

**A STUDY TO EVALUATE EFFECTIVENESS OF  
AROMATHERAPY ON SELECTED ADVERSE EFFECTS  
AMONG PATIENTS UNDERGOING CHEMOTHERAPY AT  
CANCER CENTRE IN MADURAI.**



**A DISSERTATION SUBMITTED TO  
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI,  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF SCIENCE IN NURSING.**

**APRIL – 2012**

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**“When a person doesn’t have gratitude, Something is missing in his or her humanity;**

**A person can almost be defined by his or her attitude towards gratitude;**

**Elie Wisel.**

The satisfaction and pleasure that accompany the successful completion of any task would be incomplete without mentioning the people who have made it possible and whose constant guidance and encouragement reward any effort with successfully. I consider it is privilege to express my gratitude and respect to all those who have guided and inspired me in the completion of this study. While my are few ; my appreciations are unmeasured.

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I humbly acknowledge my sincere gratitude and appreciation to all who have directly and indirectly contributed to this study.

# **ABSTRACT**

## **Introduction**

Aromatherapy is promoted as a natural way to help patients cope with stress, chronic pain, nausea, and depression and to produce a feeling of well being.

## **Statement of the Problem**

A study to evaluate the effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy at cancer centre in Madurai.

## **Objectives**

1. To assess the adverse effects of Chemotherapy before aromatherapy among control group and experimental group.
2. To assess the adverse effects of Chemotherapy after aromatherapy among control group and experimental group.
3. To find out the effectiveness of aromatherapy on adverse effects among patients on chemotherapy.
4. To find out the association between aromatherapy and selected demographic variables.

## **Review of literature**

A review was done on cancer, chemotherapy effects ,aromatherapy and aromatherapy on reducing chemotherapy adverse effects.

## **Conceptual Framework**

The conceptual frame work for this study was based on nursing process model-Orlando (1958).

## **Methodology**

### **Research design**

The research design selected for this study was a quasi experimental method.

### **Research setting**

The study was done at Guru cancer centre at Madurai.

**Sample size**

The selected adverse effects of chemotherapy patients before and after aromatherapy was studied among 60 patients undergoing chemotherapy. In experimental group 30 patients and in control group 30 patients. The rating scale were used to assess the adverse effects of chemotherapy for data collection which was validated by the experts.

**Sampling technique**

The purposive sampling technique was used.

**Procedure technique**

In experimental group inhalation of lavender oil mixing with 500ml of boiled water for duration of 15-20minutes for 5 days.

**Findings**

In the experimental group the obtained Paired 't' value for adverse effects is 13.00\*\* which is significant.

**Conclusion**

It is inferred that the aromatherapy is effective in reducing chemotherapy adverse effects among patients with cancer. Based on the study findings recommendations and implications were given.

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## APPENDIX-I

**From**

G.Dhanapriya,  
II year M.Sc (N) ,  
C.S.I. Jeyaraj Annapakiyam College of Nursing and Allied Sciences,  
Madurai.

**To**

**Respected Madam,**

**Sub: Requisition for opinions and suggestions of experts for establishing content validity of research tool- Reg.,**

I am a post graduate student of C.S.I. Jeyaraj Annapakiyam College of Nursing, Madurai. I have selected the below mentioned topic for the research to be submitted to the TamilNadu Dr.M.G.R.Medical University, Chennai as a part of partial fulfillment of Master of Nursing Degree.

My research topic is as follows:

**“A study to evaluate effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy at cancer centre in Madurai.”**

With regards I humbly request you to validate my study instruments. I will be grateful if you do this favor to me as early as possible.

Thanking you,

Date:

Yours Sincerely

Madurai:

**G.Dhanapriya,**

## APPENDIX-II

### LIST OF EXPERTS FOR CONTENT VALIDITY OF TOOL

1. **Mrs. JEYA THANGA SELVI, M.Sc(N), Ph.D.,**  
Professor ,CSI Jeyaraj Annapackiam College Of Nursing  
Madurai.
2. **Mrs. SHANTHI, M.Sc.(N),Ph.D**  
Professor, CSI Jeyaraj Annapackiam College Of Nursing  
Madurai.
3. **Mrs.JANCY RACHEL, M.Sc(N),Ph.D**  
Professor ,CSI Jeyaraj Annapackiam College Of Nursing  
Madurai.
4. **Dr.HELEN PERDITA, M.Sc(N), Ph.D**  
Principal, Apollo College Of Nursing  
Madurai.
5. **Mrs.JASLINE, M.Sc(N)**  
Professor, Matha College Of Nursing.  
Manamadurai.
6. **Mrs.PARAMESWARI, M.Sc(N)**  
Professor, Christian College Of Nursing,  
Ambilikai.
7. **Dr.VIJAYA RANI PRINCE,M.Sc(N),Ph.D**  
Principal, Bishop College Of Nursing,  
Dharapuram.
8. **Dr.BALAMURUGAN,M.B.B.S ,M.S(ONC),**  
Medical director,  
Guru cancer centre,  
Madurai.

### APPENDIX-III

**From**

**G.Dhanapriya,**

II year M.Sc (N) ,

C.S.I. Jeyaraj Annapakiyam College of Nursing and Allied Sciences,

Madurai.

To

Forwarded through

**Dr.C.Jothi Sophia M.Sc(N),Ph.D**

Principal, C.S.I.Jeyaraj Annapackiam College of Nursing,

Madurai.

Respected Madam,

**Sub: seeking permission to conduct the research study.**

I am a post graduate student of C.S.I. Jeyaraj Annapakiyam College of Nursing, Madurai. I have selected the below mentioned topic for the research to be submitted to the TamilNadu Dr.M.G.R.Medical University, Chennai as a part of partial fulfillment of Master of Nursing Degree.

My research topic is as follows:

**“A study to evaluate effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy at cancer centre in Madurai.”**

I would like do this pilot study in your esteemed institution. Hence I request kindly grand me permission.

Thanking you,

Date:

Place: Madurai

Yours Sincerely,

**G.Dhanapriya**



## APPENDIX-IV

**From**

**G.Dhanapriya,**

II year M.Sc (N) ,

C.S.I. Jeyaraj Annapakiyam College of Nursing and Allied Sciences,  
Madurai.

**To**

Forwarded through

Mrs.Jothi Sophia M.Sc(N).,Ph.D

Principal,

C.S.I.Jeyaraj Annapackiam College of Nursing,  
Madurai.

Respected Madam,

**Sub: Seeking permission to conduct the research study.**

I am a post graduate student of C.S.I. Jeyaraj Annapakiyam College of Nursing, Madurai. I have selected the below mentioned topic for the research to be submitted to the TamilNadu Dr.M.G.R.Medical University, Chennai as a part of partial fulfillment of Master of Nursing Degree.

My research topic is as follows:

**“A study to evaluate effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy at cancer centre in Madurai.”**

I would like to conduct my study in your esteemed institution. Hence I request kindly grant me permission for the same.

Thanking you in anticipation,

Date:

Place: Madurai

Yours Sincerely,

**G.Dhanapriya**

APPENDIX - V



**THE VALLIAMMAL INSTITUTION (TVI)**

11/6 B.B. Road 2<sup>nd</sup> St., Pankajam Colony , Madurai-625 009.

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effectively participating in theory & practical classes and  
successfully completing all the exercises. She has been  
placed in **FIRST CLASS**.....***



*S. Jeyapragasam*

Prof. Dr. S. Jeyapragasam M.Sc.,M.A.,M.A.,Ph.D.,  
Director  
Rajarajan Institute of Science (RISE)

*Ananthi*  
2/08/2011

Dr. B. Ananthi M.Sc.,M.A.,M.Phil.,Ph.D.,  
Director & Secretary  
The Valliammal Institution (TVI)

## APPENDIX - VI

### PART-I

#### A. DEMOGRAPHIC DATA

**I assure that your answer and response will be kept strictly confidential.**

**Investigated will mark your information from the respondents in the given space.**

1. Age in years
  - a. 21-30
  - b. 31-40
  - c. 41-50
  - d. 50 and above
2. Sex
  - a. Male
  - b. Female
3. Education
  - a. Educated
  - b. uneducated
4. Occupation
  - a. Private employee
  - b. Government employee
  - c. Business
  - d. Retired
  - e. Coolie
  - f. Others
5. State your economic status/annum
  - a. Below Rs.24,000/-
  - b. Above Rs.24,000/-
6. Marital status
  - a. Married
  - b. Single
  - c. Divorce
  - d. Widow
7. Religion
  - a. Hindu
  - b. Muslim
  - c. Christian
  - d. Any Other

## B. CLINICAL DATA

### 8. Duration Of Illness

- a .Below 6months
- b .7 Months -1year
- c. 2-6 Years
- d. Above 6years

### 9. How long on chemotherapy

- a .1 cycle
- b .2-3 cycle
- c.4 -6 cycle
- d. above 6 cycle

### 10.Frequency of chemotherapy

- a.15 days cycle
- b.21 days cycle
- c.30 days cycle

## PART- II

### RATING SCALE TO ASSESS CHEMOTHERAPY ADVERSE EFFECTS

The investigator read out the following statement the response will be marked as tick (✓) as your answer. The questions will be repeated is needed

