EFFECTIVENESS OF FOOT REFLEXOLOGY ON PHYSIOLOGICAL AND PSYCHOLOGICAL WELLBEING AMONG PATIENTS WITH CANCER RECEIVING RADIATION THERAPY

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

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ABSTRACT

This study intended to assess the effectiveness of foot reflexology on physiological and psychological wellbeing among patients with cancer receiving radiation therapy, Madurai. Quantitative approach was used. Quasi experimental with pretest, posttest control group design was adopted. By simple random sampling technique 60 samples with cancer patients undergoing external radiation therapy were selected, among them 30 were in experimental group and 30 were in control group. The selected intervention of foot reflexology was given for 30 minutes for continuous 5 days in a week for 2 weeks in experimental group. No selected intervention of foot reflexology was given for control group. Modified memorial symptom assessment scales were used to assess the level of wellbeing. The data was analyzed according to the objectives of the study using descriptive and inferential statistics. The major findings of the study were the mean post test 1 and post test 2 scores of physiological wellbeing score in experimental group was significantly ($t=6.36$, $P\leq0.001$) better than physiological wellbeing of the control group, the mean post test level of 1 and 2 scores of psychological wellbeing in experimental group was significantly ($t=11.92$, $P\leq0.001$) better than the psychological wellbeing of the control group and the mean post test scores of 1 and 2 level of overall wellbeing in experimental group was significantly ($t=8.04$, $P\leq0.001$) better than the overall wellbeing in control group. There was a positive correlation between physiological and psychological wellbeing. Based on the findings it was recommended that the study of foot reflexology can be nurse initiated intervention that has the advantage of being therapeutic for the cancer patients. It can be recommended to reduce the physiological and psychological symptoms among patient with cancer receiving radiation therapy.

CHAPTER – I

INTRODUCTION

"Where we love is home-home that our feet may leave, but not our hearts"

- Oliver Wendell Holmes, 2014

BACKGROUND OF THE STUDY:

Cancer is a term used for group of symptoms when the cell in a part of a body starts to grow beyond the control (American Cancer Society, 2010). Cancerous cells are described as malignant neoplasm. They demonstrate uncontrolled cell growth that follows no physiological demand. Benign and malignant growths are classified and named by tissue of origin like epithelial, connective and muscle tissue, haematologic and endothelial tissues (Bare, 2008).

Cancer is not a single disease with a single cause. Cancer affects every age group and most cancer occurs in people older than 60 years of age. It is not surprising that cancer patients have emotional section to the disease. Approximately half of all patient with terminal or advanced cancer suffer with poor mental health. While half of terminally ill or advanced cancer patient suffer from pain, vomiting, sleepiness, nausea, depression, anxiety than half of patient receive radiation therapy treatment for their cancer (Osmanska and Borkocoska, 2009)

Globally cancer account for 5.1% of total disease burden and 12.5% of all deaths in 2010. In India they account for 3.3% of disease burden and 9.9% of the deaths, cancer incidence over all higher in women than man in India. It is estimated that 10 lakh new cases will be diagnosed in 2016, up from about 8 lakhs in 2001, nearly 6,70,000 people are expected to die due to cancers in India in 2016 (Shyamala, 2014).

Hawks, (2006), Institute of Medicine describe that, the major forms of cancer therapy like surgery, radiation therapy, chemotherapy often create unwanted long term effects of tissue and organ system that impair a person health and quality of life in small and large ways. Thus cancer survivorship has enormous implication for the way these individuals monitor and manage their health through their lives.

Lawrence, Hakens and Giaccia, (2008) described that, more than 60% of all clients with cancer receive radiation therapy. It may be used as a primary adjuvant or palliative treatment modality. Radiation therapy uses high energy radiation to shrink tumors and kills cancer cell by damaging their DNA and also damage normal cells, leading no side effects.

Ruppert (2011) explained that, radiation therapy can cause both early (acute) and late (chronic) side effects. Acute side effects occur during treatment, and chronic side effects occur months or even years after treatments ends. This side effects that develop depends on the area of the body being treated, the dose given per day, the total dose given, the patient's general condition, and other treatments given at the same time. Acute side effects are skin irritation, nausea, vomiting, fatigue, hair loss, urinary problems and damage of the salivary gland. Chronic side effects are fibrosis, diarrhea, bleeding, memory loss, infertility and secondary cancer.

Common radiation therapy complications are erythema, salivary dysfunction, diarrohea, vomiting, cytopeniase, painful mucositis, pneumonitis, fibrosis, delaying wound healing, infertility (Tidy, 2011).

Michella Riba, (2010) cited that, majority times patients expressed their feelings as, "dealing with emotion of cancer is actually harder that coping with other medical

problems". It is critically important to establish tools for evaluating distress in cancer patients and helping them seek treatment for the emotional aspects of coping with illness. Treating depression in people with cancer not only causes symptoms of pain, nausea and fatigue but it may also help them like longer and maintain a better quality of life. Treatment options for these type of emotional issues include group therapy, massage therapy and foot reflexology (Wells Fargo Home Mortgag, 2010).

Reflexology is the physical act of applying pressure to the feet and hand with specific thumb finger and hand technique (Barbara and Kerin, 2010).

In recent years many complementary therapies such as massage soothing music relaxation, mind body techniques, herbal medicine, hypnosis, therapeutic touch and reflexology are tried to help manage pain (Gala, 2006).

Conventional therapies for cancer treatment are surgery, radiation therapy, chemotherapy, and biotherapy. American cancer society considered the following modalities as "Helpful complimentary approaches; Aromatherpay, art therapy, bio feedback, garlic, herbal tea, foot reflexology, medication, music therapy, aerobic exercise, breathing exercise, prayer, spiritual practice, tai-chi, and yoga. Pharmacologic and biologic treatment are used in various combination with special diets, enemas, and instruction about avoiding substances thought to be harmful, these treatment become part of a general approach often referred to as metabolic therapy (Margaret and Kindlen, 2000).

Randomized Clinical Trial (RCT) and three non randomized controlled clinical trial (CCTS) studies showed significant reduction in pain, nausea, vomiting and fatigue

with reflexology, and improved sleep and mood. In short, all four studies suggested beneficial effects of reflexology for women with breast cancer (Ernst, 2010).

A study done on foot reflexology has a positive effect on relieving pain of cancer patient and it is one of the caner interventions which has greater benefit to cancer patient not only relieving the distressing symptoms of their disease but also fulfils the basic needs that is need of human touch is one of the five senses (Suzanne, 2008).

Azziz and Rowland, (2003) posited that, Nurses we have the responsibility to better understand the needs of cancer survivors and to provide the most current evidence based approaches for managing late and long term effects of cancer. Cancer treatment caused 75% of survivors to have serious health deficits, both physical and psychological problems that are related to their treatment side effects. Nurses must provide comprehensive care to a cancer survivor, which begins with recognizing the effects of cancer and it treatments and learning about survivors own meaning of health.

The role of nurse focusing on holistic health care and it is believed that complementary therapies are also part of holistic nursing. Massage has mechanical effects that improve circulation, remove waste products from the body, relieve pain and reduce muscle tension. It has physiological and psychological benefits such as relaxation and it improves sense of well being. An important role of the nurse in managing outcomes is to recognize, intervene, and provide support for the cancer patient. (Labyak and Metzgar, 2005)

SIGNIFICANCE AND NEED FOR THE STUDY:

"Keep your eyes on the stars, and your feet on the ground" – Theodore roosevelt

The disease called "cancer" is best defined by four characteristics which describes new cancer cells act differently from their normal counter parts.

1. Clonality: Cancer originates from genetic changes in a single cell, which proliferate to form a clone of malignant cells.
2. Autonomy: Growth is not properly regulated by the normal biochemical and physical influences in the environment.
3. Anaplasia: There is a lack of normal coordinated cell differentiation.
4. Metastasis: Cancer cells develop the capacity for discontinuous growth and dissemination to other parts of the body (Wong et al, 2015).

Our bodies are made up of billions of cells that grow, divide, and then die in a predictable manner. Cancer occurs when something goes wrong with this system, causing uncontrolled cell division and growth. (Haken and Giaccia, 2008)

Cancer is a leading cause of death world wide and the total number of cases globally. The number of global cancer death in projected to increase from 2007 to 2030 (from 7.9 million to 11.5 million deaths). New cases of cancer in the same period are estimated to jump from 11.3 million in 2007 to 15.5 million in 2030 more than half of all cancer cases occur in developing countries (Kindlen, 2007).

Chillibreeze and Rajani, (2010) described that, cancer prevalence in India is estimated to be around 2.5 million with over 800000 new cases and 5,50,000 deaths occurring each year due to this disease. More than 70% of case report for diagnostic and treatment services in the advanced stages of the diseases which has lead to a poor

survival and high mortality rate. The impact of cancer is for greater than were numbers. Its diagnosis causes emotional trauma and its treatment, a major economical burden especially in a developing country like India. The initial diagnosis of cancer is perceived by many patient as grave event with more than 1/3 of them suffering from pain, nausea, vomiting, anxiety, depression, fatigue, prevalence of cancers in different states in our country.

Esophageal cancer	:	Southern states of India like Karnataka and Tamilnadu and also in Maharastra and Gurajat.
Stomach Cancers	:	Southern India with highest incidence in Chennai.
Oral cancers	:	Kerala
Pharyngeal cancer	:	Mumbai
Thyroid cancers among women:		Kerala
Gall bladder cancer	:	Delhi and West Bengal

The number of new cancer patients in United States population is expected to more than double from 1.36 million in 2000 to almost 3.0 million in 2050. Over 800,000 new cases occurring every year and is one of the ten leading causes of death in India. Cancer incidence in India is estimated to be around 70-90 per 1,00,000 population. From the population based registries in India covering 28-30 million population from different part of the country. The age adjusted incidence rates very from 44-122 per 1,00,000 population in males, and 52-128 per 1,00,000 females (WHO, 2007).

Foot reflexology is a simple, non invasive method to help balance the body; it has been described as a natural therapy that requires the application of a specific type of pressure on particular areas of the feet. It is based on the principle that there are reflexes

in the feet which correspond to every part of the body. Foot massage serves to relax, improve circulation and promotes a general feeling of wellness (Carlson, 2006).

A study was conducted in on the effect of foot reflexology on anxiety and pain in patients with breast and lung cancer. The study showed that foot reflexology alleviated anxiety and pain for 23 patient with breast and lung cancer. They recommended, reflexology is a simple technique for human touch which can be performed any where requires no special equipments, is non invasive and does not interfere with patients privacy. (Foltz et al., 2005)

Stephenson (2002) looked at the impact of reflexology on the quality of life 20 cancer patients. He concluded that quality of life improved through a reduction of physical and emotional symptoms.

Milligan etal., (2002) conducted a quality study in a hospital on 24 patients receiving reflexology with breast and lung cancer. Research noted a "significant decrease in pain" for patient with breast cancer.

Quattrin (2006), examined the effect of reflexology foot massage in hospitalized cancer patients undergoing radiation therapy for controlling nausea, vomiting, anxiety and other side effects associated with cancer. He concluded that, this intervention of foot reflexology showed the significant improvement on quality of life.

Aassal, (2008), A study was conducted among cancer patients in Bhopal cancer hospital to test the reflexology treatment on anxiety and pain level for breast cancer patient. A group of 23 lung and breast cancer patient, comprised mostly of women over the age of 65 received 30 minutes of reflexology by a certified reflexology with no other

changes made to their medication on schedules. Results showed that the patients reported a significant decrease in anxiety and pain after the reflexology sessions.

Variety of complementary therapies claim to improve health by producing relaxation. People with cancer are increasingly using complementary and alternative medicine to treat the cancer (or) improve physical and psychological well being. To minimize pain, nausea, vomiting, fatigue, sleeplessness, anxiety and depression various techniques such as massage therapy, art, therapy, laughter therapy and foot reflexology could be utilized. The general benefits of foot reflexology include,

- Relaxation
- Rejuvenation of tired foot
- Improvement in blood flow
- Beneficial for post operative recovery and pain reduction.
- Enhancement of medical care (e.g. cancer, phantom limb pain and haemodialysis, patients)
- Adjunct to mental health care (e.g. anxiety, depression, post traumatic stress disorder)
- Complement to cancer care (pain, nausea, vomiting, anxiety)

Benefit's of the foot reflexology treatment specifically for cancer related problems includes increased circulation, relaxation and release of tension and reduction of nausea, pain, stiffness, headache, stress, asthma, constipation, sinusitis and migraine. (Barbara, 2010).

During the training period the investigator was posted in Devaki Cancer Institute and Research Centre, Madurai. Most of the cancer patients after radiation therapy by the

use of linear accelerator complained of physiological and psychological symptoms. So, the investigator felt that cancer patient undergoing radiation therapy need effective intervention of foot reflexology to relief from physiological and psychological symptoms. This created an interest in the investigator to conduct a present study on effectiveness of foot reflexology on physiological and psychological well being among patient with cancer receiving radiation therapy.

STATEMENT OF THE PROBLEM:

A study to evaluate the effectiveness of foot reflexology on physiological and psychological wellbeing among patients with cancer receiving radiation therapy in selected hospital of Madurai.

OBJECTIVES OF THE STUDY:

- To assess the physiological and psychological well being among patients with cancer receiving radiation therapy in experimental and control group.
- To find out the effectiveness of foot reflexology on physiological and psychological well being among patients with cancer receiving radiation therapy.
- To find out the relationship between physiological and psychological wellbeing among patient with cancer receiving radiation therapy.

HYPOTHESES:

H_1:

The mean posttest physiological and psychological well being scores of patient with cancer receiving radiation therapy who received foot reflexology will be significantly better than their mean pretest physiological and psychological wellbeing score in experimental group.

H_2:

The mean post test physiological and psychological wellbeing scores among patient with cancer receiving radiation therapy who received foot reflexology in the experimental group will be significantly better than the mean posttest physiological and psychological wellbeing score of patients with cancer receiving radiation therapy in the control group.

H_3:

There will be a significant positive relationship between physiological and psychological wellbeing scores among patient with cancer receiving radiation therapy who received foot reflexology.

OPERATIONAL DEFINITIONS:

Effectiveness:

Effectiveness is producing an intended result – Oxford Dictionary

In this study it refers to the extent to which foot reflexology helped in improving the physiological and psychological well being of patients with cancer receiving radiation therapy for cancer which was measured by score obtained by the subjects in modified memorial symptom assessment scale.

Foot Reflexology:

Foot reflexology is the practice of applying pressure to the foot and hand utilizing specific thumb, finger, and hand technique without using oil, lotion or cream based on a system of bones and reflex areas that reflex an images of the body on the feet and hand with a promise that such work effects a physical changes in the body.

In this study it refers for providing foot massage and foot pressure for each extremity for 15 minutes for a duration of 10 days for cancer patients with cancer receiving radiation therapy.

Physiological Wellbeing:

Physiological well being it refers to being physically healthy (Oxford Dictionary).

In this study it refers to being physically healthy in spite of physiological symptom caused by disease progress and treatment effects such as pain, cough, nausea, vomiting, fatigue disturbed sleep and appetite changes as measured by modified memorial symptoms assessment scale.

Psychological wellbeing:

Psychological well being is a subjective term that means different things to different people like a feeling of having achieved something with one's life, peace and happiness (Oxford Dictionary).

