chennai-03 - M.Sc. (N) II Year Student- Dissertation - Requesting permission to conduct research study in Post-Operative wards Rajiv Gandhi Government General Hospital, Chennai-03.- Regarding**
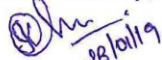
----------×------------

I, K. Chandra, M.Sc. Nursing II year student have to conduct the research study for the partial fulfillment of M.Sc. (N) programme. My topic is "**A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL CHENNAI-03**". The data collection period is from 02.02.2019 to 04.03.2019 from 8 am to 4 pm. I assure that I will not disturb the routine activities of the patients/ wards.

With due respect, I request your good self to kindly permit me to conduct this study in Post-Operative wards Rajiv Gandhi Government General Hospital, Chennai- 03.

Thanking you,

Yours faithfully,

Forwarded

Signature of HOD
(Research)

Forwarded

PRINCIPAL
COLLEGE OF NURSING
MADRAS MEDICAL COLLEGE
CHENNAI - 600 003.

(K. Chandra)

Prof. Dr. M. ALLI, D.G.O., M.S.(G.S.),
REG. No: 41664
PROFESSOR OF SURGERY
INSTITUTE OF GENERAL SURGERY,
MADRAS MEDICAL COLLEGE, CHENNAI-03

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by **CHANDRA .K** M.Sc., (Nursing) II year, College of Nursing, Madras Medical College which is to be used in her study titled, "**A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03.**" has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

**PRINCIPAL
MADHA COLLEGE OF NURSING**
Signature with seal
**MADHA NAGAR, KUNDRATHUR,
CHENNAI - 600 069
PHONE : 24780736**

Name: DR. B. TAMILARASI

Designation: PRINCIPAL

College: MADHA COLLEGE OF NURSING, CHENNAI-69.

Place:

Date: 1 8 JAN 2019

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool constructed by **CHANDRA .K** M.Sc., (Nursing) II year, College of Nursing, Madras Medical College which is to be used in her study titled, "**A STUDY TO ASSESS THE EFFECTIVENESS OF CALISTHENICS THERAPY ON SHOULDER PAIN AND IMMOBILITY AMONG MASTECTOMY PATIENTS ADMITTED IN POSTOPERATIVE WARDS, RAJIV GANDHI GOVERNMENT GENERAL HOSPITAL, CHENNAI-03.**" has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.

Signature with seal

PRINCIPAL
MOHAMED SATHAK
A.J. COLLEGE OF NURSING
34, Rajiv Gandhi Road, (OMR)
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Name: DR. PROF. R. RAMA SAMBASIVAN, MSc (N), Ph.D.,

Designation: PRINCIPAL

College: MOHAMED SATHAK A.J. COLLEGE OF NURSING

Place:

Date:

CERTIFICATE FOR ENGLISH EDITING

This is to certify that the dissertation work topic titled, **"A study to assess the effectiveness of calisthenics therapy on shoulder pain and immobility among mastectomy patients admitted in postoperative wards, Rajiv Gandhi Government General Hospital, Chennai-03",** done by **Chandra. K, M.Sc(N) II year** student, College of Nursing, Madras Medical College, Chennai – 03 has been edited and validated for English language appropriateness.

Place:

Date: 28.6.19

Signature:

Name: DR. J. EBENEZER

Headmaster
Voorhees Higher Secondary School

Designation: Vellore - 632 001.

Place:

CERTIFICATE FOR TAMIL EDITING

This is to certify that the dissertation work topic titled, **"A study to assess the effectiveness of calisthenics therapy on shoulder pain and immobility among mastectomy patients admitted in postoperative wards, Rajiv Gandhi Government General Hospital, Chennai-03",** done by **Chandra. K, M.Sc(N) II year** student, College of Nursing, Madras Medical College, Chennai – 03 has been edited and validated for Tamil language appropriateness.

Place: Vellore.

Date: 28.6.19.

Signature:

Name: A.J. THEODORE RAJKUMAR
Asst. Professor & H.O.D.
Department of Tamil,
Voorhees College-Vellore

Designation:

Place:

செவிலியர் கல்லூரி

சென்னை மருத்துவக் கல்லூரி, சென்னை-600 003.