S.NO	CRITERIA	SCORING
<b>I</b>	<b>PAIN</b>	
1	No pain	1
2	Mild	2
3	Moderate	3
4	Severe	4
<b>II</b>	<b>SLEEP</b>	
1	Sound sleep	1
2	Trouble in falling a sleep	2
3	Mid sleep awakening	3
4	No sleep	4
<b>III</b>	<b>ANOREXIA</b>	
1	Good appetite	1
2	Irritability of seeing food	2
3	Feeling fullness of stomach	3
4	No appetite	4
<b>IV</b>	<b>VOMITING</b>	
1	No vomiting	1
2	Feeling nausea	2
3	Difficult or painful swallowing	3
4	Vomiting after taking food	4
<b>V</b>	<b>MOUTH ULCER</b>	
1	No ulcer	1
2	Dryness of mouth	2
3	Redness of mouth	3
4	Mouth ulcer	4

<b>VI</b>	<b>FATIGUE</b>	1
1	Good in regular activities	2
2	Trouble in concentrating daily activities	3
3	Restrict in daily activities	4
4	Complete absent of daily activities	
<b>VII</b>	<b>DEPRESSION</b>	1
1	Happy mood	2
2	Feeling lonely	3
3	Not able to hope of with condition	4
4	Depressed	3
<b>VIII</b>	<b>BODY IMAGE</b>	
1	No physical changes	1
2	Weight loss	2
3	Hair loss	3
4	Disturbance self image	4
<b>IX</b>	<b>SKIN CHANGES</b>	
1	No skin changes	1
2	Skin irritation	2
3	Dryness of skin	3
4	Itching of the skin color changes	4
<b>X</b>	<b>BOWEL CHANGES</b>	
1	No changes	1
2	Diarrhea	2
3	Constipation	3
4	Bowel irritation	4

Key

- 1 – Normal
- 2 – Mild
- 3 – Moderate
- 4 – Severe

## AROMA THERAPY



## **CHAPTER- I**

### **INTRODUCTION**

#### **“Coping with cancer can be a less frightening experience When a holistic approach is integrated into the primary medical treatment”**

In most people’s mind there is no scarier diagnosis than that of cancer. Cancer is not a new disease. Cancer is often thought of as an untreatable, unbearably painful disease with no cure. However popular this view of cancer may be, it is exaggerated and over-generalized. Cancer is undoubtedly a serious and potentially life-threatening illness. For example, it is the leading cause of death in Americans under the age of 85, and the second leading cause of death in older Americans.

There will be 1.5 million new cases of cancer occurring in the United States coming year, and over 570,000 deaths because of it not including basal and squamous skin cancers which are not reported but could add another two million cases per year (ACS, 2010).

The global burden of cancer continues to increase largely because of the aging and growth of the world population alongside an increasing adoption of cancer-causing behaviors, particularly smoking, in economically developing countries. Based on the GLOBOCAN 2008 estimates, about 12.7 million cancer cases and 7.6 million cancer deaths are estimated to have occurred in 2008; of these, 56% of the cases and 64% of the deaths occurred in the economically developing world. Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among females, accounting for 23% of the total cancer cases and 14% of the cancer deaths.

Lung cancer is the leading cancer site in males, comprising 17% of the total new cancer cases and 23% of the total cancer deaths. *Geneva, 3 April 2003* - Cancer rates could further increase by 50% to 15 million new cases in the year 2020, according to the World Cancer Report, the predicted sharp increase in new cases – from 10 million new cases globally in 2000, to 15 million in 2020 - will mainly be due to steadily ageing populations in both developed and developing countries.



It is estimated that about 9 million new cancer cases are diagnosed every year and over 4.5 million people die from cancer each year in the world.

The estimated number of new cancers in India per year is about 7 lakhs and over 3.5 lakhs people die of cancer each year. Out of these 7 lakhs new cancers about 2.3 lakhs (33%) cancers are tobacco related. There would be about 1.5 lakhs cancer cases at any given time in Karnataka and about 35,000 new cancer cases are added to this pool each year. Over 16,000 new cases are registered every year with more than 20 % from neighbouring states of Andhra Pradesh , Tamil Nadu and Kerala.

In Chennai, the total cancer burden is predicted to increase by 32% by 2012-16 compared with 2002-06, with 19% due to changes in cancer risk and a further 13% due to the impact of demographic changes. The annual cancer burden predicted for 2012-2016 is 6100 for Chennai, translating to 55000 new cases per year statewide in Tamilnadu.

In Madurai out of one crore population covering six districts in south Tamil Nadu, 12,000 cancer cases were reported every year, said P.K. Muthukumarasami Head of Department Medical Oncology, Government Rajaji Hospital.

In a study reported in the Lancet, they used a double-blind, placebo-controlled randomized trial, which means that the control group did not take the medicine, and the people doing the study did not know who was receiving the real drug or the placebo. In addition, people were placed in groups randomly, or by chance. Over 200 survivors of breast cancer who had significant hot flashes were entered into the study. Fifty-six were in the control group, and the other women were placed in one of three groups depending upon the dose of venlafaxine (37.5 mg, 75 mg, or 150 mg). The women took the medicine for four weeks. At the end of four weeks, the women in the placebo group had 27% lower scores, the group taking a dose of 337.5 mg a day had 37% lower scores, and the women taking either 75 or 150 mg of the drug had 61% lower hot flash scores. Side effects of venlafaxine included dry mouth, decreased appetite, nausea, and constipation.

## **OVERVIEW ABOUT CANCER AND MANAGEMENT**

### **Introduction**

The Greek physician Hippocrates is believed to be the first person to use the word “carcinoma”, which describes the crab-like way that both the ulcer-forming and non-ulcer forming tumors spread. Over time, the word shortened to “cancer”.

When the first autopsy was performed by Italian anatomist Giovanni Morgagni in 1761, the foundation was laid for the scientific study of cancer, also known as oncology.

### **Cancer**

Cancer is a disease characterized by uncontrolled, uncoordinated and undesirable cell division.

Cancer is not just one disease but many diseases. There are more than 100 different types of cancer. Most cancers are named for the organ or type of cell in which they start - for example, cancer that begins in the colon is called colon cancer; cancer that begins in basal cells of the skin is called basal cell carcinoma.

### **Types**

Not all tumors are cancerous; tumors can be benign or malignant.

- **Benign tumors** aren't cancerous. They can often be removed, and, in most cases, they do not come back. Cells in benign tumors do not spread to other parts of the body.
- **Malignant tumors** are cancerous. Cells in these tumors can invade nearby tissues and spread to other parts of the body. The spread of cancer from one part of the body to another is called metastasis.

### **Causes**

Cancer is caused by damage to DNA. The body is usually able to repair damaged DNA, but is unable to do so in cancer cells.

Some people inherit damaged DNA, but in most cases people damage it themselves through lifestyle choices such as smoking, exposure to ultraviolet radiation (UV) from the sun or exposure to cancer-causing substances known as carcinogens in the environment, like asbestos.

### **Symptoms**

- C-Changes in bowel or bladder habits
- A-A sore that does not heal
- U-Unusual bleeding or discharge
- T-A thickening or lump in any part of the body
- I-Indigestion or difficulty swallowing
- O-obvious changes in a wart or mole
- N-A nagging cough or hoarseness

### **Prevention**

There are a number of ways to reduce the chance of getting cancer, including:

- Not using tobacco products
- Choosing foods low in fat
- Eating a diet rich in vegetables, fruits, and whole grains
- Exercising regularly
- Maintaining a healthy weight
- Avoiding over-exposure to the sun

### **Cancer management**

Alert people to the 3 –earlier of cancer control:

- “ Early detection”
- “ Early diagnosis”
- “ Early treatment”
- Conventional cancer treatment can include surgery, radiation, chemotherapy, hormone therapy, and biological therapy.
- Complementary medicine

## **Chemotherapy**

It is used to kill cancer cells anywhere in the body, including cells that have broken off from a main tumor and traveled through the blood or lymph systems to other parts of the body.

### **Side effects**

- Nausea and vomiting
- Fatigue
- Hair loss
- Susceptibility to infections
- Decrease in blood cell count
- Mouth sores and ulcers

## **Complementary medicine**

Complementary therapies are supportive approaches that can improve well-being and quality of life of people with cancer.

Complementary therapies are taken in conjunction with conventional treatments. This therapy includes herbs, acupuncture, acupressure, natural remedies, yoga ,massage, spiritual practices ,green tea ,specific diet ,ayurvedic medicine ,relaxation and meditation ,prayers ,vitamins ,biofield therapies such as Pranic Healing, Homeopathy ,Naturopathy ,Reiki ,and others. Use of these therapies is common in the general population.