In this study it refers to reduction in symptoms such as anxiety, depression and stress as measured by modified memorial symptoms assessment scale.

Patient with cancer receiving radiation therapy:

Cancer refers to patient who were diagnosed by oncologist based on the histopathological evidence of having abnormally proliferating cells.

In this study it refers to a patients with cancer admitted in the oncology ward and who have received seven days of radiation therapy by the use of linear accelerator prior to the data collection.

ASSUMPTIONS:

- Patient's with cancer experience the different level of physiological and psychological symptoms.
- Foot reflexology has no adverse effects on cancer patients.

Delimitations:

The study was delimited to,

- Patient's with cancer who received external radiation therapy by the use of linear accelerator from the selected hospital in Madurai.
- The Data collection period for only to 6 weeks.
- Foot reflexology for each extremity for 15 minutes for 10 days.

PROJECTED OUTCOME:

The present study will reveal the effectiveness of foot reflexology in improving the physiological and psychological wellbeing among patients with cancer who has received external radiation therapy by the use of linear accelerator.

CONCEPTUAL FRAMEWORK:

The conceptual framework of this study is based on Sister Callista Roy's Adaptation Model which involves four concepts person, nursing, health and environment. The adaptive system has four components like input, processes, effectors and output.

Person:

Roy states that the receipent of nursing, care may be an individual, a family, a group community (or) a society. Each is considered as an adaptive system. In this study, the focus will be on the individual (patient diagnosed as cancer).

The constant interaction of person with their environment is characterized by both internal and external chewp with this world. Person must maintain their own integrity. Both the subsystem (cognator and regular subsystem) consists of input, process and output. Regulator subsystem controls internal process related to physiologic needs. Cognator subsystem controls internal processes related to higher brain function such as perception, information processing, learning from past experience, judgment and emotions.

Input:

Roy says input is a stimuli coming from the environment (or) from with a person. In this study physiological and psychological wellbeing was assessed after 7th day of radiation by MMSAC among patient with cancer receiving radiation therapy. Foot reflexology was given daily for 15 minutes for continuous 10 days in order to reduce the physiological and psychological well being caused by disease pathology and treatment impact.

Process:

According to the theory, process refers to the adaptive changes taking place internally (cognetor sub system) in the system. In this study, the process refers to the administration of foot reflexology that creates adaptive changes in a cancer patient.

Output:

Output is the outcome of the system, the system is a person, output refers to the persons' behaviour. Output is categorized as adaptive responses (or) ineffective responses.

In this study, the positive (or) negative response to foot reflexology on physiological and psychological wellbeing becomes the output.

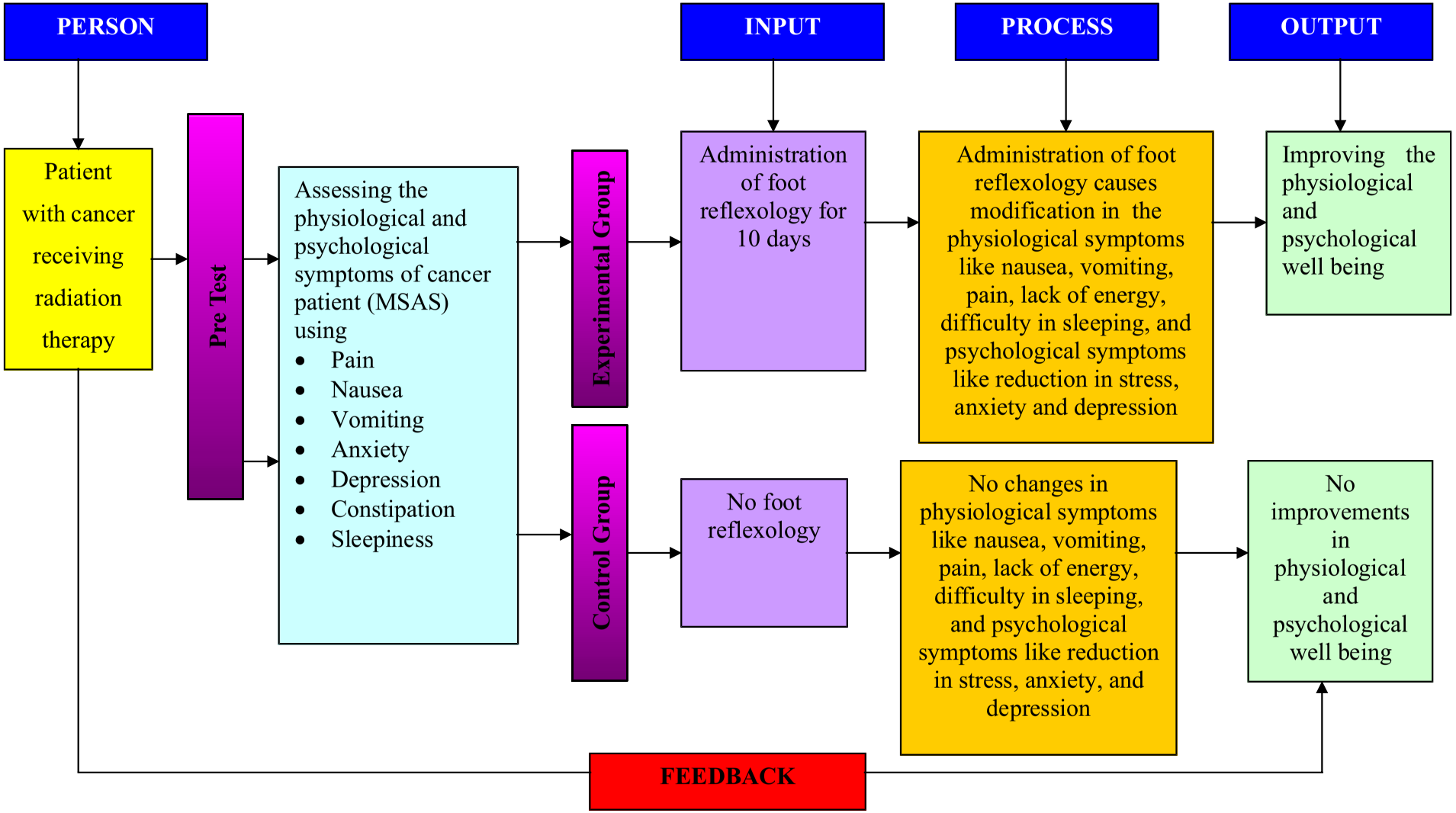


***FIGURE 1*: CONCEPTUAL FRAME WORK BASED ON SISTER CALLISTA ROY'S ADAPTATION MODEL**

CHAPTER – II

REVIEW OF LITERATURE

"Growth for the sake of growth is ideology of the cancer cell"

- Edward Abbers

"When our feet hurt, we hurt all over"

- Socrates

Researcher almost never conducts a study in an intellectual vacuum. Their studies are under taken within the content of an existing base of knowledge. Researchers generally, undertake a literature review and familiarize them about the topic under study (Polit and Hungler, 2004).

The review of literature was done from published articles, textbooks reports and medline search. Literature review is organized and presented under the following headings.

- Literature related to cancer prevalence and incidence
- Literature and studies related to physiological and psychological problems experienced by patients receiving radiation therapy for cancer.
- Literature and studies related to effect of reflexology on physiology and psychological problem experienced by patients on radiation therapy.
- Nurses role in the care of patients with cancer.

LITERATURE RELATED TO CANCER PREVALENCE AND INCIDENCE:

A review done by Ragin et al., (2008) on cancer in Caribbean than in the United States population to identify the prevalence of cancer associated with viral infection. The result showed that in 161, 196 subjects from 14 Caribbean, Islands, the adjusted

prevalence of Human Herpes Virus8 (HHV8), Human t0Lymphotropic Virus 1 (HTLV-1, 1.0%), Human Papilloma Virus (HPV); Hepatitis C Virus (HCV:0.4%), Hepatitis B Virus (HBV: 9.4%), and Epstein Barr Virus (EBV:92.2%) with the exception of HCV, the prevalence was significantly higher in the Caribbean than in the United states. They concluded cancer was one of the five leading causes of death in Caribbean population.

Boffetta in their research on cancer prevention, detection and management in low and medium income countries (2010) stated that cancer is no longer the burden of high income countries. In 1970 15% of newly reported cases were in low and middle income countries (LMIC), compared with 56% in 2008, expected to rise to 70% in 2030. Almost two thirds in 7.6 million annual cancer death world wide occur in low income countries, making it leading cause of mortality. The inquiry of cancer care is further demonstrated by the case fatality from cancer, which is 75% in low income countries, referring to the fact the LMIC account for almost 80% of the burden of the disease due to cancer, yet receive only 5% of global resources devoted to deal with this emerging challenge, the congress decided to focus on primary prevention, screening and early detection, treatment and management, supportive care, end of life as well as on low programme infrastructures and resources are integrated into existing delivery system.

Ferrel, (2007) described that, regardless of each survivors journey with cancer, having cancer affects each person’s physical, social, psychological and spiritual wellbeing.

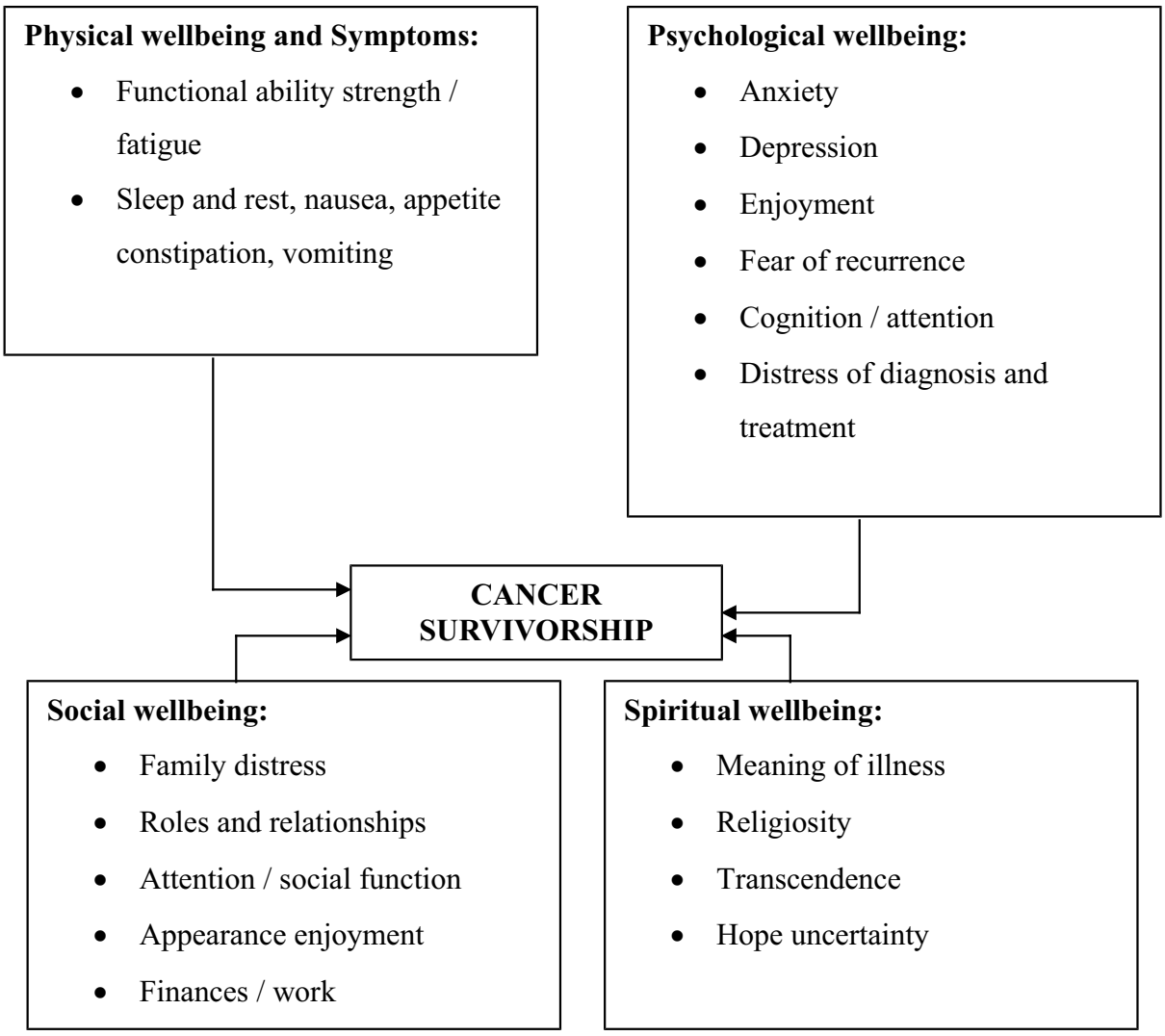


***Figure* 2: Dimension of Quality of life affected by Cancer**

Source: https://www.cancercare.on.cancer

According to Wilkes, (2009), breast cancer is the most prevalent cancer is the most prevalent cancer in the world (4.4 million survivors up to 5 years following diagnosis) and the second most common cause of cancer related mortality in women wide world, it also accounts for 23% (1.38 million) of the total new cancer cases and 14% (458, 400) of the total cancer deaths in 2008 and rank second most common cancer over all (10.9% of all cancers) but ranks fifth as cause of death 1.15 million new breast cancer

causes were recorded in 2004 and over 500,000 deaths reported around the world and more than half of all cases occurred in industrialized countries (Wilkes and Fernandez, 2003).

According to Parkin, (2010) 32.5 million people diagnosed with cancer with in the five years previously were alive at the end of 2012. Most were women after their breast cancer diagnosis 6.3 million, than after their prostate cancer diagnosis (3.9 million) and men and women after their colorectal cancer diagnosis (3.5 million).

Doris Howell et al., (2013) reported that cancer survivors in the United States, prevalence across the survivorship trajectory and implication for case cancer prevalence for 2012 and beyond as estimated using the prevalence incidence approach model. The result of January 1, 2012, approximately 13.7 million cancer survivors were living in the United States with prevalence projected to approach 18 million by 2022. 64% of this population have survived 10 years or more, and 15% have survived 20 years or more after diagnosis. Over the next decade, the number of people who have lived 5 years or more after their cancer diagnosis is projected to increase approximately 3.7% to 11.9 million.

Ranjani, (2010) reported the cancer prevalence in India is estimated to be around 2.5 million with over 800000 new case and 5,50,000 deaths occurring each year due to this disease. More than 70% of cases report of diagnostic and treatment services in the advanced stages of the disease which has lead to a poor survival and high mortality rate.

LITERATURE AND STUDIES RELATED TO PHYSIOLOGICAL AND PSYCHOLOGICAL PROBLEM EXPERIENCED BY PATIENTS RECEIVING RADIATION THERAPY FOR CANCER:

Manoj et al., (2006) conducted a study to assess the pain, nausea, fatigue, sleep, anxiety and depression in cancer patients under going radiation therapy. A total of 117 patients were assessed by using symptoms assessment scale. The mean distress score was 24.18 (15.38%) among patients on radiation therapy.