மார்பக அறுவை சிகிச்சைக்கு பின்

செய்ய வேண்டிய உடற்பயிற்சிகள்

மார்பக அறுவை சிகிச்சைக்கு பின் செய்ய வேண்டிய உடற்பயிற்சிகள்

முன்சுவர் ஏறும் பயிற்சி

❖ முதலில் சுவரை பார்த்து நிற்க வேண்டும். அறுவை சிகிச்சை செய்த பகுதியில் உள்ள கரத்தை முன்னோக்கி வைத்து முழங்கையை சுவரில் பதியவைத்து உள்ளங்கையை சுவற்றிற்கு எதிராக வைக்க வேண்டும்.

❖ சுவற்றில் கரத்தால் அடிமேல் அடிவைத்து செல்ல வேண்டும். உங்கள் உள்ளங்கை மட்டும் சுவற்றை தொட வேண்டும்.

❖ நீங்கள் வசதியாக உணரும்வரை கையை நகர்த்தி நீட்டிக்க வேண்டும்.

❖ முடிந்த அளவு கை தூக்கியவுடன் 5 நொடிகள் அப்படியே இருக்க வேண்டும்.

❖ பின்பு பின்னோக்கி கரத்தை நகர்த்தி பழைய நிலையை அடைய வேண்டும்.

❖ இந்த உடற்பயிற்சியை ஒரு நாளில் 3 முறை செய்ய வேண்டும்.

பக்கவாட்டு சுவர் ஏறும் பயிற்சி

❖ முதலில் சுவற்றிற்கு அருகில் நிற்க வேண்டும். உங்கள் முழங்கை மற்றும் உள்ளங்கையை சுவற்றில் எதிர்நோக்கி இருக்குமாறு வைக்க வேண்டும். உங்களுடைய முன்கைகளை மேல்நோக்கி நகர்த்தி வசதியாக உணரும் வரை நீட்டிக்க வேண்டும்.

❖ சுவரை நோக்கி சாய்ந்து வலுவாக கையை நீட்டிக்க வேண்டும். இந்நிலையில் 5 நொடிகள் அப்படியே இருக்க வேண்டும்.

❖ பின்பு அப்படியே முன்கையை கீழ்நோக்கி நகர்த்தி பழைய நிலையை அடைய வேண்டும்.

❖ இந்த உடற்பயிற்சியை ஒரு நாளில் 3 முறை செய்ய வேண்டும்.

நடுத்தர நரம்பு சறுக்கு உடற்பயிற்சி

படி-1

- ❖ நீங்கள் தோல்பட்டையை கீழ் நோக்கி வைக்க வேண்டும். அறுவை சிகிச்சை சம்பந்தப்பட்ட பகுதியிலுள்ள கையை மேல்நோக்கி தோள்பட்டை அளவு உயர்த்த வேண்டும்.

- ❖ முழங்கையை 90^0 அளவு வளைத்து பந்தை வீசுவதை போன்று கரத்தை வைக்க வேண்டும்.

- ❖ உங்கள் உள்ளங்கை உங்கள் முகத்தை பார்த்து இருக்க வேண்டும்.

- ❖ உங்கள் கையின் மணிக்கட்டு மீண்டும் தரைநோக்கி இருக்க வேண்டும்.

- ❖ உங்கள் விரல்களை நீட்டி வைத்துக்கொள்ள வேண்டும். பின்பு முழங்கையை நேராக வைத்துக்கொள்ள வேண்டும்.

படி-2 (முதல்படியுள்ளவையுடன் தொடர்ந்து)

- ❖ உங்கள் முழங்கையை நேராக நீட்டும்போது உங்கள் காது பகுதியை அதே பகுதியிலுள்ள தோள்பட்டையை பார்த்து நகர்த்த வேண்டும்.

- ❖ பின்பு தலைப்பகுதியையும், கரத்தையும் பழைய நிலைக்கு கொண்டு வரவும்.

- ❖ பின்பு இதேபோன்று எதிர் திசையில் செய்ய வேண்டும். (அதாவது காது பகுதியை எதிர்பக்க தோல்பட்டை பார்த்து வளைக்க வேண்டும்).

❖ அவ்வாறு நீட்டிக்கும் போது வசதியாக உணரும் நிலையில் 5 நொடிகள் அப்படியே இருக்க வேண்டும்.