## **Aromatherapy**

Aromatherapy is a natural, healing modality employing essential oils extracted from aromatic plant sources to treat and balance the body, mind and spirit. Smell stimulates parts of our brain that control our emotions ,moods ,memory and learning. Smell reaches these parts of these parts of the brain through cilia, which are the fine hair lining the nose.

It also can improve our complexion ,stimulate creativity ,reduce stress and help us to sleep calmly.

Sensory complementary therapies are that work in conjunction with the five senses: smell, sight, taste, sound and touch, as well as the body's overall energy.

## **SIGNIFICANCE AND NEED FOR THE STUDY**

In the year 2000, malignant tumors were responsible for 12 per cent of the nearly 56 million deaths worldwide from all causes. In many countries, more than a quarter of deaths are attributable to cancer. In 2000, 5.3 million men and 4.7 million women developed a malignant tumor and altogether 6.2 million died from the disease. Importantly, almost half of them can be expected to be cured (not palliated alone) with modern medicine.

Chemotherapy is generally used to treat cancer that has spread or metastasized because the medicines travel throughout the entire body. It is a necessary treatment for some forms of leukemia and lymphoma. Chemotherapy treatment occurs in cycles so the body has time to heal between doses. However, there are still common side effects such as hair loss, nausea, fatigue, and vomiting. Combination therapies often include multiple types of chemotherapy or chemotherapy combined with other treatment options. Their meticulous study was based on an analysis of the results of all the randomized, controlled clinical trials (RCTs) performed in Australia and the US that reported a statistically significant increase in 5-year survival due to the use of chemotherapy in adult malignancies. Survival data were drawn from the Australian cancer registries and the US National Cancer Institute's Surveillance Epidemiology and End Results (SEER) registry spanning the period January 1990 until January 2004.

The use of complementary therapies is increasing in India where many people with cancer are using these therapies on a regular basis. Health professionals are increasingly seeing some of these therapies as useful, particularly their potential for dealing with side effects of treatment and the emotional well being of patients (Boon, 2000) with cancer.

In one study, disclosure of the use of these therapies increased from a lesser to greater percent (Downer, 1994) when directed questions were added to standard history taking. Nurses should also take a leading role in promoting evidence-based practice, and conducting nursing research on the beneficial effects of complementary therapies.

“Coping with cancer can be a less frightening experience when a holistic approach is integrated into the primary medical treatment”. With the aim of above mentioned statement, the investigator felt the need of research in evaluating the effect of aromatherapy as complementary in conjunction with chemotherapy. In order to alleviate the side effects of chemotherapy and also the investigator had personal experience with find many cancer patients on chemotherapy who are suffering with side effects like nausea, vomiting, hair loss, loss of appetite, diarrhea and constipation etc. she had insight to introduce some innovational technique in reducing above mentioned symptoms and thereby improving the quality of life with cancer. Hence the investigator felt the need to study the effectiveness of aromatherapy on reducing chemotherapy effects.

### **STATEMENT OF THE PROBLEM**

A study to evaluate the effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy at cancer centre in Madurai.

### **OBJECTIVES**

1. To assess the adverse effects of Chemotherapy before aromatherapy among control group and experimental group.
2. To assess the adverse effects of Chemotherapy after aromatherapy among control group and experimental group.
3. To find out the effectiveness of aromatherapy on adverse effects among patients on chemotherapy.
4. To find out the association between aromatherapy and selected demographic variables.

### **NULL HYPOTHESIS**

H<sub>0</sub>1: There will be no significant difference between pretest and post test score regarding effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy.

H<sub>0</sub>2: There will be no significant association between pretest and post test score regarding effectiveness of aromatherapy on selected adverse effects among patients undergoing chemotherapy with selected demographic variables.

## **OPERATIONAL DEFINITION**

### **Effectiveness**

In this study, it refers that the outcome of aromatherapy as shown from the Significant mean difference between pretest and post test scores among patients on chemotherapy.

### **Aromatherapy**

In this study it refers that it is therapeutic procedure in which inhalation of 5ml of lavender oil mixing with 500ml of boiled water for duration of 15-20 minutes for 5 days.

### **Selected adverse effects**

In this study it involves the physical, psychological and social Manifestation due to exposure of chemotherapy as measured by the rating scale to assess the chemotherapy side effects.

### **Patients on Chemotherapy therapy**

In this study, it refers that among patients undergoing chemotherapy who fulfills inclusion criteria.

## **ASSUMPTION**

- There will be a significant effectiveness of aromatherapy on selected adverse effects among patients on chemotherapy therapy.
- Chemotherapy adverse effects are different from each individual.

## **DELIMITATION**

- The study was not done to all the stages of cancer.
- The study was conducted on less number of subjects in one setting which the generalization.

## **PROJECTED OUTCOME**

Use of aromatherapy among patients with chemotherapy adverse effects will help to bring about a significant physical, psychological effect that enhances support, comfort and relaxation and overall outlook of the patients.

## **CHAPTER-II**

### **REVIEW OF LITERATURE**

The chapter deal with the studies relevant to the present study .It is presented under the following headings.

- Review related to cancer
- Review related to chemotherapy effects
- Review related to aromatherapy
- Review related to aromatherapy on chemotherapy effects

#### **REVIEW RELATED TO CANCER**

Kutner et.al (1927) conducted study at the School of Medicine, College of Nursing, and School of Public Health, University of Colorado Denver, Denver and Aurora, Colorado, and Florida Atlantic University, Boca Raton, Florida to evaluate the efficacy of massage for decreasing pain and symptom distress and improving quality of life among persons with advanced cancer. 380 adults with advanced cancer who were experiencing moderate-to-severe pain; 90% were enrolled in hospice and given 30-minute massage or simple-touch sessions over 2 weeks: 298 persons were included in the immediate outcome analysis and 348 in the sustained outcome analysis. A total of 82 persons did not receive any allocated study treatments (37 massage patients, 45 control participants). Both groups demonstrated immediate improvement in pain (massage, -1.87 points [95% CI, -2.07 to -1.67 points]; control, -0.97 point [CI, -1.18 to -0.76 points]) and mood (massage, 1.58 points [CI, 1.40 to 1.76 points]; control, 0.97 point [CI, 0.78 to 1.16 points]). Massage was superior for both immediate pain and mood (mean difference, 0.90 and 0.61 points, respectively;  $P < 0.001$ ). No between-group mean differences occurred over time in sustained pain (BPI mean pain, 0.07 point [CI, -0.23 to 0.37 points]; BPI worst pain, -0.14 point [CI, -0.59 to 0.31 points]), quality of life (McGill Quality of Life Questionnaire overall, 0.08 point [CI, -0.37 to 0.53 points]), symptom distress (Memorial Symptom Assessment Scale global distress index, -0.002 point [CI, -0.12 to 0.12 points]), or analgesic medication use (parenteral morphine equivalents, -0.10 mg/d [CI, -0.25 to 0.05 mg/d]). Massage may have immediately beneficial effects on pain and mood among patients with advanced cancer. Given the lack of sustained effects and the observed improvements in both study groups, the potential benefits of attention and simple touch should also be considered in this patient population.



Michele.I (2007) conducted study at Wayne State University and the Barbara Ann Karmanos Cancer Institute, a two year, \$100,000 grant to examine the role of estrogen-related tumor characteristics in predicting sex-specific survival after a lung cancer diagnosis. Lung cancer is a rapidly fatal disease for the majority of individuals diagnosed, with an overall five year survival rate of just 15 percent. Women have a slightly better survival rate than men do, suggesting hormones could play a role in cancer prognosis. "In the late 1980s and early 1990s, researchers found estrogen receptors (the receptors that control estrogen metabolism) in lung cancers, which was startling, as the lung wasn't expected to be a hormone-dependent tissue," explained Coté, who has been with the Karmanos Cancer Institute since 1999.

### **REVIEW RELATED TO CHEMOTHERAPY EFFECTS**

Lisa Colodny et al. conducted study at Hauppauge, New York to assess the effectiveness of the dietary supplement propax with NT factor in reducing chemotherapy-induced fatigue, nausea and vomiting, and other selected clinical side effects associated with chemotherapy. Using a crossover placebo-controlled, randomized, double-blinded design, 36 patients with cancer were enrolled in the 12-week pilot study. Simultaneously, an open label trial of propax in 22 other patients with cancer was similarly implemented. Recommended daily dose of the study product was 12 tablets and 3 softgel capsules daily. The result of this pilot study, both open-label and double-blinded placebo-crossover in design, indicates that patient perception of benefit with propax supplementation to chemotherapy is significant in reducing fatigue and other chemotherapy-induced toxicities.

Coolbrandt A et al. (2011) conducted study at Euro the purpose of this study was to found the correlation between immediately reported symptoms and those recalled during the next hospital visit. Data from the first 7 questionnaires were aggregated into a single score per symptom per patient, and the maximum score was considered to be the most clinically relevant (consistent with the National Cancer Institute's guidelines). The researchers emphasized the rationale for this approach, noting that for symptoms like chemotherapy-induced nausea and vomiting, it is important to obtain insight as to how bad symptoms were at the time they occurred rather than an average of good and bad days. They further speculated that patients would not recall their worst symptoms when asked about them at the next hospital

visit but would instead tone down or average their good and bad days. Therefore, the analyses also examined correlations and differences between immediate and delayed self-reported symptom severity on the basis of median score of the immediate self-report.