Courneya et al., (2007) studied the clinical course and prognosis of physiological and psychological symptoms like pain, nausea, vomiting, hair loss, anxiety and depression over course of radiation therapy among 76 patients with breast cancer in Canada. Edmonton symptom assessment scale used from the time of treatment to 6 months post treatment to findout the symptoms. The findings revealed physiological and psychological symptoms increased over the course of treatment was highest at the last week of treatment and returned to pre treatment levels by 3 months after treatment.

A study done by Paul et al, (2008) on impact of over all quality of life on cancer symptoms like pain, fatigue, anxiety and depression among advanced 115 cancer patient receiving treatment showed that radiotherapy initially caused worsening of cancer symptoms but with time, symptom levels returned to base line.

Irrine et al., (2006) conducted a study on the prevalence and correlates of symptoms in patients receiving treatment with chemotherapy and radiation therapy. A comparison with the symptoms experienced by healthy individuals the samples selection of radiotherapy (n=54) and chemotherapy (n=47) over two measurement points. They

concluded the symptom distress were predictory of impairment in functional activities related to illness.

Morris, Magnan and Darlene (2003) assessed physiological and psychological symptoms like pain, nausea, vomiting, skin changes, stress, fatigue and anxiety experienced by patients with cancer receiving radiation therapy and to determine what extent diverse correlates of cancer symptoms affect onset, duration distress. The study included 384 samples of 175 men and 209 women ranging from the age group of 24 to 87 years. Method used was the correlation analysis and analysis of variance. The finding revealed that cancer symptom started near the middle of the second week of radiation therapy and it was for approximately for 32 days.

Mota (2012) conducted a cross sectional study on cancer symptoms like pain, bleeding, skin irritation, anxiety and stress in 157 adult colorectal cancer patients prevalence and associated factors. Symptom assessment scale was used to assess cancer symptoms. Finally the probability of cancer symptoms occurrence was 80% when none were at pre test, the probability was 8%.

LITERATURE AND STUDIES RELATED TO EFFECT OF FOOT REFLEXOLOGY ON PHYSIOLOGICAL AND PSYCHOLOGICAL PROBLEM EXPERIENCED BY PATIENTS ON RADIATION THERAPY:

Stephenson et al., (2007) conducted an experimental pretest / post test study to compare the effects of delivered foot reflexology and usual care plus attention on cancer treatment of radiation therapy from University Hospital out patient departments, in U.S.A. 42 experimental and 44 control subjects were used for this study. Main research

variables were pain, nausea and anxiety. After foot reflexology patient experienced of significant decrease in pain intensity, nausea and anxiety.

Hadgson., (2008) conducted a quasi experimental study to determine whether reflexology has an impact on the quality of life patients in the palliative stages of cancer from John Hopkins University, Baltimore. Totally 186 patients were assigned randomly into two groups. The tool and used was linear analogue self assessment scale relating to quality of life. This study showed that reflexology had an impact on the quality of life of patients in the palliative stags of cancer.

Wilkinson, Lockchart, Ganbles, and Storey (2008) have a conducted a systemic review examining the research evidence based for the effectiveness of reflexology in cancer treatment of chemotherapy and radiation therapy. Participants were adults with a diagnose of cancer, receiving care in health care setting. They showed an outcome of improvement in physical and psychological factors and improvement in their quality of life, which was measured using validated assessment tools.

Sharpetal (2010) conducted a pragmatic randomized controlled trial to evaluate the effects of reflexology on quality of life in women in early breast cancer with radiation treatment symptoms. About 183 were randomized to self initiated support plus reflexology. The tool used were symptoms assessment scale. Reflexology had good effect on quality of life.

Stephenson, Weinrich, and Tavakoli (2006) conducted a quasi experimental study to evaluate the effects of foot reflexology on pain, sleep, fatigue, nausea, anxiety and depression with breast and lung cancer symptoms of radiotherapy and chemotherapy in holistic care centre, Germany. In this study total 83 patients were participants. The main

variables measured were sleep, pain, fatigue and anxiety. There was a decrease in sleep, pain, fatigue, vomiting, anxiety observed in this sample of patient with breast and lung cancer.

Magil, and Berensons (2008) conducted a study to evaluate the effect of conjoint use of music therapy and reflexology with hospitalized advanced stage cancer patients with radiation therapy. About 162 cancer patients were selected in medical oncology department in Florida. The assessed were pain, nausea, fatigue and anxiety. There was decrease in level of pain, nausea, fatigue and anxiety in this sample of patient with cancer.

Say, Chen, and Lin (2008) conducted a randomized control trial to assess the effect of reflexology on acute post operative pain, fatigue and anxiety among patients with digestive cancer on treatment of chemotherapy and radiation therapy at Korea. Sixty one patients participated in this study, the tool used was symptoms assessment scale, the level of symptoms was decreased in this sample after reflexology.

Kohara et al (2004) conducted a study to assess the combined modality treatment of aromatherapy, foot soak and reflexology to relieve fatigue in patient with cancer symptoms of radiation therapy. Cancer fatigue scale was used in the study. Combined modality treatment consisting of aromatherapy, foot soak and reflexology appears to be effective for alleviating fatigue in terminally ill cancer patients.

Cramp, Byron and Daniel (2012) conducted Cochrane review on the effects of foot reflexology in reducing cancer symptoms of radiation therapy. This was an undated version of the original Cochrane review published in the Cochrane library (2008). In this study total 1461 participants who received an foot reflexology intervention and 1187

control participants. At the end of the intervention period foot reflexology was seen to be statistically more effective than the control. Finding of foot reflexology significantly reduced the radiation therapy symptoms of cancer patient. (Standardized mean difference (SMD) – 0.27, 95% confidence interval (C2)- 0.37-0.17).

Kerry and Courney, (2014) explained that currently more than 20 studies have examined foot reflexology intervention using an randomized control trial design. The evidence suggest that foot reflexology intervention will improve the cancer symptoms of radiation therapy, during and after cancer treatment although few studies have focused on patients with severe cancer related symptoms during radiation therapy. Foot reflexology and prescription in cancer survivors with cancer related must take into account the extent of cancer related symptoms and morbidity caused by treatment.

Shanta, (2003) conducted study on the effect on foot reflexology on pain, nausea, vomiting and anxiety in patient with breast and lung cancer. The study showed that foot reflexology alleviated pain, nausea, vomiting and anxiety for 23 patient with breast and lung cancer.

Jemal, (2008) conducted a qualitative study in a Delhi hospital on 24 patients receiving foot reflexology with breast and lung cancer treatment of radiation therapy symptoms. Research noted a “significant decrease in pain, anxiety and depression” for patient with breast cancer.

Ferlay et al., (2007) reviewed one randomized clinical trials in U.K to find out the effect of foot reflexology among 60 patients with cancer symptoms of radiation therapy on their physical and psychological outcomes. The studies showed criteria significant

reduction in pain, nausea, vomiting, fatigue, anxiety and depression with foot reflexology.

NURSES ROLE IN THE CARE OF PATIENTS WITH CANCER:

Behrend (2000) explained that nurses have got role in patient assessment, patient education, support and counseling, physical care and continuity of care. Additionally, radiation nurses are challenged to understand the radio biologic principles that determine treatment regimens as well as the equipment used to plan and deliver radiation therapy.

Bucholtz (2005) described radiation oncology nursing care services are provided to address the physical, psychological, social and educational needs of patients with cancer and their families. Policies and procedures exist to ensure effective patient care management, radiation safety, effective communication and quality assurance for the radiation oncology nursing outcomes are included in the treatment record. The quality and appropriateness of nursing care services must be monitored, evaluated and identified, problem resolution must be addressed.

According to Lewis's (2011) nurses play an important role in identifying, reporting and helping patients to deal with the side effects of radiation therapy, educating patients about their treatment regimen, supportive care options and what to expect during the course of treatment is important to help decrease fear and anxiety, encourage adherence and guide at home self-management. Teaching should be than customized to meet the patients and family's learn need.

Rupper (2011) broadly classified the oncology nurses role in various areas like patient assessment, education, co-ordination of care with other health care personnel, direct patient care, symptom management and supportive care.

Naeim, (2012) described that non pharmacologic evidence-based recommendations can be used for dealing with fatigue includes exercise and other activity enhancement (preferably under the direction of physical and occupational therapists), massage, yoga, meditation and psycho educational therapies for stress reduction.

CONCLUSION:

From above literature support it can be concluded that foot reflexology is found to be effective in reducing the pain, nausea, sleep, fatigue, vomiting, anxiety and depression among patients with cancer on radiation therapy.

CHAPTER – III

RESEARCH METHODOLOGY

"Research methodology is a way to systematically solve the research problem. It consists of various steps that are generally adopted by a research in studying the problem along with the logic behind them".

- Kothari, 2011

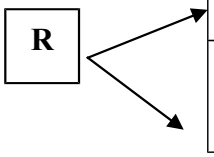
This chapter includes the research approach, research design, the setting, sample and sample technique, development of the tool, procedure for data collection and plan for data analysis.

RESEARCH APPROACH:

Quantitative approach was used in this study to determine the effectiveness of foot reflexology in terms improving the physiological and psychological well being among patients with cancer receiving radiation therapy in selected hospital, Madurai.

RESEARCH DESIGN:

Quasi experimental, non equivalent pretest and posttest control group design was used for this study.



Group	Pre Test Day 1	Intervention (10 days)	Post Test Day 5th & 10th
Experimental Group	O_1	X	O_2 O_3
Control Group	O_1		O_2 O_3

Key:

R - Random Assignment

O_1 - Pretest assessment of the level of physiological and psychological well being among experimental and control group.

X - Foot reflexology

O_2-O_3 - Posttest assessment of the level of physiological and psychological well being 5^{th} and 10^{th} day among experimental and control group.

VARIABLES:

Independent variable: Foot reflexology

Dependent Variable: Physiological and psychological well being

RESEARCH SETTING:

This study was conducted in Devaki Cancer and Research Institute, Arasaradi, Madurai. It is 7.6km away from the Sacred Heart Nursing College, Madurai. This hospital provides all specialized care of all type of cancer and cancer patients on inpatient and out patient basis. The treatment include chemotherapy and radiation therapy, brachy therapy and teletherapy with the help of linear acceleration therapy. The total census of cancer patients in Devaki cancer and Research Institute was 200 per day among them 150-160 patients undergoing radiation therapy a month. 50-60 patients were getting internal radiation therapy and 100-110 patients were receiving external radiation therapy.

TARGET POPULATION:

The target population of this study was the patients with cancer undergoing radiation therapy for cancer treatment in Devaki Cancer and Research Institute, Arasaradi, Madurai.

SAMPLE:

Patient with cancer receiving radiation therapy, who fit into inclusion criteria from Devaki Cancer and Research Institute, Arasaradi, Madurai.

SAMPLING TECHNIQUE:

Sampling is the process of selection a representative part of the population in the study (Sharma, 2012).

Simple random sampling technique was used by lottery method from the radiation department register maintained in Devaki Cancer Center, Madurai.

SAMPLE SIZE:

The total sample size who 60 patients with cancer receiving radiation therapy treatment and of which 30 patients was assigned to the experimental group and 30 was assigned to the control group.

CRITERIA FOR SAMPLE SELECTION:

The samples for the study were selected based on the following criteria.

Inclusion Criteria:

1. Cancer patients admitted in the Devaki Cancer Center, Madurai.
2. Patient admitted in the oncology ward and who received seven days of external radiation therapy by the use of linear accelerator.
3. Patients who can speak and understand Tamil / English.
4. Patient who were willing to participate in the study.

Exclusion Criteria:

- Cancer patients who were critically ill.
- Patients with chemotherapy treatment
- Patients with fracture leg

RESEARCH TOOL AND TECHNIQUE:

The tool which was used in this research study was to evaluate the demographic variables and modified memorial symptom assessment scale.

Part - I:

It consisted of a structured interview guide, which had questions related to the demographic data of the patient.

Demographic data included were age, sex, education status, marital status, occupation, economic status, religion and domicile. Clinical variable included were duration of cancer, duration of treatment, behavioral habits (smoking, alcoholism, pans chewing), comorbid disease and BMI.

Part - II:

Modified memorial symptom assessment scale was used to assess the physiological and psychological wellbeing of the patient with cancer receiving radiation therapy. Memorial symptom assessment scale was downloaded from the net. That was modified according to present study. This scale was used to assess the physiological and psychological wellbeing of the patient with cancer receiving radiation therapy.

The scale had 8 items in that first five symptoms were categorized under physiological symptoms namely, pain, nausea, vomiting, lack of energy and difficulty in sleeping, remaining three symptoms are stress, anxiety and depression were listed under psychological symptoms.

It is a 5 point Likert type scale. It has 3 questions under each symptoms, which has 5 scores ranging from 0.4. The score of ‘0’ indicates no symptoms, ‘1’ indicates not at all, ‘2’ indicates a little bit, ‘3’ indicates quite a bit, ‘4’ indicates very much.

The total score for physiological wellbeing is 60 and 36 for psychological wellbeing all together, formed 96 as total cancer treatment induced symptoms score.

SCORING PROCEDURE:

The total score of 96 was categorized under physiological and psychological well being as follows. Lower score indicates better performance of physiological, psychological and overall wellbeing score.

Scoring	Categories	Total	Total percentage	Physiological scoring	Physiological percentage (60%)	Psychological Scoring	Psychological percentage (36%)
0	No symptoms	0					
1	Good wellbeing	1-24	1-25%	1-15	1-25%	1-9	1-25%
2	Moderate wellbeing	25-48	26-50%	16-30	26-50%	10-18	26-50%
3	Poor wellbeing	49-72	51-75%	31-45	51-75%	19-27	51-75%
4	Worst/intolerable wellbeing	73-96	76-100%	46-60	76-100%	28-36	76-100%

RELIABILITY:

Reliability is defined as the extent to which the instrument yields the same result on repeated measures. It is thus concerned with consistency, accuracy stability and homogencity.

Reliability of the scale was assessed by Cronbach's alpha method and the obtained value of r=0.86 which was highly reliable.

TESTING OF THE TOOL:

CONTENT VALIDITY:

The tool was given to 3 experts in medical surgical nursing, 2 experts in medical oncology, 1 expert in oncology radiologist, 1 expert in complementary therapy. Based on their suggestion the validity of tool and content was modified.

DEVELOPMENT OF INTERVENTION:

Foot Reflexology:

The intervention for the present study is foot reflexology. It helps in improving the physiological and psychological well being among cancer patient. Reflexology works as the pressure technique applied to the feet or hands. It interacts as a part of the body nervous system creating relaxation, improved circulation of nervous system and it gives benefit of touch. Pressure sensors in the feet and hands are a part of the body's reflex response that makes possible or tight reaction to danger ready to feel and hands ready to communicate with the body's internal organ's to make possible.

Reflexology is the therapeutic method of applying pressure to the specific areas of the feets, the reflex points to receive the pain foot reflexology was provided to the cancer patient who receiving radiation therapy for 30 minutes each day and continued for 10 days.

AIMS:

- Improve blood circulation
- Remove congestion and blockages from energy pathways
- Normalize organ and gland functions and improve the coordination among organs
- Improve the balance of the functions of the gland and to relax the body system

- ❖ After a wide literature search on foot reflexology, the investigator developed the procedure of foot reflexology for the present study following are the steps of food reflexology.

STEPS IN FOOT REFLEXOLOGY PROCEDURE:

I. Assessment:

Assessment is used by therapist to find out what the client's going through and to gain any other information that he/she may wish to find out above the client. Assessment of physiological and psychological symptoms is done in this phase. In this phase therapist was examining the foot the client for fungal infection, broken skin or any other trauma.