❖ இந்த உடற்பயிற்சி ஒரு நாளில் 3 முறை செய்ய வேண்டும்.
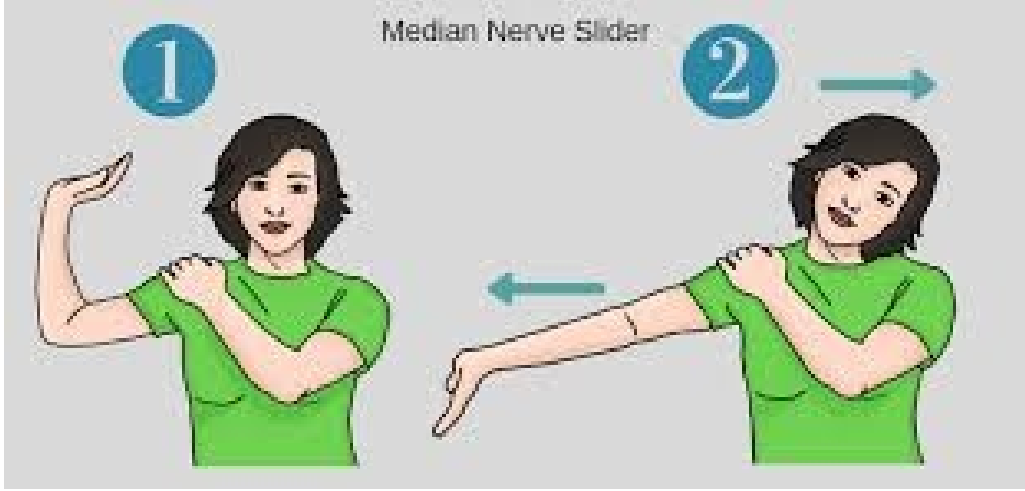
பனி தேவதை பயிற்சி

❖ முதலில் படுத்துக்கொள்ள வேண்டும். தேவையென்றால் தலையணை வைத்துக்கொள்ள வேண்டும்.

❖ உங்கள் கரத்தை நேராக வைத்துக்கொள்ள வேண்டும். உங்கள் உள்ளங்கை மேல்நோக்கி பார்க்கும் வண்ணம் இருக்க வேண்டும்.

❖ கரத்தை தலைக்கு மேல் தூக்கி இரு கரங்களையும் சேர்த்து பின்பு பழைய நிலைக்கு கொண்டுவர வேண்டும்.

❖ கரத்தை மேல்நோக்கி வைக்கும்போது 5 நொடிகள் அப்படியே வைக்க வேண்டும். இந்த உடற்பயிற்சியை ஒரு நாளில் 3 முறை செய்ய வேண்டும்.

T மற்றும் Y வடிவ உடற்பயிற்சி

❖ முதலில் படுத்துக்கொள்ள வேண்டும். பின்பு இரு கரங்களை
(T வடிவத்தில்) நீட்டி வைத்துக்கொள்ள வேண்டும். மேலும் நீங்கள் வசதியாக உணரும்போது 5 நொடிகள் அப்படியே வைத்துக்கொள்ள வேண்டும்.

❖ இந்த உடற்பயிற்சி ஒரு நாளில் 3 முறை செய்ய வேண்டும்.

- ❖ பின்பு இரு கங்களையும் (Y வடிவத்தில்) நீட்டி வைத்துக்கொள்ள வேண்டும். நீங்கள் வசதியாக உணரும் போது 5 நொடிகள் அப்படியே வைத்துக்கொள்ள வேண்டும்.

- ❖ இந்த உடற்பயிற்சியை ஒரு நாளில் 3 முறை செய்ய வேண்டும்.

<u>வண்ணத்துப்பூச்சி முறை உடற்பயிற்சி</u>

- ❖ முதலில் படுத்துக்கொள்ள வேண்டும்.

- ❖ இரு கரங்களையும் தலைக்கு அடியில் வைத்து இரு கைகளில் உள்ள விரல்களை கோர்த்துக்கொள்ள வேண்டும்.

- ❖ மெதுவாக உங்கள் முழங்கையை தரையை நோக்கி வைக்க வேண்டும். இந்நிலையில் முழங்கையை 5 நொடிகள் அப்படியே வைக்க வேண்டும். பின்பு மேலும் கீழும் வண்ணத்துப்பூச்சி அசைவது போன்று செய்ய வேண்டும்.

- ❖ இந்த உடற்பயிற்சியை ஒரு நாளில் 3 முறை செய்ய வேண்டும்.

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