Spichiger E, et al(2011) conducted study at Institute of nursing science, Switzerland. This study was part of a larger project that explored patients 's symptom experiences during chemotherapy . In this qualitative study, 19 patients with lymphomas, breast, lung or colorectal cancer participated concurrently with treatment at a Swiss tertiary care hospital's oncology outpatient clinic. Data on patients' fatigue experiences were collected via individual interviews following their third cycle of chemotherapy At the start of their chemotherapy, health professionals informed patients that common side effects included fatigue. While all participants experienced different dimensions of fatigue, then, all were willing to endure it for the sake of an expected improvement in their conditions. Individuals' fatigue experiences depended largely on their particular life and illness circumstances. Most engaged in fatigue-related self-care activities and managed the symptom on their own. Communication with or input from health professionals was virtually absent during chemotherapy.

Serrano Solares.S (2009) conducted study American society of clinical oncology. This study's objective is to estimate the prevalence of chemotherapy adverse events in oncologic patients attended in Emergency room. From October 2007 to October 2008 560 patients were recollected. It was revised tumors location and stage, chemotherapy schedule and date of the last treatment, diagnosis and therapeutic in Emergency. 87 of the 560 patients (15%) were attended in Emergency room because of chemotherapy toxicity. The most common cause of consultation was fever (27 patients, 31%) followed by diarrhea (18 patients, 20.7%) and nausea-vomiting (12 patients, 13.8%). Most of the patients were being treated with classic chemotherapy schedules (70.1%). Comparing as a whole all the chemotherapy schedules there were not statistically significant differences due to toxicity between them. Nevertheless analyzing by subgroups we found there was no difference between toxicity in patients treated with classic chemotherapy and chemotherapy plus target agents (33.8% vs 5.5%,  $p=0.30$ ), but there was differences between chemotherapy and target agents in monotherapy (33.8% vs 13.2%,  $p<0.05$ ). In 39 of the 87 patients (39%) admission was required with a good evolution in most of them.

## **REVIEW RELATED TO AROMATHERAPY**

Taehan Kanho Hakhoe (2006) conducted study at Lee GJ. Department of Nursing, Keukdong College, Chungcheongbuk-Do, Korea. The purpose of this study was to explore the effects of the lavender fragrance on sleep and depression in women college students. Forty-two women college students who complained of insomnia were studied during a four-week protocol (control treatment week, 60% lavender fragrance treatment week, washout week, 100% lavender fragrance treatment week). All subjects were in the department of nursing in “K” college and the study was a single blind repeated measurements experiment. For the duration of the study, weekly evaluations of sleep, patterns of sleep disturbance, severity of insomnia scale, self satisfaction with sleep, and severity of depression were performed. Among sleep variables, length of time taken to fall asleep, severity of insomnia, and self satisfaction with sleep were improved for the 60%( $p=.000$ ,  $p=.000$ ,  $p=.000$ ) and 100%( $p=.000$ ,  $p=.000$ ,  $p=.000$ ) week while the severity of depression was improved only for the 100%( $p=.002$ ) week. According to the study results, it can be concluded that the lavender fragrance had a beneficial effect on insomnia and depression in women college students. Repeated studies are needed to confirm effective proportions of lavender oil and carrier oil for insomnia and depression.

Hitomi Takeda, et.al (2008) conducted study at, Hyogo College of Medicine, Hyogo, Japan. The purpose of this study was to evaluate the effects of aromatherapy body treatment on healthy subjects. Seven (7) female and 6 male volunteers participated as subjects. Each subject underwent 3 trials, in which the Advanced Trail Making Test (ATMT) was given as a stress-inducing task before and after 1 of 3 treatments. After the treatments, the state anxiety inventory (SAI) score and the feelings of fatigue were decreased, the positive and comfortable feelings were increased, and mood improved significantly in C and E. Furthermore, significant declines in the feelings of mental and total fatigue were maintained even after the second ATMT in E. On the other hand, the cortisol concentration in the saliva did not show significant changes in any of the trials. Secretary immunoglobulin A levels in the saliva increased significantly after all treatments.

Jung et al (2006) conducted study at New York medical center to evaluation of aromatherapy in treating postoperative pain. This study compared the analgesic efficacy of postoperative lavender oil aromatherapy in 50 patients undergoing breast biopsy surgery. Twenty-five patients received supplemental oxygen through a face mask with two drops of 2% lavender oil postoperatively. The remainder of the patients received supplemental oxygen through a face mask with no lavender oil. Outcome variables included pain scores (a numeric rating scale from 0 to 10) at 5, 30 and 60 minutes postoperatively, narcotic requirements in the post anesthesia care unit, patient satisfaction with pain control, as well as time to discharge from the PACU. There were no significant difference in narcotic requirements and recovery room discharge times between the two groups. Postoperative lavender oil aromatherapy did not significantly affect pain scores. However, patients in the lavender group reported a higher satisfaction rate with pain control than patients in the control group ( $p=0.0001$ ).

Tim Jacobs, conducted study at Cardiff University, compared the effects of two essential oils on the alpha waves of the brain. One oil, Rosemary, was known to have a stimulant effect and the other, Ylang-Ylang, was known to have a soothing effect. The study showed that the stimulant depressed alpha wave activity whereas the soothing aroma increased alpha wave activity. This data is consistent with the expected results.

Another study by Jahangeer, Melliuer, and Caston published in *Physiology and Behavior* looked at the influence of olfactory stimulation on nociceptive behavior in mice. They hypothesized that because the cerebral localization of pain and the olfactory pathways are anatomically and physiologically linked, olfactory stimulation can modify the response of the mice to painful stimuli in the presence of positive (attractive), negative (aversive), or neutral odors.

## **REVIEW TO RELATED AROMATHERAPY ON REDUCING CHEMOTHERAPY EFFECTS**

Torry et.al.(2003) conducted an exploratory study in college of nursing, Iowa City, to examine the effects of aromatherapy effects on nausea, vomiting ,and pain. aromatherapy for 20 minutes duration was given to nine in patients for three days .the patients self report measured by rating scale before and after the intervention the results shown that aromatherapy significantly reduced the symptoms and increase relaxation to about 58%.In addition to this subjective data, all vital parameters tended to decrease providing further evidence of relaxation .In conclusion ,the aromatherapy is a beneficial nursing intervention that promotes relaxation.

Hiroyuki Kohara et.al (2004) conducted study at National Sanyo Hospital, Yamaguchi, Japan. Fatigue is one of the most distressful symptoms experienced by patients with advanced cancer. Aromatherapy, foot soak, and reflexology are popular health care modality treatments in Japan, however, the effectiveness of each treatment for cancer-related fatigue has not been fully established. To investigate the effectiveness of combined modality treatment consisting of aromatherapy, foot soak, and reflexology against fatigue, an open study was performed in 20 terminally ill patients with cancer. After a patch test was performed, patients received aromatherapy that was accompanied with foot soak in warm water containing lavender essential oil for 3 minutes, followed by reflexology treatment with jojoba oil containing lavender for 10 min. Fatigue was evaluated using the Cancer Fatigue Scale (CFS) before, 1 hour after, and 4 hours after treatment. Total CFS scores improved significantly after this treatment (from  $25.6 \pm 11.0$  to  $18.1 \pm 10.0$ ,  $p < 0.001$ ). Among three CFS subscales, physical and cognitive subscale scores were reduced significantly ( $11.3 \pm 6.1$  to  $6.7 \pm 6.1$ ,  $p < 0.001$ ;  $4.5 \pm 3.2$  to  $2.4 \pm 2.4$ ,  $p < 0.001$ ). No adverse effects were experienced. Because all patients desired to continue this treatment, they received treatment eight times on average.

Grealish et.al. (2006) concluded in this study that the use of aromatherapy is a non pharmacological measures by nurses to alleviate pain and nausea in cancer patients who are hospitalized.

Karen moody (2008) conducted study at Montefiore Medical Center the proposed study aims to assess the effectiveness of aromatherapy versus placebo on nausea, vomiting, anxiety and quality of life among pediatric oncology patients receiving emetogenic chemotherapy. Patients aged 7-21 with a diagnosis of cancer and will be receiving emetogenic chemotherapy Nausea and vomiting remain two of the most distressing symptoms to children being treated for cancer. Nausea and vomiting are directly associated with the administration of chemotherapy, due to effects of the chemotherapy on the gastrointestinal mucosa, and certain chemotherapeutic agents, such as cisplatin, are known to be particularly emetogenic. In addition, anticipatory anxiety has been identified as an important patient factor in the development of post-chemotherapy nausea and vomiting. Many drugs have been developed in an effort to diminish nausea and vomiting in children receiving emetogenic chemotherapy and these agents, particularly the 5-hydroxytryptamine receptors, have vastly reduced the amount of nausea and vomiting experienced in this population. However, approximately 50% of children and adolescents still suffer from nausea and/or vomiting even after maximal pharmacological intervention. This suggests that other interventions are needed to further reduce the experienced nausea and vomiting seen in children undergoing chemotherapy. As such, many patients and providers have turned to complementary and alternative medicine (CAM) for the relief of nausea and vomiting. Aromatherapy is one such modality that has demonstrated some degree of effectiveness in adults suffering from nausea and vomiting due to chemotherapy, motion sickness, or postoperatively.