II. Establishing Therapeutic Relationship:

The therapists establish therapeutic relationships by building rapport and gaining the confidence of the samples.

The therapist will explain about the foot reflexology and doubts raised by the client was classified.

III. 8 Steps of Foot Reflexology:

1. Spread enough cream on the foot and legs and rub the cream in from the heels up to the knee with long sweeping motions
2. Hold the heel in one hand and massage the calf with a kneading motion, starting at the heel and moving up (towards the heart) use the thumb, finger tips and palms of the hand.
3. Continue to hold the heel in one hand and start rotating the ankle in a gentle motion, four times left and four times right

4. Now use your thumbs and start to massage the top the feet in a circular movement from toes to ankles.
5. With on hand, hold the foot firmly, gently pull and rotate each toe three times left.
6. Now use the thumbs again and massage the back of the toes and the ball of the foot in circular movement
7. Using the first and knuckles, knead the arch of the foot, twist the wrist using gentle but firm pressure
8. Finish the massage with gentle strokes along the feet and legs with the finger tips, towards the heart.

IV. Post Session:

1. Advising to take rest on bed for 5-20 minutes.
2. Encouraging to take more water
3. Hand washing for therapist

VALIDITY OF THE INTERVENTION:

The procedure followed in the foot reflexology was validated by experts in

- Medical oncology
- Psychiatry
- Alternative therapist

PILOT STUDY:

Pilot study was conducted a week before the actual study in Devaki Cancer Center, Madurai. 3 samples for each group was taken to assess the effectiveness of foot reflexology physiological and psychological well being among patients with cancer receiving radiation therapy. It was found to be feasible.

DATA COLLECTION PROCEDURE:

The proposed study permission was taken from the dissertation committee of the Sacred Heart Nursing College. Permission was obtained from the concerned authority of Devaki Cancer and Research Institute, Madurai.

The researcher introduced to the selected sample and the informed written consent was obtained from each subject after giving assurance of confidentiality. Data collection was done for 6 weeks. Everyday from 9am to 4pm (from Monday to Friday) the data was collected. Experimental group was selected from register maintained by the radiation department by using simple random sampling method.

For the experimental group on the first day, assessed the physiological and psychological wellbeing by using modified memorial symptom assessment scale, then the selected intervention of foot reflexology was administered for 30 minutes, for continuous 5 day in a week for 2 weeks.

After the selected intervention of foot reflexology post test was done on 5^{th} and 10^{th} day for the patient in the experimental group.

For the control group first day, assessed the physiological and psychological symptoms by using modified memorial symptoms assessment scale, the post test was done on 5^{th} and 10^{th} day. No selected intervention of foot reflexology was given for control group.

PLAN FOR DATA ANALYSIS:

Descriptive Statistics:

Frequency, percentage and mean were used for the analysis of physiological and psychological wellbeing level of patients with cancer receiving radiation therapy.

Inferential Statistics:

- Paired ‘t’ test was used to determine the difference between pretest and post test in terms of effectiveness of foot reflexology in experimental group.
- Independent ‘t’ test used to determine the difference between post test of experimental group and control group in terms of effectiveness of foot reflexology.
- Chi-square was used to determine the association between selected demographic variables.

PROTECTION OF HUMAN SUBJECTS:

The proposed study was conducted after the approval of ethical committee of the Sacred Heart Nursing College, Madurai. Due consent was obtained from the head of the medical oncology department of Devaki Cancer and Research Institute, Madurai for the pilot study and main study. Informed written consent of each subject was obtained before starting the data collection and assurance was given to them about the anonymity and confidentiality of the data collected from them.

CHAPTER – IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the description of samples, classification, analysis and interpretation of data collected to evaluate the achievement of the objectives of the study and discussion of the study findings, the data is tabulated and described as follows.

Presentation of the findings of the study.

Section I:

1. Frequency and percentage distribution of sample based on selected demographic variables
2. Frequency and percentage distribution of sample based on clinical variables

Section II:

3. Distribution of sample according level of physiological, psychological and overall wellbeing score in experimental group.
4. Distribution of sample according level of physiological, psychological and overall wellbeing scores in control group.

Section III:

5. Comparison of mean pre test vs post test 1 scores of physiological, psychological and overall being patient with caner receiving radiation therapy in experimental group.
6. Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall being patient with caner receiving radiation therapy in experimental group.

7. Comparison of mean pretest vs post test 1 and post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in experimental group.
8. Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in control group.
9. Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall wellbeing patient with receiving radiation therapy in control group.
10. Comparison of mean pre test vs post test 1 and post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in control group
11. Comparison of mean posttest 1 scores of physiological, psychological and overall wellbeing in experimental group and control group.
12. Comparison of mean posttest 2 scores of physiological, psychological and overall wellbeing in experimental group and control group.

Section IV:

13. Correlation between the scores of physiological, psychological and overall wellbeing in experimental group
14. Comparison of pretest, posttest 1 and post test 2 scores of physiological, psychological and overall wellbeing by repeated measures of ANOVA method

SECTION – I

Demographic variables of the samples

This section deals with the demographic variables of the subjects such as age, sex, marital status, educational status, economic status, religion and domicile.

Table 1:

Frequency and percentage distribution of sample based on selected demographic variables.

N = 60

Demographic Data	Experimental Group (N=30) f	Experimental Group (N=30) %	Control Group (N=30) f	Control Group (N=30) %
Age (in years):				
❖ 21 – 3 0 yrs	1	3.3	3	10
❖ 31 – 40 yrs	4	13.3	7	23.3
❖ 41 – 50 yrs	10	33.3	9	30
❖ 51 – 60 yrs	11	36.7	8	26.7
❖ 61 – 70 yrs	4	13.3	3	10
Sex:				
❖ Male	15	50	14	46.7
❖ Female	15	50	16	53.3
Marital Status:				
❖ Married	23	76.7	24	80
❖ Unmarried	1	3.3	2	6.7
❖ Divorced				

	Experimental Group (N=30)	Control Group (N=30)

Demographic Data	f	%	f	%
❖ Separated	0	0	0	0
❖ Widow/widower	6	20	4	13.3
Educational Status:				
❖ Illiterate	9	30	12	40
❖ Primary school	16	53.3	14	46.7
❖ Secondary school	3	10	3	10
❖ Higher secondary	2	6.7	0	0
❖ College	0	0	1	3.3
Occupational History:				
❖ Professional	7	13.3	1	3.3
❖ Non-professional	8	26.7	9	30
❖ Coolie / Housewife	18	60	20	66.7
Economic Status:				
❖ Below Rs.1000	10	33.3	21	70
❖ Rs.1000 – 2000	10	33.3	7	23.3
❖ Rs.2000 – 3000	4	13.3	1	3.3
❖ Above Rs.3000	6	20	1	3.3
Religion:				
❖ Hindu	16	53.3	13	43.3
❖ Muslim	6	20	9	30
❖ Christian	8	26.7	8	26.7

Demographic Data	Experimental Group (N=30)		Control Group (N=30)	
	f	%	f	%
Domicile:				

❖ Urban	12	40	10	33.3
❖ Rural	18	60	20	66.7

- ❖ With regard to age in experimental group (36.7%) of samples were 51-60 yrs, 11 and in control 1/3 of them 41-50 yrs (30%) respectively.
- ❖ Regarding sex in experimental group both gender are equal in sample were male and female (50%) respectively.
- ❖ Regarding marital status in experimental group ¾ of them married (76.7%) and control group of them married (80%).
- ❖ Regarding education in experimental and control group majority of the sample were on primary school (53.3%) and (46.7%)
- ❖ Regarding occupation in experimental and control group majority of the sample were non-professional (60%) and (66.7%)
- ❖ With regard to economical in experimental and control group majority of the sample were earning. Below Rs.1000/month (33.3%) and (70%).
- ❖ Regarding religion half of the samples were Hindus in experimental and control group (53.3%) and (43.3%).
- ❖ Regarding domicile half of the samples were belongs to rural area in experimental and control group (60%) and (66.7%).

Clinical Profile of the Samples:

This section deals with the clinical variables of the subjects.

Table 2:

Frequency and percentage distribution of sample based on clinical variables

N = 60

Demographic Data	Experimental Group (N=30) f	Experimental Group (N=30) %	Control Group (N=30) f	Control Group (N=30) %
Behavior:	1	3.3	1	3.3
❖ Smoker	9	30	8	26.7
❖ Pan chewing	1	3.3	1	3.3
❖ Alcohol Both (smoking, alcohol, pan, chewing)	14	46.7	10	33.3
❖ None	5	16.7	10	33.3
Duration of Treatment:				
❖ 1 year	11	36.7	13	46.3
❖ 2 years	9	30	9	30
❖ 3 years	9	30	8	26.7
❖ > 4 years	1	3.3	0	0
Comorbid Condition:				
❖ Tuberculosis	0	0	0	0
❖ Hypertension	9	30	13	43.3
❖ Asthma	10	33.3	7	23.3

Demographic Data	Experimental Group (N=30) f	Experimental Group (N=30) %	Control Group (N=30) f	Control Group (N=30) %
❖ Diabetes mellitus	11	36.7	10	33.3
Duration of Cancer:				
❖ 1 year	8	26.7	9	30
❖ 2 years	9	30	11	36.7

❖ 3 years	8	26.7	7	23.3
❖ > 4 years	5	26.7	3	10
BMI:				
❖ Above 25	10	33.3	3	10
❖ Below 25	20	77.3	27	90

- ❖ Regarding behavioral variables among half of the samples were both (pan chewing, alcoholism and smoking) in experimental group (46.7%) and in control groups half of the samples were both (pan chewing, alcoholism and smoking) (33.3%).
- ❖ Regarding to the duration of treatment both in experimental group and control group majority of the samples were found to have 1 year in experimental group (36.7%) and (43.3%) in control group.
- ❖ Regarding comorbid condition in experimental group majority of the samples were found to have asthma (36.7%) and in control group almost majority of the sample were having hypertension (43.3%)
- ❖ Regarding to the duration of illness in experimental group and control group majority of the sample were 2 years of treatment 9 (30%) and 11 (36.7%).
- ❖ Regarding BMI majority of the samples were below 25 in experimental and control group 20 (77.3%) and 27 (90%).

SECTION – II

Distribution of sample according to the physiological, psychological and overall wellbeing

Table 3: Distribution of sample according level of physiological, psychological and overall wellbeing score in experimental group

N = 30

	Experimental group								
	Physiological wellbeing			Psychological wellbeing			Overall wellbeing		
Level of	Pre test	Post test 1	Post test-2	Pre test	Post test 1	Post test-2	Pre test	Post test	Post test-2
wellbeing									

	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Good	-	-	-	-	2	6.7	-	-	-	-	3	10	-	-	-	-	1	3.3
Moderate	-	-	12	40	24	80	-	-	15	50	27	90	-	-	8	26.7	24	80
Poor	11	36.7	18	60	4	13.3	8	26.7	15	50	-	-	10	33.3	22	73.3	5	16.7
Worst	19	63.3	-	-	-	-	22	73.3	-	-	-	-	20	66.7	-	-	-	-

Data on table 3 shows the physiological, psychological and overall wellbeing obtained the subjects classified into 4 groups good (1-25%), moderate (26-50%), poor (49-70%) and worst (76-100%).

In experimental group before giving foot reflexology show that physiological wellbeing, 11 (36.7%) were in poor well being and 19 (63.3%) were in worst wellbeing in pre test and in post test 1 and post test 2 the sample were improved moderate 12 (40%) and 24 (80%). In psychological wellbeing 8 (26.1%) in poor well being 22 (73.3%) were in worst wellbeing and after giving foot reflexology the samples were from poor wellbeing improved 2 moderate wellbeing in post test 1 post test 2 the score is 15 (50%) and 27 (90%).

In over all wellbeing the pretest score is 10 (33.3%) in poor wellbeing and the samples after giving intervention wellbeing then the post test 1 and post test 2 score is 8(26.7%) and 24 (80%). So in experimental group the sample were improved to the good and moderate wellbeing from poor and worst wellbeing.

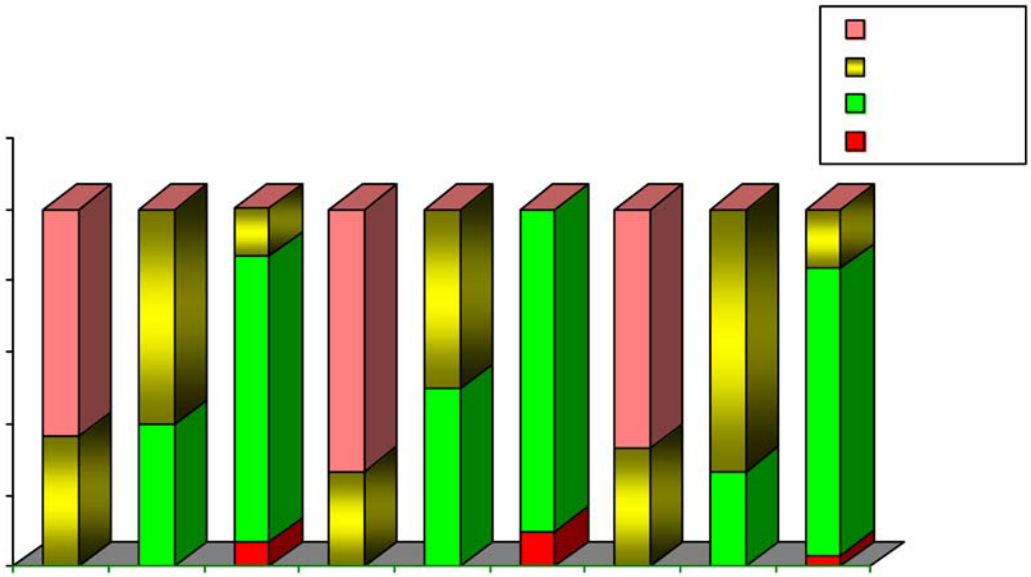


Figure 3: Distribution of sample according level of physiological, psychological and overall wellbeing score in experimental group

Table 4: Distribution of sample according level of physiological, psychological and overall wellbeing scores in control group.

N = 30

Level of wellbeing	Control group																	
	Physiological wellbeing						Psychological wellbeing						Overall wellbeing					
	Pre test		Post test 1		Post test2		Pre test		Post test 1		Post test2		Pre test		Post test 1		Post test-2	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Good	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moderate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poor	11	36.7	10	33.3	10	33.3	9	30	8	26.7	8	26.7	10	33.3	10	33.3	10	33.3

Worst	19	63.3	20	66.7	20	66.7	21	70	22	73.3	22	73.3	20	66.7	20	66.7	20	66.7

Table 4 shows that in the physiological wellbeing pretest score is 11 (36.7%) and 19 (63.3%) were in worst wellbeing and in post test 1 and post test 2 the sample had in poor wellbeing and worst wellbeing 10 (33.3%) and 20 (66.7%).

In psychological wellbeing it shows that the pre test 9 (30%) and 21 (70%) samples were in poor and worst wellbeing and again in post test 1 and post test 2 the sample had the score is 8 (26.7%) and 22 (73.3).

In overall wellbeing it shows that the pretest 10 (33.3%) and 20 (66.7%) samples were in poor and worst wellbeing and again in post test 1 and posttest 2 the sample had the score 10 (33.3%) and 20 (66.7%) none of the sample had improved to good and moderate level of wellbeing.

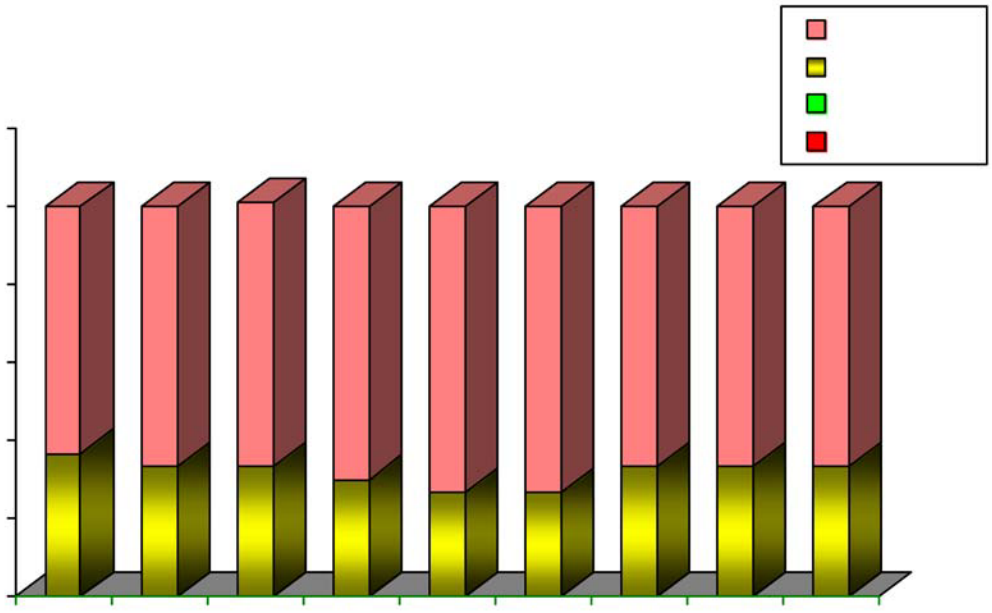


Figure 4: Distribution of sample according level of physiological, psychological and overall wellbeing scores in control group

SECTION – III

Table 5: Comparison of mean pre test vs post test 1 scores of physiological, psychological and overall being patient with caner receiving radiation therapy in experimental group.

Wellbeing	n	Pre test Mean	Pre test SD	Post test 1 Mean	Post test 1 SD	Mean difference	t-value	P-value
Physiological wellbeing	30	80.46	9.29	51.47	9.41	29	30.74	P<0.001*
Psychological wellbeing	30	78.3	9.07	48.8	8.32	29.5	27.8	P<0.001*
Overall wellbeing	30	78.7	7.78	54.03	7.17	24.7	13.82	P<0.001*

(*p<0.001, highly significant)

To find out if there is any difference between the mean level of wellbeing scores in post test 1 the null hypothesis was stated as follows.

Ho_1:

The mean post test wellbeing scores among the patient with cancer receiving radiation therapy who received foot reflexology will not be significantly better than their mean pretest level of wellbeing in experimental group.

Table 5 shows that in experimental group the mean pre test score is (80.46) in physiological wellbeing and was better than the post test 1 scores (51.47). The obtained 't' value (30.74) was statistically highly significant at P<0.001 level. So the researcher rejects null hypothesis and accepts research hypothesis.

- Psychological wellbeing in experimental group the mean pre test score is (78.3) and the mean post test score is (48.8). The standard deviation is (9.07) in pretest and the post test 1 standard deviation is (8.32). The obtained 't' value is (27.8) was statistically significant at P<0.001 level.

- Overall wellbeing in experimental group the mean pre test is (78.7) and the mean post test 1 is (24.7). The standard deviation of pre test (7.78) and post test (7.17). The 't' value is (13.82) statistically significant at P<0.001 level. So the researcher rejects null hypothesis and accepts researcher hypothesis.

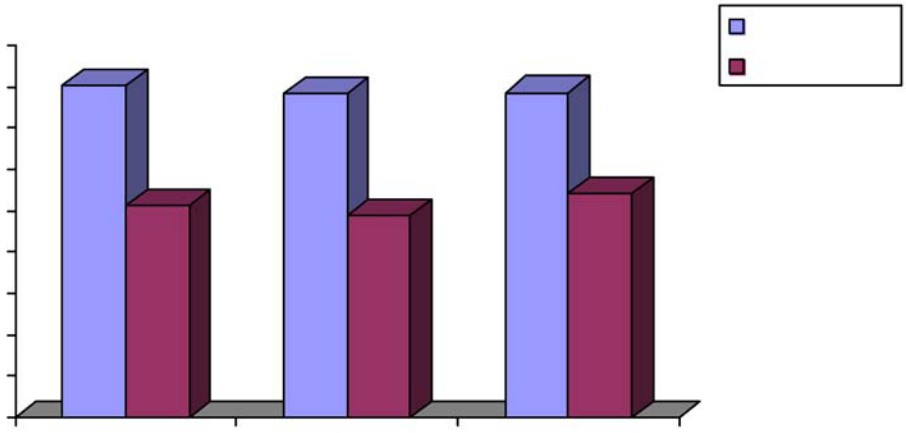


Figure 5: Comparison of mean pre test vs post test 1 scores of physiological, psychological and overall being patient with caner receiving radiation therapy in experimental group

Table 6: Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall being patient with caner receiving radiation therapy in experimental group.

Wellbeing	n	Pre test Mean	Pre test SD	Post test 2 Mean	Post test 2 SD	Mean difference	t-value	P-value
Physiological wellbeing	30	80.46	9.29	41	10.95	39.47	20.72	P<0.001*
Psychological wellbeing	30	78.3	9.07	33.47	6.75	44.83	25.71	P<0.001*
Overall wellbeing	30	78.7	7.78	42.2	9.71	36.5	15.89	P<0.001*

(*p<0.001, highly significant)

To find out if there is any difference between the mean scores of wellbeing in post test 2 the null hypothesis was stated as follows.

Ho_1:

The mean post test 2 wellbeing scores among the patients with cancer receiving radiation therapy who received foot reflexology will not be significantly better than their mean pre test level of wellbeing in experimental group.

Table 6 shows that in experimental group the mean pretest score is (80.46) and post test 2 value is (39.47) in physiological wellbeing, standard deviation of pretest and post test 2 is (9.29) and (10.95) and the obtained 't' value is (20.72) is statistically significant to P<0.001 level.

Psychological wellbeing: The mean pre test score is (78.3) and post test 2 value is (33.47), standard deviation pretest and post test is (9.07) and (6.75) and the obtained 't' value (25.71) is statistically significant to P<0.001 level.

Over all wellbeing: The mean pre test score is experimental group the mean pretest score is (78.7) and the post test 2 score is (42.2) in over all wellbeing, standard deviation pre test and post test is (7.78) and (9.71) and the obtained 't' value is (15.89) is statistically significant at P<0.001. So the researcher rejects null hypothesis and accepts researcher hypothesis.

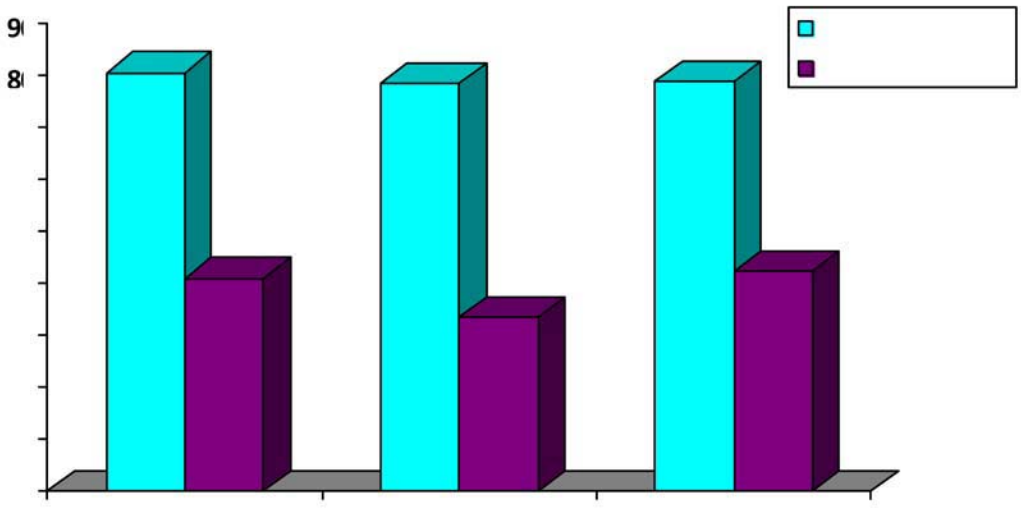


Figure 6: Comparison of mean pre test vs post test 2 scores of physiological,

psychological and overall being patient with caner receiving radiation therapy in experimental group.

Table 7: Comparison of mean pretest vs post test 1 and post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in experimental group.

Wellbeing		post test 1		Post test 2		Mean	t-value	P-value
	n	Mean	SD	Mean	SD	difference		
Physiological wellbeing	30	51.47	9.41	41	10.95	10.47	6.36	P<0.001*
psychological wellbeing	30	48.8	8.33	33.47	6.75	15.33	11.92	P<0.001*
Overall wellbeing	30	54.03	7.17	42.2	9.71	11.83	8.04	P<0.001*

(*p<0.001, highly significant)

To find out it there is an any difference between the mean level of wellbeing and after giving foot reflexology, the null hypothesis was stated as follows.

Ho_1:

The mean post test level of wellbeing among the patients with cancer receiving radiation therapy who received foot reflexology will not be significantly better than their mean pre test level of well being in experimental group.

Table 7 shows that in experimental group the mean post test 1 and posttest 2 score is (51.47) and (41), the standard deviation in post test 1 and post test 2 value is (9.41) and (10.95) in physiological wellbeing. The obtained ‘t’ value is (6.36) is statistically significant at $P<0.001$.

Psychological wellbeing the mean post test 1 and post test 2 score is (48.8) and (33.47). The standard deviation the value is pos test 1 and 2 is (8.33) and (6.75). The obtained ‘t’ value is (11.92) is statistically significant at $P<0.001$ level.

Overall wellbeing the mean post test 1 and post test 2 score iis (54.03) and (42.2), The obtained ‘t’ value is (8.04) is statistically significant at $P<0.001$ level. So the researcher is reject the null hypothesis and accepted the null hypothesis.

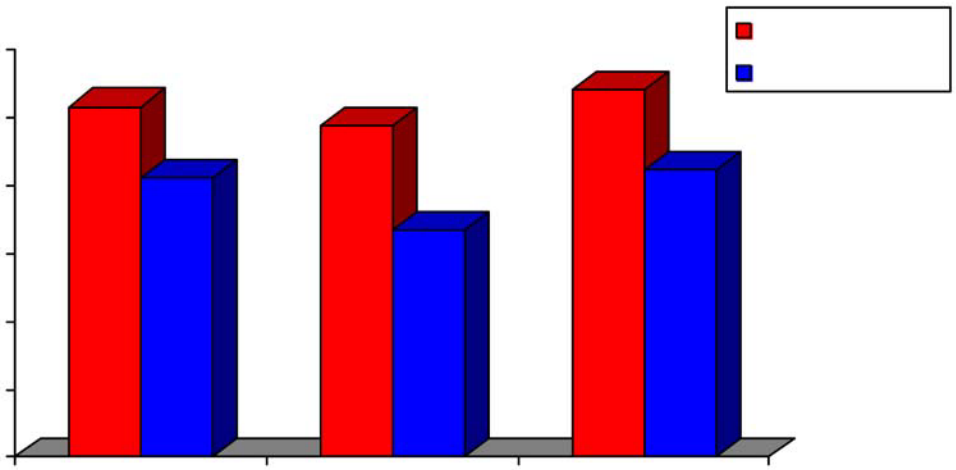


Figure 7: Comparison of mean pretest vs post test 1 and post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in experimental group.

Table 8: Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in control group.

Wellbeing	n	Pre test Mean	Pre test SD	Post test 1 Mean	Post test 1 SD	Mean difference	t-value	P-value
Physiological wellbeing	30	80.5	9.07	80.67	9.19	0.17	1.31	0.202
Psychological wellbeing	30	78.17	8.96	78.23	9.08	0.06	0.46	0.645
Overall wellbeing	30	78.9	7.83	78.97	7.64	0.07	0.57	0.572

(*-P<0.05 significant)

Table 8 shows that in control group the mean pre test score is (80.5) and the mean post test 1 score is (80.67), is higher than their pre test level, which shows as increase in the level of wellbeing. The obtained 't' value 1.31 is statistically non significant at P<0.05 level. (This findings obviously describe that, the more the subjects exposed to radiation therapy make them to develop more physiological and psychological symptoms of cancer.

Psychological wellbeing the table shows that the mean pre test score is (78.17) and post test 1 mean score is (78.23) and the obtained ‘t’ value is (0.46) is statistically non significant at P<0.05.

Overall wellbeing, the table shows that the mean pre test score is (78.9) and post test 1 mean score is (78.97) and the obtained ‘t’ value is (0.57) is statistically non significant at P<0.05 level.

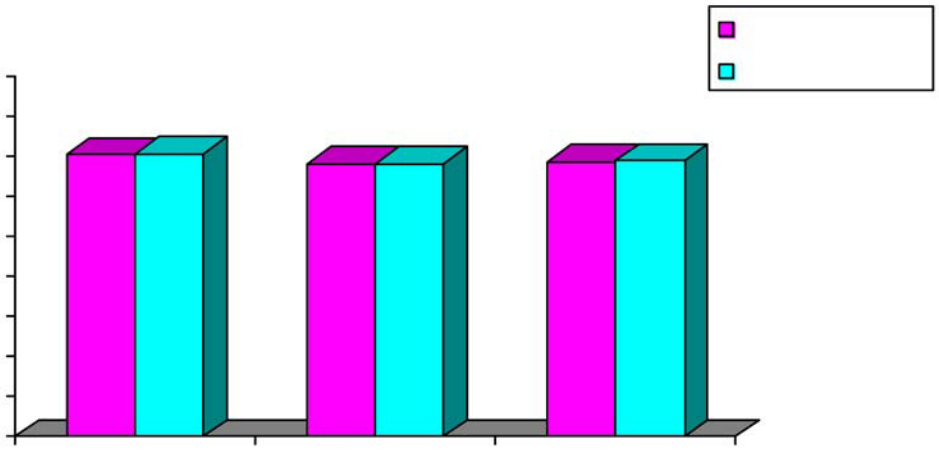


Figure 8: Comparison of mean pre test vs post test 2 scores of physiological,

psychological and overall wellbeing patient with cancer receiving radiation therapy in control group.

Table 9: Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall wellbeing patient with receiving radiation therapy in control group.

wellbeing	n	Pre test Mean	Pre test SD	Post test 2 Mean	Post test 2 SD	Mean difference	t-value	P-value
Physiological wellbeing	30	80.5	9.07	80.5	9.29	0	0	1
Psychological wellbeing	30	78.17	8.96	77.9	9.07	0.23	1.19	0.243
Overall wellbeing	30	78.9	7.83	78.6	7.75	0.27	1.22	0.21

(*-P<0.05 significant)

Table 9 shows that in control group the mean pre test level is (80.5) and the post test 2 mean score is (80.5) and the obtained ‘t’ value is (0) is statistically non significant at P<0.05 level.