Young – IM et.al.(2004) conducted a study to determine the effects of aromatherapy on nausea ,vomiting ,and pain in high dose of chemotherapy. They concluded by saying that all the above variable shown a significant decrease after the intervention.

Yang JH (2005) quoted in this study that aromatherapy was effective on vomiting ,nausea, and fatigue in receiving chemotherapy .therefore aromatherapy can be implemented as a nursing modality for patients receiving chemotherapy.

## CONCEPTUAL FRAMEWORK

The conceptual framework selected for the study is based on the nursing process is a modified scientific method .Nursing practice was first described as a four stage nursing process by Ida Jean Orlando in 1958. Now it is six stage process, the nursing process uses clinical judgment to strike a balance of Epistemology between personal interpretation and research evidence in which critical thinking may play a part to categorize the clients issue and course of action. The nursing process is goal-oriented method of caring that provides a framework to nursing care. It involves five major steps:

- **A** - Assessment
- **D** - Diagnosis
- **G**-Goal
- **P** - Planning
- **I** - Implementation
- **E** – Evaluation

### **Assessment**

In assessment phase the examiner evaluates the disease or condition based on the patient's subjective report of the symptoms and course of the illness, together with the objective data obtained through laboratory tests, physical examination and medical history.

In this study it includes subjective data and objective data collected as demographic data, clinical data and rating scale to assess chemotherapy adverse effects used as pretest.

### **Diagnosis**

Nursing diagnosis represent the nurse's clinical judgment about actual or potential health problems, life process occurring with the individual, family, group or community .In this study patients problems were pain, nausea, vomiting ,mouth ulcer, fatigue, and bowel changes.

**Goal**

In this phase it represents outcome identification.

**Planning**

The nurse addresses each of the problems identified in the diagnosing phase. When there are multiple nursing diagnoses to be addressed, the nurse prioritizes which diagnoses will receive the most attention first according to their severity and potential for causing more serious harm.

In this study planning refers that to give aromatherapy for continuous five days about 15-20 minutes to the patients with chemotherapy adverse effects as a nursing intervention.

**Implementation**

The nurse implements the nursing care plan, performing the determined interventions that were selected to help meet the goals/outcomes that were established.

In this study intervention has been taken place and implement the nursing care plan that is aromatherapy given for continuous five days about 15-20 minutes.

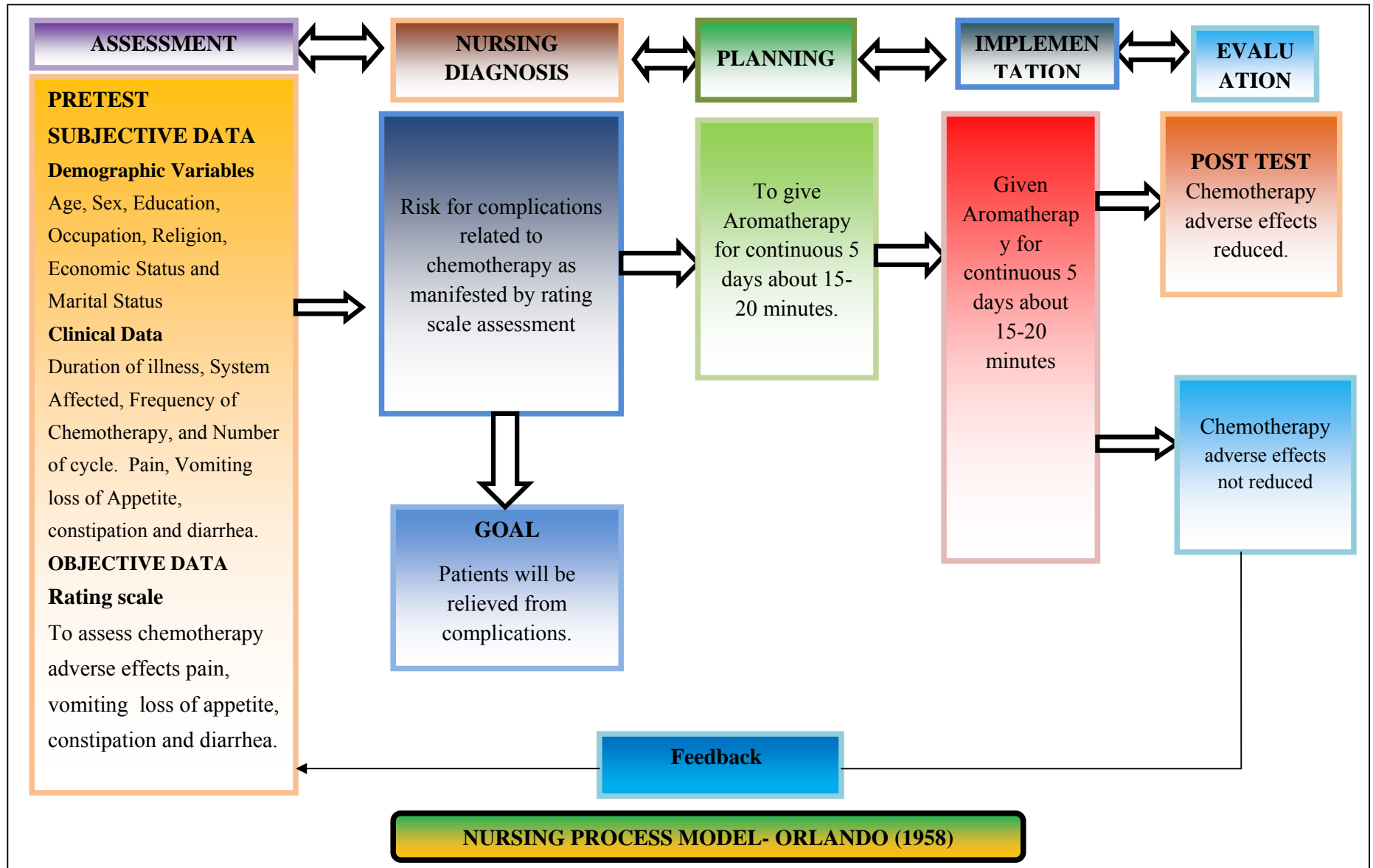
**Evaluation**

The nurse evaluates the progress toward the goals/outcomes identified in the previous phases. If progress towards the goal is slow, or if regression has occurred, the nurse must change the plan of care accordingly.

In this study evaluated chemotherapy adverse effects through rating scale on fifth day used as a post test.



**FIGURE: 1 CONCEPTUAL FRAME WORK**



## **CHAPTER III**

### **METHODOLOGY**

Research methodology of this study includes the research approach, research design, setting of the study, population, sampling technique, sample size, criteria for sample selection and description of the tool, validity, reliability, pilot study and method of data collection, data analysis and protection of human subjects.

#### **RESEARCH APPROACH**

An Experimental approach was used to evaluate effectiveness of aromatherapy on selected adverse effects among patients on chemotherapy.

#### **RESEARCH DESIGN**

A quasi experimental design was adopted with pretest- posttest control group design to evaluate effectiveness of aromatherapy on selected adverse effects among patients on chemotherapy.

#### **VARIABLES**

##### **Independent variables**

In this study the Aromatherapy was independent variable.

##### **Dependent variables**

The chemotherapy adverse effect was the dependent variable in the study.

##### **Extraneous variables**

The extraneous variables in this study were age ,sex ,religion, educational status, occupation, income ,cancer affected system, duration of chemotherapy, and frequency of chemotherapy.

#### **SETTING OF THE STUDY**

The study was conducted in Guru Cancer centre at Madurai. It is situated at Pikkara,1km away from our college. It has strength of 50 bedded and provides regular treatment on inpatient and outpatient's basis .This cancer centre serves to all economic status in the society and provides free treatment.

## **POPULATION**

The target population includes among patients on chemotherapy with selected adverse effects.

The accessible population includes all the patients with cancer enrolled at selected hospital, in Madurai.

## **SAMPLE**

The samples for the study were the patients with cancer and under treatment of chemotherapy on selected adverse effects who fulfills inclusion criteria.

## **SAMPLE SIZE**

The samples for the study were 60 among patients on chemotherapy with selected adverse effects. 30 patients were selected as experimental group and 30 patients were selected as control group who fulfilled the inclusion criteria.

## **SAMPLE TECHNIQUES**

The sample technique was selected by using non randomized sampling technique of purposive sampling method. The investigator has selected the samples from male and female patients came for chemotherapy and with adverse effects. Purposive Sampling is sub types of non- probability sampling techniques.

## **CRITERIA FOR SAMPLE SELECTION**

### **Inclusion Criteria**

- Patient's undergone chemotherapy.
- Both gender on chemotherapy.

### **Exclusion Criteria:**

- Patients practicing meditation or yoga
- Epilepsy/seizure disorder
- Hypoglycemia
- Kidney problems
- pregnancy

## **DESCRIPTION OF THE TOOL**

The instrument was developed by the investigator with the help of various resources which includes review of literature, expert opinion. The instrument comprised of 3 parts

- Part I –**
- a) Demographic variables
  - b) Clinical variables

**Part II –** Rating scale to assess the chemotherapy side effects

### **Part I(a)**

It consists of demographic variables of patients such as age, sex, religion, education, occupation, economic status, and marital status.

### **Part I (b)**

It consists of clinical data such as duration of illness, system is affected by cancer, frequency of chemotherapy, how long on chemotherapy, and cycle duration.

### **Part II**

Rating scale to assess the chemotherapy side effects which consists of 10 items. It was used to assess the chemotherapy adverse effects. Patients were asked to choose the best response. Responses were scored as

- 1-Normal
- 2-Mild
- 3-Moderate
- 4- Severe

### **Scoring Procedure**

The assessment aspects placed on a rating scale .the scale consists of 10 items in 4 aspects of question to be rated as normal, mild ,moderate , severe.1 indicates normal,2 indicates mild , 3 indicates moderate, and 4 indicates severe a total score of 40.

Total score is divided as:

- 1-10-normal
- 11-20- mild
- 21-30-moderate
- 31-40-severe

## **VALIDITY OF THE TOOL**

Seven experts validated the tool and used in this study .The tool was evaluated for appropriateness, adequacy ,relevance ,completeness and comments and suggestions were invited and appropriate modification were made accordingly .The tool was refined and finalized after establishing the validity .

## **RELIABILITY OF THE TOOL**

The reliability was tested by using the test split half method and found the tool is reliable for my study. The tool was administered to 6 patients undergoing chemotherapy in Devakhi hospital.

The coefficient was found as 0.97 which shows the excellent reliability of the tool.

## **DATA COLLECTION PROCEDURE**

The written permission obtained from authorities at Guru cancer centre in Madurai. The data collected among patients on chemotherapy adverse effects. The period of data collection was 6 weeks .The total number of patients was 60, in which 30 belongs to the experimental group, and 30 to the control group .Informed consent was obtained in the written form .Initially good rapport was maintained with the patients and the purpose of the study was explained to them. Patients were made comfortable and privacy was provided. Pretest was conducted through the demographic variables, clinical data and rating scale to assess the chemotherapy adverse effects. The patients in the experimental group were given aromatherapy lavender oil 5ml mixed with boiled water and asked patients to inhale for 15-20minutes.the patients in the control group were given the usual treatment .The selected adverse effects was assessed on the first day and fifth day in both the groups. All the subjects were co operated well.

## DATA COLLECTION SCHEDULE

Weeks	Experimental group			Control group		
	No of samples	Pretest and intervention	Post test	No of samples	Pre test	Post test
I&II	15	Pretest on admission followed by aromatherapy	Post test on 5 <sup>th</sup> day	15	Pre test on admission	Post on 5th day
III&IV	15	Pretest on admission followed by aromatherapy	Post test on 5 <sup>th</sup> day	15	Pre test on admission	Post on 5th day

### PLAN FOR DATA ANALYSIS

The data analysis is the systematic organization and synthesis of research of research data and testing hypothesis .It involves of information into interpretable and managing form. The data obtained was analyzed by using both descriptive and inferential statistics.

### PILOT STUDY

The pilot study conducted among six patients on chemotherapy with adverse effects who fulfilled the inclusion criteria of sample selection (3for experimental and 3 for control) at Devakhi cancer centre in Madurai after obtaining formal permission from the authorities. Pre test was conducted followed by aromatherapy inhalation given to the experimental group. Post test done on 5<sup>th</sup> day and the adverse effects were assessed by the rating scale.

The time taken was completed .The tool was found to be satisfactory in terms of simplicity and clarity. Based on the time for collecting the data, arbitrary decision was taken to keep the sample size to 60.

### PROTECTION OF HUMAN RIGHTS

The proposed study was conducted after the approval of the dissertation committee of the college. Permission was obtained from the coordinator of the cancer centre, Madurai written consent of each subjects were obtained before starting the data collection .Assurance was given to them that the anonymity of each individual would be maintained.

## **CHAPTER-IV**

### **DATA ANALYSIS AND INTERPRETATION**

This chapter deals with the data analysis of data collected from the sample of 60 patients undergoing chemotherapy. Using inferential and descriptive statistics based on the objectives of the study, the data were computed .

The findings were organized and presented in the following sections:

1. Distribution of undergoing chemotherapy patients based on demographic variables.
2. Distribution of patients based on level of adverse effects before aromatherapy in experimental and control group
3. Distribution of patients based on level of adverse effects after aromatherapy in experimental and control group
4. Distribution of effectiveness of aromatherapy on adverse effects of chemotherapy in experimental and control group
5. Difference between pretest level of adverse effects in control and experimental group
6. Difference between pretest level of adverse effects in control and experimental group
7. Distribution association between the adverse effects with selected demographic variables in the experimental group among cancer patients undergoing chemotherapy

**TABLE 1 DISTRIBUTION OF SELECTED ADVERSE EFFECTS BASED ON DEMOGRAPHIC VARIABLES**

**N=60**

S. No	Demographic variables	Experimental group n=30		Control group n=30	
		no	%	no	%
<b>1</b>	<b>Age in years</b>				
	a) 21-30	2	6.66	0	0
	b) 31-40	11	36.67	13	43.33
	c)41-50	6	20	11	36.67
	d)50 and above	11	36.67	6	20
<b>2</b>	<b>Sex</b>				
	a)male	6	20	4	13.33
	b)female	24	80	26	86.67
<b>3</b>	<b>Education</b>				
	a)educated	9	30	10	33.33
	b)uneducated	21	70	20	66.67
<b>4</b>	<b>Occupation</b>				
	a)coolie	18	60	12	40
	b)private employee	4	13.33	5	16.67
	c)government employee	1	3.33	1	3.33
	d)business	0	0	0	0
	e)retired	0	0	0	0
	f)others	7	23.34	12	40
<b>5</b>	<b>Income</b>				
	a)below 24000/-	2	6.67	2	6.67
	b)above 24000/-	28	93.33	28	93.33
<b>6</b>	<b>Marital status</b>				
	a)married	29	96.67	29	96.67
	b)single	0	0	0	0
	c)divorce	0	0	0	0
	d)widow	1	3.33	1	3.33



<b>7</b>	<b>Religion</b>				
	a)Hindu	27	90	25	83.33
	b)Muslim	1	3.33	3	10
	c)Christian	2	6.67	2	6.67
	d)others	0	0	0	0
<b>8</b>	<b>Duration of illness</b>				
	a)below 6 months	5	16.67	4	13.33
	b)7-months-1year	22	73.33	22	73.34
	c)2- 6 years	3	10	4	13.33
	d)above 6 years	0	0	0	0
<b>9</b>	<b>Frequency of chemotherapy</b>				
	a) 15 days cycle	1	3.33	1	3.33
	b) 21 days cycle	29	96.67	29	96.67
	c)30 days cycle	0	0	0	0
<b>10</b>	<b>How long on cycle</b>				
	a)1 st cycle	0	0	0	0
	b) 2-3 cycle	12	40	10	33.33
	c) 4-6cycle	18	60	20	66.67
	d) above 6 cycle	0	0	0	0

Table 1 reveals that among 60 patients majority 11(36.67%) of them were between 31-40years and above 50 years in experimental group, in control group patients majority 13(43.33%) of them were between 41-50 years of age.

Regarding sex in experimental group majority 24(80%) were females as well as in control group also females were majority 26(86.67%).

Regarding education in the experimental group majority 21(70%) were uneducated as well as in control group also majority 20(66.67%) were uneducated.

Regarding occupation in the experimental group majority 18(60%) were coolie as well as in control group also majority 12 (40%) were coolie.

Regarding income in the experimental group majority 28(93.33%) were above 24,000/- as well as in control group also majority 12 (40%) were above 24,000/-.

Regarding marital status in the experimental group majority 29(96.67%) were married as well as in control group also majority 29(96.67%) were married.

Regarding religion in the experimental group majority 27(90%) were Hindu as well as in control group also majority 25(83.33%) were Hindu.

Regarding duration of illness in the experimental group majority 22(73.33%) were 6 months to 1 year as well as in control group also majority 22(73.33%) were 6 months to 1 year.

Regarding how long on chemotherapy in the experimental group majority 17(56.66%) were 4 to 6 cycle as well as in control group also majority 20(66.66%) were 4 to 6 cycle.

Regarding frequency of chemotherapy cycle in both experimental group and control group majority 29(96.66%) were 21 days cycle.