Psychological wellbeing, the table shows that the mean pre test level is (78.17) and the post test mean is (77.9), the obtained ‘t’ value is (1.19) is statistically non significant at P<0.05 level.

Overall wellbeing, the table shows that the mean pre test is (78.3) and the post test mean is (78.6) and the ‘t’ value is (1.22) is statistically non significant at P<0.05 level. This findings obviously describe that, the more the subject develop more physiological and psychological symptoms of cancer.

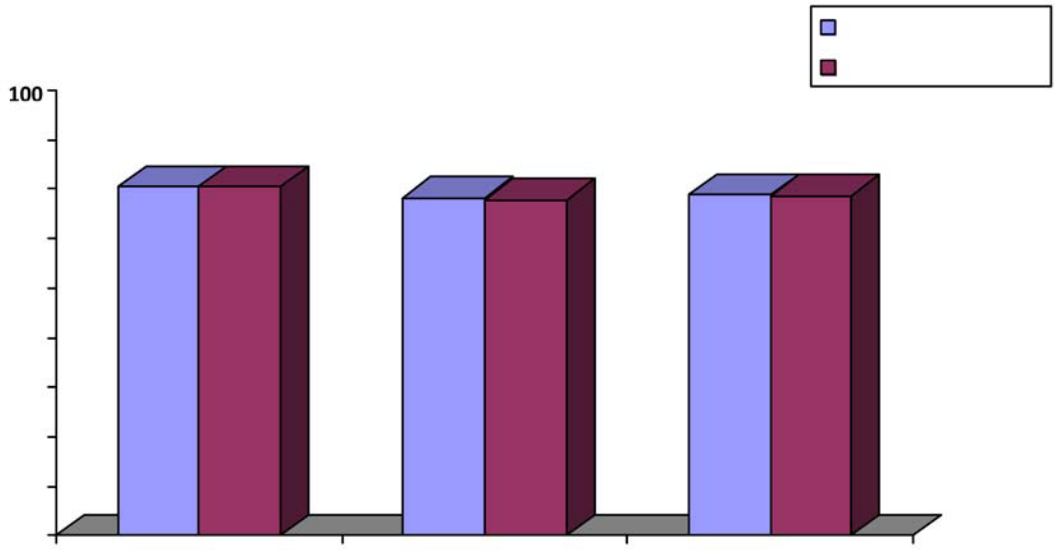


Figure 9: Comparison of mean pre test vs post test 2 scores of physiological, psychological and overall wellbeing patient with receiving radiation therapy in control group

Table 10: Comparison of mean pre test vs post test 1 and post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in control group

wellbeing	n	Post test 1 Mean	Post test 1 SD	Post test 2 Mean	Post test 2 SD	Mean difference	t-value	P-value
Physiological wellbeing	30	80.67	9.19	80.5	9.29	0.17	1.97	0.057
psychological wellbeing	30	78.23	9.08	77.9	9.07	0.3	1.94	0.06
Overall wellbeing	30	78.93	7.64	78.6	7.7	0.33	1.95	0.062

(*-P<0.05 significant)

Table 10 shows that in control group the mean pre test level is (80.67) and the post test mean is (80.5) and the obtained 't' value is (1.97) is statistically non significant at P<0.05 level in physiological wellbeing.

Psychological wellbeing, the table shows that the mean pre test level is (78.23) and the post test mean is (77.9), the obtained 't' value is 1.94 is statistically non significantly at P<0.05 level.

Overall wellbeing the table shows that mean pre test level is (78.93) and the post test mean is (78.6), the obtained 't' value is 1.95 is statistically non significant at P<0.05

level. This finding obviously describe that, the more, the subject develop more physiological and psychological symptoms of cancer.

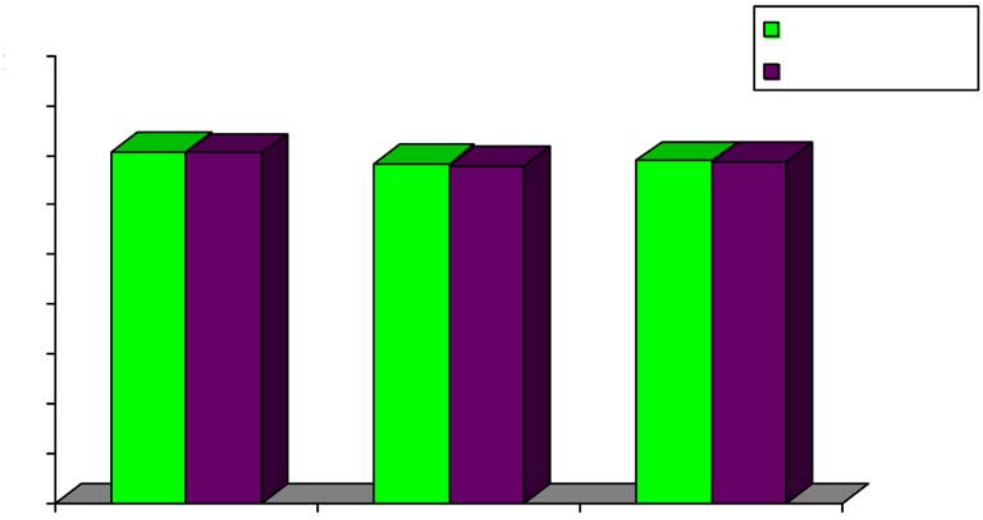


Figure 10: Comparison of mean pre test vs post test 1 and post test 2 scores of physiological, psychological and overall wellbeing patient with cancer receiving radiation therapy in control group

Table 11: Comparison of mean posttest 1 scores of physiological, psychological and overall wellbeing in experimental group and control group

Wellbeing	n	Experimental post test 1 Mean	SD	Control post test 1 Mean	SD	Mean difference	t-value	P-value
Physiological wellbeing	30	51.47	9.41	80.67	9.19	29.2	30.9	P<0.001*
Psychological wellbeing	30	48.8	8.32	78.23	9.08	29.43	28.44	P<0.001*
Overall wellbeing	30	54.03	7.17	78.97	7.64	24.93	14.14	P<0.001*

(*p<0.001, highly significant)

To find out if there is any difference between the mean post test level of wellbeing score between the experimental group and control group, the null hypotheses was stated as follows.

Ho_2:

The mean post test level of wellbeing score in experimental group of patients with cancer receiving radiation therapy will be significantly better than the mean post test score of patient with cancer receiving radiation therapy in control group.

The table 11 shows that the mean post test 1 score in experimental group, physiological wellbeing score is (51.47) and the mean post test 1 score in control group is (80.67) and obtained 't' value is (30.9) is statistically significant at P<0.001 level.

Physiological wellbeing, the table shows that the mean post test 1 score in experimental group is (48.8) and in control group is (78.23) and the obtained 't' value is (28.44) is statistically significant at P<0.001 level.

Overall wellbeing the table shows that the mean post test 1 score in experimental group is (54.03) and in control group (78.97) and the obtained 't' value is (14.14) is statistically significantly at P<0.001 level. The significant changes are due to the selected foot reflexology intervention only. So, the researcher is rejects null hypothesis and accepted research hypotheses.

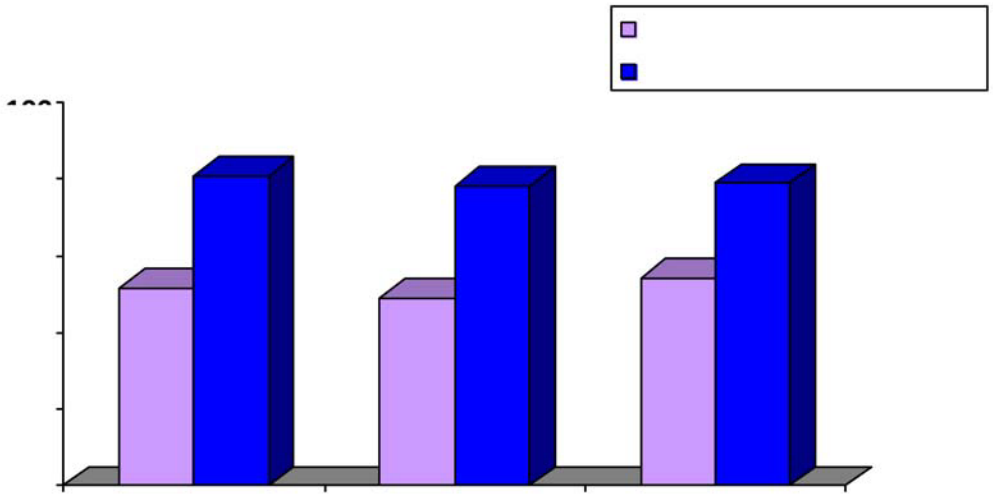


Figure 11: Comparison of mean posttest 1 scores of physiological, psychological and overall wellbeing in experimental group and control group

Table 12: Comparison of mean posttest 2 scores of physiological, psychological and overall wellbeing in experimental group and control group.

wellbeing	n	Experimental post test 2		Control post test 2		Mean difference	t-value	P-value
		Mean	SD	Mean	SD			
Physiological wellbeing	30	41	10.95	80.5	9.29	39.5	20.7	P<0.001*
Psychological wellbeing	30	33.47	6.75	77.9	9.07	44.47	25.69	P<0.001*
Overall wellbeing	30	42.2	9.71	78.6	7.7	36.43	15.99	P<0.001*

(* p<0.001, highly significant)

To find out if there is any difference between the mean post test level of wellbeing score between the experimental group and control group, the null hypotheses was stated as follows.

Ho_2:

The mean post test level of wellbeing score in experimental group of patients with cancer receiving radiation therapy will not be significantly better than the mean post test score of patient with cancer receiving radiation therapy in control group.

The table 12 shows that the mean post test 2 score in experimental group, physiological wellbeing score is (41) and in control group (80.5) and the obtained 't' value is (20.7) is statistically significant to the value of P<0.001.

Psychological wellbeing the table shows that the mean post test 2 score in experimental group is (33.47) and in control group is (77.9), the obtained ‘t’ value is (25.69) is statistically significant at P<0.001 level.

Overall wellbeing, the table shows that the mean post test 2 score in experimental group is (42.2) and in control group is (78.6) and the ‘t’ value is (15.99) is statistically significant to the value of P<0.001 level. The significant changes are due to the foot reflexology intervention only. So the researcher rejects null hypothesis and accepts the researcher hypothesis.

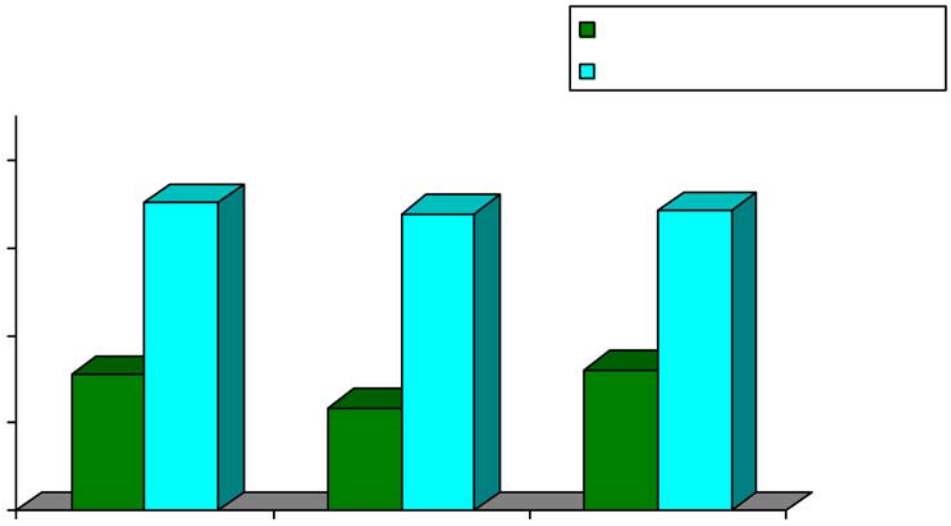


Figure 12: Comparison of mean posttest 2 scores of physiological, psychological and overall wellbeing in experimental group and control group

SECTION – IV

Table 13: Correlation between the scores of physiological, psychological and overall wellbeing in experimental group

Variables	Experimental pre test		Experimental post test 1		Experimental post test 2	
	'r'-value	**P-value**	**'r'-value**	**P-value**	**'r'-value**	**P-value**
Physiological and psychological wellbeing	0.706	P<0.001	0.725	P<0.001	0.77	P<0.001

To find out if there is correlation between physiological and psychological wellbeing the null hypothesis was stated as follows. There will be no positive correlation between physiological and psychological wellbeing.

Ho_3:

The table 13 shows that to find out the correlation between physiological, psychological and overall wellbeing among patients with cancer receiving radiation therapy in experimental group pretest 'r' value is (0.706) is statistically significant at P<0.001 level and in post test 1 and post test 2 the 'r' value is (0.725) and (0.77) is statistically significant at P<0.001 level. So, the research rejects null hypothesis and accepts the research hypothesis.

Table 14: Comparison of pretest, posttest 1 and post test 2 scores of physiological, psychological and overall wellbeing by repeated measures of ANOVA method

Test	Physiological wellbeing				Psychological wellbeing				Overall wellbeing			
	Mean	SD	F-value	P-Value	Mean	SD	Fvalue	P-Value	Mean	SD	F-value	P-Value
Pre Test	80.47	9.29			78.3	9.0			78.7	7.7		
Pre Test 1	51.47	9.41	346.976	P<0.001	48.8	7	535.1	P<0.001	54.0	7	195.94	P<0.001
Pre Test 2	41	10.95			33.4	8.3	9		3	7.1	8	
						2			42.2	7		
						6.7				9.7		
						5				1		

The table 14 shows that the mean score in pre test (80.47) and after giving intervention post test 1 value is (51.47) and 2 post test value is (41) in physiological wellbeing and the obtained ‘F’ value is (346.976) is statistically significant at P<0.001 level.

In psychological the mean score is (78.3) in pretest and after giving intervention the posttest value of 1 and 2 is (48.8) and (33.4) and the obtained ‘F’ value is (535.19) is statistically significant at P<0.001 level.

In overall wellbeing the mean score in post test is (78.7) and in post test 1 and 2 the value is (54.03) and (42.2) the obtained ‘F’ value is (195.948) is statistically significant at P<0.001 level. So, the intervention is reducing the symptoms effectively.

CHAPTER – V

DISCUSSION

The aim of this study was to evaluate the effectiveness of foot reflexology on physiological and psychological wellbeing among the patient with cancer receiving radiation therapy in a selected hospital at Madurai.

The study sample consisted of 30 samples in experimental group and 30 samples in control group. The tool used as modified memorial symptom assessment scale.

The findings of the study were discussed in the chapter with reference to the objectives of the study.