**TABLE 2 DISTRIBUTION OF PATIENTS BASED ON PRE TEST LEVEL OF ADVERSE EFFECTS IN EXPERIMENTAL GROUP AND CONTROL GROUP**

**N = 60**

Level of adverse effects	Score	Control group		Experimental group	
		f	%	f	%
Normal	1-10	-	-	-	-
Mild	11-20	-	-	1	3.4%
Moderate	21-30	13	43.4%	14	46.6%
Severe	31-40	17	56.6%	15	50%

Table 2 shows that among 30 before aromatherapy in the experimental group majority 15(50%) had severe adverse effects and among 30 in the control group majority 17(56.6%) had severe adverse effects.

**FIGURE 2 DISTRIBUTIONS OF PATIENTS BASED ON POST LEVEL OF ADVERSE EFFECTS IN EXPERIMENTAL GROUP AND CONTROL GROUP**

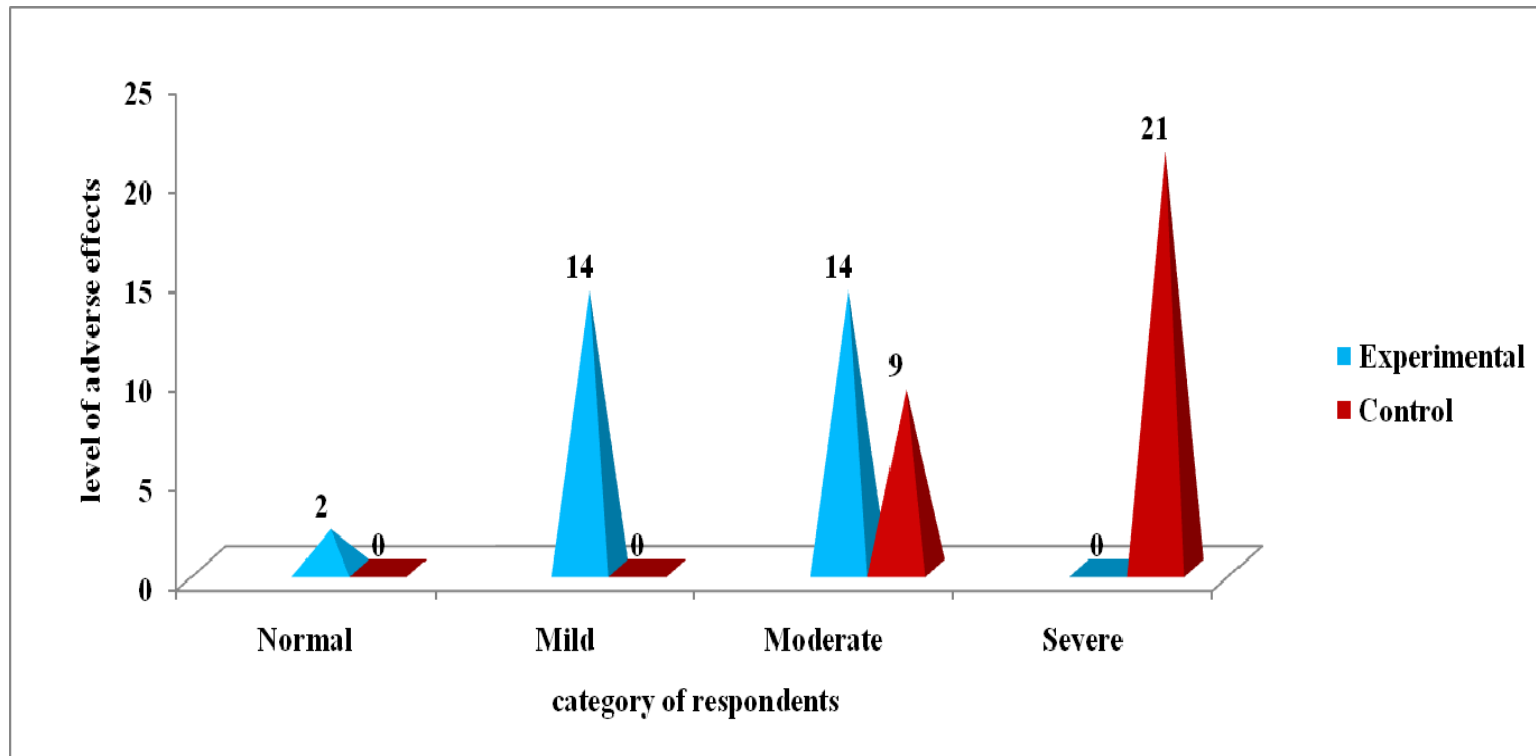


Figure 2 shows that among 30 after aromatherapy in experimental group majority adverse effects reduced to moderate 14 and in the control group majority 21 had severe pain.

**TABLE 3 EFFECTIVENESS OF AROMATHERAPY ON ADVERSE EFFECTS IN EXPERIMENTAL GROUP AND CONTROL GROUP**

N = 60

<b>Group</b>	<b>Overall score</b>	<b>Pretest</b>	<b>Post test</b>	<b>Mean difference</b>	<b>Paired “T” test value</b>
Experimental group	Mean	32	17.43	14.57	13.00*
	SD	4.0144	4.66		
Control group	Mean	33	32	1	#1.29
	SD	3.08	2.898		

#not significant at P<0.05

\*significant at P>0.05

df(29)=2.05

Table 3-reveals regarding the effectiveness of aromatherapy on chemotherapy adverse effects, in the experimental group and control group. In the experimental group the obtained “t” value at 29 df is 13.00\* was significant.

Based on the study findings null hypothesis is rejected. It infers that the aromatherapy is effective in reducing adverse effects among patients undergoing chemotherapy.

**TABLE 4 DIFFERENCES BETWEEN PRETEST LEVEL OF ADVERSE EFFECTS IN CONTROL GROUP AND EXPERIMENTAL GROUP**

**N = 60**

<b>Group</b>	<b>Experimental group</b>		<b>Control group</b>		<b>“T” test value</b>
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	
Experimental pre test and control pre test	32	4.01	33	3.08	#1.08

# Non significant at  $P < 0.05$

\*significant at  $P > 0.05$

df(29)=2.05

Table 4 reveals regarding difference between pretest level of adverse effects in control group and experimental group obtained ‘t’ value 1.08 was not significant.

**TABLE 5 DIFFERENCE BETWEEN POSTTEST LEVEL OF ADVERSE EFFECTS IN CONTROL GROUP AND EXPERIMENTAL GROUP**

**N = 60**

<b>Group</b>	<b>Experimental group</b>		<b>Control group</b>		<b>“T” test Value</b>
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	
Experimental post test and control Post test	17.43	4.66	32	2.898	14.51*

# Non significant at  $P < 0.05$

\*significant at  $P > 0.05$

df(29)=2.05

Table 5 reveals regarding the difference between post test level of adverse effects in the experimental group and control group obtained ‘t’ value at 29 df is 14.51\* was significant.

It concluded that aromatherapy is effective in reducing in adverse effects of chemotherapy.

**TABLE 6 ASSOCIATION BETWEEN THE ADVERSE EFFECTS WITH SELECTED DEMOGRAPHIC VARIABLES IN THE EXPERIMENTAL GROUP**

N = 30

S. No	Demographic Variables	Adverse effects rating score				$\chi^2$
		Normal	mild	Moderate	severe	
<b>1</b>	<b>Age in years</b>					
	a)21-30 years	1	0	1	0	
	b)31-40years	1	6	4	0	#8.207
	c)41-50years	0	3	3	0	
	d)above 50 years	1	5	6	0	
<b>2</b>	<b>Sex</b>					
	a)male	0	2	4	0	14.74*
	b)female	2	22	0	0	
<b>3</b>	<b>Education</b>					
	a)Educated	1	4	4	0	#0.8278
	b)Uneducated	1	10	10	0	
<b>4</b>	<b>Occupation</b>					
	a)coolie	1	8	9	0	
	b)private employee	0	3	1	0	
	c)government employee	0	1	0	0	26.44*
	d)business	0	0	0	0	
	e)retired	0	0	0	0	
	f)others	1	3	3	0	
	<b>Income</b>					
<b>5</b>	a)below 24,000/-	1	1	0	0	#3.5008
	b)above 24,000/-	1	13	14	0	
<b>6</b>	<b>Marital status</b>					
	a)Married	2	13	14	0	
	b)single	0	0	0	0	24.3481*
	c)divorce	0	0	0	0	
	d)widow	0	1	0	0	



<b>7</b>	<b>Religion</b>					
	a)Hindu	2	13	12	0	
	b)Muslim	0	1	0	0	#8.7683
	c)Christian	0	2	2	0	
	d)Others	0	0	0	0	
<b>8</b>	<b>Duration of illness</b>					
	a)below 6 months	1	2	0	0	
	b)7 months -1year	1	10	11	0	
	c)2 years-6years	0	2	1	0	#3.769
	d)above 6 years	0	0	0	0	
<b>9</b>	<b>How long on chemotherapy</b>			0		
	a)1 st cycle	0	0	5	0	
	b)2-3 cycle	1	6	8	0	
	c)2-3 cycle	1	9	0	0	#4.754
	c)4-6 cycle	0	0		0	
	d)above 6 cycle					
<b>10</b>	<b>Frequency of chemotherapy cycle?</b>					
	a)15 days cycle	0	1	0	0	
	b)21 days cycle	2	14	13	0	13.724*
	c)30 days cycle	0	0	0	0	

The table 6 reveals that obtained chi-square value #0.8278P<0.05 showed no significant association between education and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value # 8.768P<0.05 showed no significant association between religion and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value # 26.44P<0.05 showed highly significant association between occupation and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value # 3.5008 $P < 0.05$  showed no significant association between income and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value \*24.348 $P < 0.05$  showed significant association between marital status and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value # 3.769  $P < 0.05$  showed no significant association between duration of illness and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value # 4.754 $P < 0.05$  showed no significant association between how long on chemotherapy and adverse effects among patients undergoing chemotherapy.

The obtained chi-square value \*13.724( $P < 0.05$ ) showed significant association between frequency of chemotherapy cycle and adverse effects among patients undergoing chemotherapy.

## CHAPTER-V

### DISCUSSION

This chapter deals with the discussion and interpretation of the findings to evaluate the effectiveness of aromatherapy in reducing adverse effects among patients undergoing chemotherapy.

The discussion was based on the objectives specified in this study.

**The first objective of this study was to assess adverse effects of chemotherapy among the experimental group and control group before giving aromatherapy.**

Among 30 in experimental group before aromatherapy the adverse effects of chemotherapy mean value was 32 and in the control group the adverse effects of chemotherapy mean value was 33.

The findings are supported with the study conducted by **Lisa colodny et.al** ,he concluded that nausea and vomiting are most common complaints of oncology patients who receive chemotherapeutic agents and fatigue also is one of the most common complaints in chemotherapy .he recommended to assess and manage adverse effects to improve the quality of life of chemotherapy patients.

Based on the study finding the investigator suggests that the complete assessment refers to found the adverse effects of chemotherapy.

**The second objective of this study was to assess the adverse effects of chemotherapy among the experimental group and control group after giving aromatherapy.**

Among 30 in experimental group after aromatherapy the adverse effects mean value reduced to 17.43 and in the control group the level adverse effects of mean value was 33.

This study supported by the **Margaret et.al** (2002),use of aromatherapy to decrease pain, depression, fatigue and to promote sense of well being to patients undergoing chemotherapy. Therefore the treatment of aromatherapy to be effective for in terminally ill cancer patients.

From this study finding the investigator concludes that the aromatherapy is effective in reducing adverse effects among patients undergoing chemotherapy.

**The third objective of this study to find out the effectiveness of aromatherapy on adverse effects among patients on chemotherapy.**

After aromatherapy in the experimental group the adverse effects reduced to 17.43 where as in control group the mean value of adverse effects was 32. In the experimental group the obtained paired 't' value at df (29) is 14.51\* which is significant.

The findings are supported with the study conducted by **Annika Billhult et.al** (2007), the getting aromatherapy during chemotherapy results revealed from negative to positive, a sense of relaxation and finally they just felt good.

Obtained this study finding the investigator concludes that the aromatherapy is effective in reducing adverse effects among patients undergoing chemotherapy.

**The fourth objective of this study was to find out the association between the adverse effects with selected demographic variables.**

There was significant association between adverse effects of chemotherapy with selected demographic variables such as sex obtained chi-square value 14.74\* marital status obtained chi-square value 24.3481\* and occupation obtained chi-square value 26.44\*.

The findings supported by the **Nagal kamdi et.al** (2010), he concluded that adverse effects associated with selected demographic variables.

## **CHAPTER-VI**

### **SUMMARY AND RECOMMENDATIONS**

The essence of any research project lies in the reporting of the findings. This chapter gives a brief account of the pre study ,along with the conclusion drawn from the findings , nursing implications, and recommendations for further studies.

#### **SUMMARY**

The focus of the study was to evaluate effectiveness of aromatherapy on selected adverse effects of chemotherapy .the quasi experimental design was adopted for the study .the study was conducted for a period of 6 weeks at selected cancer centre in Madurai. Based on the inclusion criteria 60 samples were selected purposively .Rating scale used for the assessment of chemotherapy adverse effects. The conceptual framework for the study was based on the Nursing process. descriptive and inferential statistics were used to report the findings.

#### **SUMMARY OF THE STUDY FINDINGS**

Regarding the level of adverse effects among in experimental group was 32 and in the control group level of adverse effects was 33.

Regarding after aromatherapy the level of adverse effects among experimental group was 17.43 and in the control group level of adverse effects was 32.

After aromatherapy in the experimental group the mean value of level of adverse effects has reduced to 17.43 where as in the control group the mean value of adverse effects is 32 ,in the experimental group the obtained “t” value at df (29) is 13.00\*.

Regarding the association between the level of adverse effects with the demographic variables in the experimental group there was significant between the sex and adverse effects of chemotherapy.

Regarding the association between the marital status and adverse effects of chemotherapy.

Regarding the association between the frequency of chemotherapy cycle and adverse of chemotherapy.

Regarding the association between the level of adverse effects with the demographic variables in the control group there was no significant between the demographic variables and adverse effects of chemotherapy.

## **CONCLUSION**

The following conclusions were drawn from the study

- The level of selected adverse effects were found to be higher in the control group and experimental group before aromatherapy
- The level of selected adverse effects became slightly reduced in the experimental group and slight variation in the control group
- The aromatherapy is effective in reducing selected adverse effects of chemotherapy patients.
- There is significant association between the selected adverse effects with selected demographic variables in experimental group .
- There is no significant association between the selected adverse effects with selected demographic variables in control group.

More patients suffering with chemotherapy side effects .Aromatherapy is one of the non –pharmacological therapy can be performed anywhere .It requires only aromatherapy lavender oil ,is non –invasive ,low cost of effective and do not compromise with patients privacy. Hence ,aromatherapy is provide to be one of the effective complementary therapies to relieve selected adverse effects and promote quality of life among patients undergoing chemotherapy.

## **IMPLICATIONS**

The implications of the findings has been discussed in relation to nursing service, nursing education, nursing administration and nursing research.

### **Implications in Nursing Practice**

1. The result of the study can create awareness and motivate the nurses to practice aromatherapy as a technique of relaxation can use as an adjunct to pharmacological methods of chemotherapy adverse effects.
2. Nurses can manage chemotherapy adverse effects in an economical and less time consuming way, which can reduce the need of pharmacological intervention.
3. Nurses can improve communication and rapport with clients as aromatherapy combines the benefits of simple touch which conveys caring and nurturing.
4. Nurses can teach the techniques of aromatherapy to the caregivers to extend the care even at home.

### **Implications in Nursing Education**

1. The results of the study were used as informative illustration to students by their nursing teachers to adapt aromatherapy as a non- pharmacological intervention to reduce adverse effects of chemotherapy.
2. It could help nursing students to plan and organize the nursing intervention to manage adverse effects of chemotherapy effectively with complementary and alternative therapies.
3. Periodic conferences , seminars and symposium can be arranged regarding alternative and complementary therapies to make nursing professional competent to meet the ever changing needs of the society.

### **Implications in Nursing Administration**

1. The nursing administrator should take more responsibility to implement a protocol of aromatherapy/ complementary therapies as a relaxation technique for patient with chronic illness and adverse effects of chemotherapy .
2. Administrator should motivate the staff for effective adverse effects of chemotherapy management which should help in faster recovery, prevent complications and there by provide cost effective care to their clients.
3. The nursing administrator should organize in service education about complementary and alternative therapies and provide adequate reading material to refresh their knowledge and get acquainted with newer techniques.

## **Implications in Nursing Research**

The find of the study served as a basis for the nursing personnel on

1. Increasing awareness on aromatherapy.
2. The study can be published on journal to disseminate knowledge regarding non-pharmacological intervention for chemotherapy adverse effects perception and selected associated symptoms.
3. The findings of the study served as a basis for the nursing professional and students to conduct further studies.

## **RECOMMENDATIONS**

Chemotherapy adverse effects is one of the most common symptoms in clients with advanced cancer. It is certainly the most feared and cancer chemotherapy adverse effects continues to remain a significant problem for oncology patients. Hence effective management of cancer chemotherapy adverse effects is as important as the medical intervention of the disease itself. This warrants a holistic approach in nursing care.

The study recommends the following for further research

1. A comparative study can be performed to evaluate the effectiveness of different complementary therapies like aromatherapy with guided imagery and / or music therapy.
2. A similar study can be conducted as aromatherapy intervention to modify the symptoms of nausea, vomiting and in patients undergoing chemotherapy.
3. A similar study can be conducted with case study approach on specific adverse effects of chemotherapy.
4. Further research can be conducted with the help of other chemotherapy adverse effects scales.