Distribution of sample with regard to demographic and clinical variables:

The sample of the study included in this study

- With regards to age in experimental group (36.7%) of samples were 51-60 yrs and 1/3 of them (30%) of samples were 40-51 yrs in control group.
- Regarding sex in experimental groups both gender are equal in sample were male and female (50%) respectively.
- Regarding marital status in experimental group 3/4 of them married (76.7%) and control group of them married (80%).
- Regarding education in experimental and control group majority of the sample were on primary school (53.3%) and (46.7%).
- Regarding occupation in experimental and control group majority of the sample were non-professional (60%) and (66.7%).
- With regard to economic in experimental and control group majority of the sample were earning below Rs.1000/month (33.3%) and (70%).

- ❖ Regarding religion half of the samples were Hindus in experimental and control group (53.3%) and (43.3%).
- ❖ Regarding domicile half of the samples were belongs to rural area in experimental and control group (60%) and (66.7%).
- ❖ Regarding behavioral variables among half of the samples were both (pan chewing, alcoholism and smoking) in experimental group (46.7%) and in control groups half of the samples were both (pan chewing, alcoholism and smoking) (33.3%).
- ❖ Regarding to the duration of treatment both in experimental group and control group majority of the samples were found to have 1 year in experimental group (36.7%) and (43.3%) in control group.
- ❖ Regarding comorbid condition in experimental group majority of the samples were found to have asthma (36.7%) and in control group almost majority of the sample were having hypertension (43.3%)
- ❖ Regarding to the duration of illness in experimental group and control group majority of the sample were 2 years of treatment 9 (30%) and 11 (36.7%).
- ❖ Regarding BMI majority of the samples were below 25 in experimental and control group 20 (77.3%) and 27 (90%).

The first objective of the study was to assess the physiological and psychological wellbeing among patients with cancer receiving radiation in experimental group:

Table 3 shows the physiological, psychological and overall wellbeing obtained the subjects classified into 4 groups good (1-25%), moderate (26-50%), poor (49-70%) and worst (76-100%).

In experimental group before giving foot reflexology show that physiological wellbeing, 11 (36.7%) were in poor well being and 19 (63.3%) were in worst wellbeing in pre test and in post test 1 and post test 2 the sample were improved moderate 12 (40%) and 24 (80%). In psychological wellbeing 8 (26.1%) in poor well being 22 (73.3%) were in worst wellbeing and after giving foot reflexology the samples were from poor wellbeing improved 2 moderate wellbeing in post test 1 post test 2 the score is 15 (50%) and 27 (90%).

In over all wellbeing the pretest score is 10 (33.3%) in poor wellbeing and the samples after giving intervention wellbeing then the post test 1 and post test 2 score is 8(26.7%) and 24 (80%). So in experimental group the sample were improved to the good and moderate wellbeing from poor and worst wellbeing.

A similar findings was evident on a study conducted by Kerry and Courneya, (2014). They explained that currently more than 20 studies have examined the foot reflexology using an randomized control trial design. The evidence suggested that foot reflexology improved cancer related symptoms during and after cancer treatments of radiation therapy although few studies have focused on patients with cancer symptoms related radiation therapy. Intervention testing and prescription in cancer survivors with cancer related must take into account the extent of cancer related symptoms and morbidity caused by treatments.

Another study conducted by Shariati etal., (2010). The effect of foot reflexology on the severity of symptoms in colorectal cancer patients who received radiation therapy. The sample included 36 people. The patients had 20-30 minutes of foot reflexology, 4 times a week for 4 weeks. Data were analyzed using SPSS software. The findings

showed, mean of the severe of the symptoms was 3.69 on the week 0 (before the intervention), and decreased to 3.57 of the first week after intervention, 3.46 on the second week. 2.58 on the third week, and 1.69 on the fourth week.

Similar findings was expressed by Pathak etal., (2013), conducted a study to evaluate effectiveness of foot reflexology on pain, nausea, anxiety and depression among hospitalized cancer patients receiving radiotherapy. Total of 100 participants 50 in each intervention and control group were included and the intervention group received four session of foot reflexology for 15-30 minutes in 4 weeks. Symptom assessment scale was used in this study, there was significant difference ($P<0.01$) in symptoms (4.42±2.35) to post (4.01±2.05) scores among intervention group. They concluded that foot reflexology along with routine standard treatment was effective in reducing pain, nausea, anxiety and depression among hospitalized cancer patients receiving radiotherapy.

The first objective of the study was to assess the physiological and psychological wellbeing among patients with cancer receiving radiation in control group:

Table-4 shows that in the physiological wellbeing in good (0%) in pretest and post test, moderate (0%) in both pretest and posttest, poor (36.7%) in pretest but in post test in only (33.3%), worst pre test is (63.3%) and in post test it increase to (66.7%).

- Psychological wellbeing show that, good (0%) in both pretest and post test, moderate (0%) in pretest and post test, poor wellbeing in pretest is 30% but in post test is 26.7%, worst wellbeing pretest is (70%) and it is increases to (73.3%).
- Overall wellbeing shows in good (0%) in pretest and posttest, moderate (0%) in both pretest and posttest, poor wellbeing in pretest (33.3%) and in post test also same (33.3%), worst wellbeing pre test (66.7%) and in post test also (66.7%).

Courneya et al., (2007) studied the clinical course and prognosis of physiological and psychological symptoms like pain, nausea, vomiting, hair loss, anxiety and depression over course of radiation therapy among 76 patients with breast cancer in Canada. Edmonton symptom assessment scale used from the time of treatment to 6 months post treatment to findout the symptoms. The findings revealed physiological and psychological symptoms increased over the course of treatment was highest at the last week of treatment and returned to pre treatment levels by 3 months after treatment.

The second objective was to find out the effectiveness of foot reflexology on physiological and psychological wellbeing among patient with cancer receiving radiation therapy in experimental group:

As per the table 5 shows that the mean pre test level of wellbeing in experimental group the mean pretest score is (80.46) in physiological wellbeing and 1st post test mean score is (51.47), which is lower than the pretest level of wellbeing.

In psychological wellbeing in experimental group the mean pre test score is (78.3) and the mean post test score is (48.8).

In overall wellbeing in experimental group the mean pre test is (78.7) and the mean 1st post test is (24.7).

As per the table 6 shows that the mean post test 2 score of wellbeing in experimental group mean pre test score is (80.49) post test score is (39.47) in physiological wellbeing.

In psychological wellbeing the mean pre test score is (78.3) and post test 2 score is (33.47), which is lower than the mean posttest.

Over all wellbeing the mean pre test score is (78.7) and the post test 2 score is (42.2).

As the table 7 shows that the experimental group the mean post test score in 1 and 2 is (51.47) and (41) which is lower than the pretest value in physiological wellbeing.

Psychological wellbeing shows the value of mean posttest score in 1 and 2 in (48.8) and (33.47).

Overall wellbeing shows the value of mean post test score in 1 and 2 is (54.03) and (42.2).

The second objective was to find out the effectiveness of foot reflexology on physiological and psychological wellbeing among patient with cancer receiving radiation therapy in control group:

As per the table 8 shows that in control group the mean pre test score is (80.5) and the mean post test 1 score is (80.67), is higher than their pre test level, which shows as increase in the level of wellbeing.

Psychological wellbeing the table shows that the mean pre test score is (78.17) and post test 1 mean score is (78.23) and overall wellbeing, the table shows that the mean pre test score is (78.9) and post test 1 mean score is (78.97) in control group.

As the table 9 shows that in control group the mean pre test level is (80.5) and the post test 2 mean score is (80.5). Psychological wellbeing pre test level is (78.17) and the post test mean is (77.9) and overall wellbeing pre test mean value is (7.83) and the post test mean is (78.6).

As the table 10 shows the pre test 1 and post test 2 mean value in the physiological wellbeing is (80.67) and (80.5), psychological wellbeing, the post test 1 and

post test 2 is (78.23) and (77.9) and overall wellbeing shows the values of post test 1and 2 is (78.93) and (78.6). So the experimental group mean posttest value which was lower than the mean posttest value in control group.

Present study findings co-insides with the study findings of Hosakote etal., (2009), who had conducted a study in the effects of foot reflexology on symptom management in breast cancer patient undergoing radiation therapy. Rooterdam symptom check list tool in this study. 88 samples randomly assigned to receive foot reflexology (n=44) or brief supportive therapy (n=44) or brief supportive therapy (n=44). Intervention consisted of foot reflexology lasting 30 minutes daily. The result was significant in improvement of the wellbeing level (P=0.02) in the foot reflexology.

The third objective was to find out the relationship between physiological and psychological wellbeing among patient with caner receiving radiation therapy:

As per the table 11 showed, there was the post mean 1 and 2 score in experimental group and control group in physiological wellbeing is (51.47) and (80.67) the 1st mean post test of experimental group is lower than in control group.

In psychological wellbeing scores of 1 and 2 posttest scores in experimental and control group is (48.8) and (78.23). Overall wellbeing shows that in 1 and 2 post test mean values in experimental and control group is (54.03) and (78.97).

Table 12 shows that post test 2 means of experimental and control group in physiological wellbeing is (41) and (20.7).

In psychological wellbeing the values of mean post test 2 in experimental and control is (33.47) and (77.9).

Overall wellbeing the values of mean post test 2 in experimental and control group is (42.2) and (78.6).

Wilkinson, Lockchart, Ganbles, and Storey (2008) have a conducted a systemic review examining the research evidence based for the effectiveness of reflexology in cancer treatment of chemotherapy and radiation therapy. Participants were adults with a diagnose of cancer, receiving care in health care setting. They showed an outcome of improvement in physical and psychological factors and improvement in their quality of life, which was measured using validated assessment tools.

SUMAMRY:

Foot reflexology can be nurse initiated intervention that has the advantages of being therapeutic for the cancer patients. Foot reflexology is a therapy intended to integrate physical, emotional and spiritual. Therefore it is important for nurses as well as for student nurse to knowledgeable of the complementary and alternative therapies and to provide accurate information of both cancer patients and other health care professionals.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATION

This chapter presents the summary, major findings, conclusion, implication and recommendation of the study.

SUMMARY OF THE STUDY:

The aim of the study was to assess the effectiveness of foot reflexology on physiological and psychological wellbeing among patients with cancer receiving radiation therapy.

THE OBJECTIVES OF THE STUDY:

1. To assess the physiological and psychological wellbeing among patients with cancer receiving radiation therapy in experimental and control group.
2. To find out the effectiveness of foot reflexology on physiological and psychological well being among patients with cancer receiving radiation therapy.
3. To find out the relationship between physiological and psychological wellbeing among patient with cancer receiving radiation therapy.

Following hypothesis were set for the study, and all hypothesis were test at 0.001 level of significance

- The mean post test physiological and psychological wellbeing of the patient with cancer receiving radiation therapy who received foot reflexology will be significantly lower than their mean pretest physiological and psychological wellbeing score in experimental group.

- ❖ The mean post test physiological and psychological wellbeing among patient with cancer receiving radiation therapy who received foot reflexology in the experimental group will be significantly lower than the mean post test physiological and psychological wellbeing score of patients with cancer receiving radiation therapy in control group.
- ❖ There will be a significant positive relationship between physiological and psychological wellbeing among patient with cancer receiving radiation therapy who received foot reflexology.

MAJOR FINDING OF THE STUDY:

Demographic Characteristics of the Samples:

- ❖ With regards to age in experimental group (36.7%) of samples were 51-60 yrs and 1/3 of them (30%) of samples were 40-51 yrs in control group.
- ❖ Regarding sex in experimental groups both gender are equal in sample were male and female (50%) respectively.
- ❖ Regarding marital status in experimental group 3/4 of them married (76.7%) and control group of them married (80%).
- ❖ Regarding education in experimental and control group majority of the sample were on primary school (53.3%) and (46.7%).
- ❖ Regarding occupation in experimental and control group majority of the sample were non-professional (60%) and (66.7%).
- ❖ With regard to economic in experimental and control group majority of the sample were earning below Rs.1000/month (33.3%) and (70%).

- ❖ Regarding religion half of the samples were Hindus in experimental and control group (53.3%) and (43.3%).
- ❖ Regarding domicile half of the samples were belongs to rural area in experimental and control group (60%) and (66.7%).
- ❖ Regarding behavioral variables among half of the samples were both (pan chewing, alcoholism and smoking) in experimental group (46.7%) and in control groups half of the samples were both (pan chewing, alcoholism and smoking) (33.3%).
- ❖ Regarding to the duration of treatment both in experimental group and control group majority of the samples were found to have 1 year in experimental group (36.7%) and (43.3%) in control group.
- ❖ Regarding comorbid condition in experimental group majority of the samples were found to have asthma (36.7%) and in control group almost majority of the sample were having hypertension (43.3%)
- ❖ Regarding to the duration of illness in experimental group and control group majority of the sample were 2 years of treatment 9 (30%) and 11 (36.7%).
- ❖ Regarding BMI majority of the samples were below 25 in experimental and control group 20 (77.3%) and 27 (90%).

In experimental group (36.7%) of the samples were in poor wellbeing before giving the foot reflexology. Where as after giving foot reflexology (13.3%) had reduced to poor wellbeing.

In control group (63.3%) of the samples were in poor wellbeing on pretest where as in the post test (66.7%) had poor wellbeing.

Mean posttest level of wellbeing scores in experimental group in physiological is (51.47%), psychological (48.8%) and over all wellbeing (54.03%) was improved after giving selected foot reflexology. The obtained ‘t’ value is greater than the table value. The indicates the foot reflexology in physiological, psychological and overall wellbeing is effective in reducing the cancer symptoms.

The posttest level of wellbeing in physiological is (80.46) was lower than the mean pretest level of wellbeing in physiological (51.47) in the experimental group.

The posttest level of wellbeing in psychological is (78.3) was lower than the (48.8) in the experimental group.

The posttest level of welling in over all is (78.7) was lower than the (54.03) in experimental group. The levels of wellbeing were improved after giving foot reflexology.

The post test 1 scores of wellbeing in physiological is (80.5) was higher than the pretest level of wellbeing in physiological (80.5) and pretest in control group.

The posttest 2 score in psychological is (78.23) was higher than the pretest scores of wellbeing in psychological (78.17) in control group.

The posttest score of wellbeing in overall is (78.97) was higher than the pretest is (78.9) in control group.

Mean post test scores of wellbeing in experimental group (51.47) in physiological, (48.8) in psychological (54.03) overall wellbeing after giving the foot reflexology was lower than the mean post test scores of wellbeing in control group (80.67%) in physiological, (78.23%) in psychological and over wellbeing (78.97%). The obtained ‘t’ value is greater than the table value. This indicates that the selected foot

reflexology in physiological and psychological wellbeing is effective in reducing the cancer symptoms.

CONCLUSION:

The following conclusion were drawn from the study.

Patients with cancer related physiological and psychological wellbeing undergoing radiation therapy showed significant improvement in the level of wellbeing after receiving foot reflexology. This study findings showed that there was positive correlation between physiological and psychological wellbeing.

IMPLICATIONS:

This study has many implications in the field of nursing this includes nursing practice, nursing education, nursing research and nursing administration.

NURSING PRACTICE:

1. The findings of the study enlighten the fact that, foot reflexology can be used to reduce the physiological and psychological symptoms among patients with cancer receiving, radiation therapy.
2. Nursing personal are in the best position to implement the selected intervention of foot reflexology to the client who are experiencing the physiological and psychological symptoms of patient with cancer receiving radiation therapy.
3. Selected intervention of foot reflexology can be used to reduce the physiological and psychological symptoms of patient with cancer.
4. The finding of the study revealed that patients enjoyed the comfort rendered by these interventions.

5. The study findings will help the nursing personnel to include these nursing intervention in the management of cancer patients undergoing radiation therapy.

NURSING EDUCATION:

1. The study has clearly proved that selected foot reflexology were effective in reducing the physiological and psychological symptoms and improving the quality of life among cancer patients undergoing external radiation therapy.
2. The findings would help nursing faculty to give importance for giving selected foot reflexology intervention to reduce cancer symptoms.
3. conducting in service education on the effect of foot reflexology to reduce and psychological symptoms among patient undergoing external radiation therapy.
4. The content should be incorporated in the nursing curriculum so that nursing students can gain knowledge on selected foot reflexology intervention and can practice these measures to reduce physiological and psychological symptoms of cancer and improve the quality of life among with cancer receiving external radiation therapy.
5. Nurses educators should encourage students to give health education about foot reflexology to reduce physiological and psychological symptoms of patient with cancer receiving radiation therapy.

NURSING RESEARCH:

- ❖ Extensive research must be conducted for the cancer patients to identify the effectiveness of selected foot reflexology intervention in reducing physiological and psychological symptoms.
- ❖ This study can be a baseline for further studies to build upon.

NURSING ADMINISTRATION:

- Necessary in service education is to provide to the nursing personnel at various levels to make them aware of selected foot reflexology in hospital setup.
- Update the clinical nurses and nurse educator's knowledge about selected foot reflexology through workshop, conferences to reduce the level of symptoms among patients undergoing external radiation therapy.
- Clinical nurses and nurse educator should be given in-service education to update knowledge on screening and monitoring the level of physiological and psychological wellbeing among cancer patients undergoing external radiation therapy.
- Nurse administrators can encourage the nursing personnel to conduct research on various aspects on interventions to reduce cancer related symptoms and to improve quality of life.

LIMITATIONS:

- The study was done on small sample size of 60, hence generalization is possible only for the selected populations in Devaki Cancer and Research Institute, Madurai during the data collection period.
- This study data collection was limited to 6 weeks.

RECOMMENDATIONS:

- The study can be conducted using large population to generalize the findings.
- A longitudinal study can be conducted to assess the effectiveness of selected foot reflexology on reducing cancer related symptoms.
- This study can be done as a comparative study with other interventions.

- ❖ Phenomenological study can be done to assess the effectiveness of selected foot reflexology in reducing other variables like QOL and post chemotherapy.

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RELATED WEBSITES:

- auckland radioncology.co.nz/…aerobic-exercises-reduces-radiation therapy symptoms.
- en.wikipedia.org/wiki/cancer-related radiation therapy symptoms.
- jco.ascopubs.org/content/32/17/1840.full
- www.mac millan.org.uk>....>symptoms& side effects.
- http://en.wikipedia.org/wiki/radiationtherpay
- https://www.cancercare.on.cancer
- http://www.footrefloxogist.com
- http://www.who2007oncologyprevalence.on.cancer.
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- http://www.pubmed.com
- http://www.psychiatricratingscale.com
- http://www.reflexology-research.com
- http://www.wikipedia.org

APPENDIX – I

ULTRA TRUST

4 / 235, COLLEGE ROAD,
THASILDAR NAGAR,
MADURAI - 625 020.
TAMILNADU, INDIA.
PHONE : 0452 - 2534593
Email : ultratrust@rediffmail.com

Ref : UT : SHNC:Ph.D(N) : 2015

Date : 13.07.2015

ETHICAL COMMITTEE

The following members of the ethics committee were present at the meeting held on 13.07.2015 at 2.15 pm in Sacred Heart Nursing College.

CHAIR PERSON

1. Dr.SABHESAN, M.B.B.S. DPM, MNAMS, Ph.D.
   Head, Department of Psychiatry
   CSI Mission Hospital, Madurai.

DEPUTY CHAIRMAN

2. Dr.NALINI JEYAVANTH SANTHA, M.Sc., (N) Ph.D.
   Principal, Sacred Heart Nursing College, Madurai – 625 020.

MEMBER SECRETARY

3. Dr. S.CHANDRAKALA, M.Sc., (N) Ph.D
   Vice Principal, Sacred Heart Nursing College, Madurai – 625 020.

MEMBERS PRESENT

4. Dr. JULIET SYLVIA, M.Sc., (N) Ph.D.
   Head, Department of Community Health Nursing,
   Sacred Heart Nursing College, Madurai – 625 020.

5. Prof. DEVAKIRUBAI, M.Sc., (N) Ph.D.
   Professor, Department of Medical Surgical Nursing,
   Sacred Heart Nursing College, Madurai – 625 020.

...2...

SACRED HEART NURSING COLLEGE
ULTRA TRUST

4 / 235, COLLEGE ROAD,
THASILDAR NAGAR,
MADURAI - 625 020.
TAMILNADU, INDIA.
PHONE : 0452 - 2534593
Email : ultratrust@rediffmail.com

Ref : UT : SHNC:Ph.D(N) : 2015

Date : 13.07.2015

6. Dr. VIJAYA, M.Pharm., Ph.D
Dean, Clinical Pharmacologist
Ultra College of Pharmacy, Madurai

7. Mr. CHINNAKARUPPAN M.A., B.L., DCFSC
Advocate and Notary Public,
14, Asari Street, Thallakulam, Madurai – 2.

8. Dr. RAJASEKARAN, M.B.B.S, D.F.M. D.Diab
Pathologist
Best Dental Science College,
Ultra Trust,
Ultra Nagar, Madurai

RESOLUTION – 2/2015

It is resolved to accept **Ms. KARTHIKA S.** to conduct a study "A study to evaluate the effectiveness of foot reflexology on physiological and psychological well being among patients with cancer receiving radiation therapy in Devaki Hospital of Madurai"

The institutional Ethics Committee expects to be informed about the progress of the study, any changes in the protocol, patient information and asks to be provided a copy of the final report.

Yours Sincerely

Chair Person
Ethics Committee

Dr.SABHESAN, M.B.B.S. DPM, MNAMS, Ph.D.

Member Secretary
Ethics Committee

Dr. S.CHANDRAKALA , M.Sc., (N) Ph.D
Prof. S. CHANDRAKALA, MSc. (N)
VICE PRINCIPAL, HOD OF MED. SUR.DEPT.
SACRED HEART NURSING COLLEGE
ULTRA TRUST, MADURAI-20

APPENDIX – II (English)

CONSENT FORM

All the details of this study had been explained to me. I am aware that the information collected from me will be used for the purpose of the study. I am also assured that there is no complication in doing and that all the information collected will be highly confidential. Thereby I am willing to participate in this study on my own interest and wish.

Place: **Participant's Signature**

Date:

Researcher's Signature

APPENDIX – II (Tamil)

xg;g[jy; gotk;

vdf;F ,e;j Muha;r;rpapd; KG tpsf;fKk; vLj;Jiuf;fg;gl;lJ/ ehd; ,e;j Muha;r;rpapd; nehf;fj;ij mwpe;J ehd; KG jfty;fis bjhptpf;fpnwd;/ ehd; ,e;j Muha;r;rpapy; ve;j gpd; tpist[fSk; ,y;iy vd;gij mwpe;njd;/ ehd; bfhLj;j tptu';fs; midj;Jk; ghJfhf;fg;gLtij mwpe;njd;/ ,jdhy; ehd; vd;Dila KG rk;kjj;ij ,jpy; fye;J bfhs;tjw;F bjhptpf;fpnwd;/

,lk;? fye;J bfhs;gthpd; ifbahg;gk;

njjp ?

Muha;r;rpahshpd; ifbahg;gk;

APPENDIX – III

COPY OF LETTER SEEKING PERMISSION

TO CONDUCT THE STUDY IN SELECT in Devaki Hospital

Dr. NALINI JEYAVANTH SANTHA
Principal.

4/235, COLLEGE ROAD
THASILDAR NAGAR
MADURAI – 625 020
PHONE: 2534593

Ref. UT : SHNC : 2014

Date:

To
The Manager
Devaki Cancer and Research Institute,
Arasaradi,
Madurai.

Respected Sir / Madam,

Sub: Sacred Heart Nursing College, Madurai – Project work of M. Sc (Nursing) student – permission requested – reg.

We wish to state that Ms.S.Karthika, II year M. Sc (Nursing) student of our college has to conduct a Research project, which is to be submitted to The Tamilnadu Dr. M.G.R. Medical University, Chennai in partial fulfillment of University requirements.

The topic of research project is "A study to evaluate the effectiveness of foot reflexology on physiological and psychological wellbeing among patients with cancer who is receiving radiation therapy in selected hospital at Madurai"

We therefore request you to kindly permit her to do the research work in your organization under your valuable guidance and suggestions.

Thanking you,

Yours faithfully,

Principal
(Dr. NaliniJeyavanthyaSantha)

C. NALINI JEYAVANTH SANTHA, M.Sc., Ph.D.
Principal
SACRED HEART NURSING COLLEGE
Madurai - 625 020.

V. Peace

DEVAKI DIAGNOSTIC (P) LTD. 26, Theni Main Road, Arasaradi, MADURAI-16.

To meet Dr. Rajaram

APPENDIX – IV

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool developed by **Mrs.KARTHIKA,** II year M.Sc (N) student of Sacred Heart Nursing College, Madurai. (Affiliated to Dr.M.G.R. Medical University, Chennai) is validated by the undersigned, can proceed with this tool and conduct the main study for dissertation entitled **"A study to evaluate the effectiveness of foot reflexology on physiological and psychological wellbeing among patients with cancer receiving radiation therapy in selected hospital of Madurai".**

SIGNATURE:

PLACE:

NAME:

DATE:

DESIGNATION:

ADDRESS:

APPENDIX – V

LIST OF EXPERTS

1. **Dr. K.S. Krishna Kumar, M.B.B.S., M.D., (RT)**

   Radiation Oncologist,

   Meenakshi Mission, Madurai.

2. **Dr.Krishna Kumar Rathnam, M.D., D.M., DNB., PDCR., EUMO**

   Medical Oncologist,

   Meenakshi Mission, Madurai

3. **Dr.B. Ananthavalli, M.Sc., M.A., M.Phil., Ph.D.,**

   Director & Secretary,

   The Valliammal Institution, Madurai

4. **Dr.Nalini Jeyavantha Santha, M.Sc(N)., Ph.D.,**

   Principal,

   Sacred Heart College of Nursing, Madurai

5. **Dr. Chandrakala, M.Sc(N), Ph.D.,**

   Vice Principal,

   Sacred Heart College of Nursing, Madurai.

6. **Prof.Devakirubai, M.Sc(N)., Ph.D.,**

   Professor,

   Sacred Heart College of Nursing, Madurai.

7. **Mrs. Manjula, M.Sc(N), Ph.D.,**

   Professor,

   Sacred Heart College of Nursing, Madurai.

8. **Mrs.Thangapappa, M.Sc(N).,**

Asso. Professor,

Sacred Heart College of Nursing, Madurai.

9. **Mr.Mani, M.Sc., M.Phil.,**

Bio-Statistician,

Meenakshi Mission, Madurai.

APPENDIX – VI

THE VALLIAMMAL INSTITUTION (TVI)

2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony , Madurai-625 009.

✆ 98942 49630; 98430 40226 email: ananthibetsy@rediffmail.com

Reg. No. PCC/48/June 15/302 Date: 10/06/15

Certificate Course in Basic Counselling Skills and Foot Reflexology

This is to certify that .....KARTHIKA .S..... *has completed our* **CERTIFICATE COURSE IN BASIC COUNSELLING SKILLS AND FOOT REFLEXOLOGY** *(24 hrs Part-time Education Programme designed and offered by experts) by effectively participating in theory & practical classes and successfully completing all the exercises. She has been placed in First Class*

THE VALLIAMMAL INSTITUTION (TVI) 2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony , Madurai-625 009 Ph: 4210258

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

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

APPENDIX – VII

TOOL TO ASSESS THE LEVEL OF WELLBEING

TOOL – I

Demographic Variable:

Age	:	a) 21 – 30 years
		b) 31 – 40 years
		c) 41 – 50 years
		d) 51 – 60 years
		e) 61 – 70 years
Sex	:	a) Male
		b) Female
Marital Status	:	a) Married
		b) Unmarried
		c) Divorced
		d) Separated
		e) Widow / Widower
Educational Status	:	a) Illiterate
		b) Primary School
		c) Secondary school
		d) Higher secondary school
		e) College
Occupational History	:	a) Professional
		b) Non professional
		c) Coolie / Housewife

Economic Status : a) Below 1000

b) 1000 – 2000

c) 2000 – 3000

d) Above 3000

Religion : a) Hindu

b) Muslim

c) Christian

Domicile : a) Urban

b) Rural

Clinical Variables:

Behavioural Variables:

a. Smoker
b. Pan chewing
c. Alcohol
d. Both (smoking, alcohol, pan chewing)
e. None

Duration of Treatment : a) 1 years

b) 2 years

c) 3 years

d) > 4 years

Duration of Cancer : a) 1 years

		b) 2 years
		c) 3 years
		d) >4 years
Presence of Comorbid condition	:	a) Tuberculosis
		b) Hypertension
		c) Asthma
		d) Diabetes mellitus
BMI	:	Weight (kg) / Height/m^2

TOOL – II (English)

MODIFIED MEMORIAL SYMPTOM ASSESSMENT SCALE

PRE TEST														POST TEST											
Did you have any of the following symptoms	**How often did you have it?**				**How severe was it usually?**				**How much did it distress / bother you?**					**Did you have any of the following symptoms**	**How often did you have it?**				**How severe was it usually?**				**How much did it distress / bother you?**				
Physiological Symptoms	**Rarely**	**Occasionally**	**Frequent**	**ConstantlyAlmost**	**Slight**	**Moderate**	**Severe**	**Very Severe**	**Not at all**	**A little bit**	**Some what**	**Quite a bit**	**Very much**	**Physiological Symptoms**	**Rarely**	**Occasionally**	**Frequent**	**ConstantlyAlmost**	**Slight**	**Moderate**	**Severe**	**Very Severe**	**Not at all**	**A little bit**	**Some what**	**Quite a bit**	**Very much**
Pain	1	2	3	4	1	2	3	4	0	1	2	3	4	Pain	1	2	3	4	1	2	3	4	0	1	2	3	4
Nausea	1	2	3	4	1	2	3	4	0	1	2	3	4	Nausea	1	2	3	4	1	2	3	4	0	1	2	3	4
Vomiting	1	2	3	4	1	2	3	4	0	1	2	3	4	Vomiting	1	2	3	4	1	2	3	4	0	1	2	3	4
Lack of energy	1	2	3	4	1	2	3	4	0	1	2	3	4	Lack of energy	1	2	3	4	1	2	3	4	0	1	2	3	4
Difficulty sleeping	1	2	3	4	1	2	3	4	0	1	2	3	4	Difficulty sleeping	1	2	3	4	1	2	3	4	0	1	2	3	4
Psychological Symptoms:	**Rarely**	**Occasionally**	**Frequent**	**ConstantlyAlmost**	**Slight**	**Moderate**	**Severe**	**Very Severe**	**Not at all**	**A little bit**	**Some what**	**Quite a bit**	**Very much**	**Psychological Symptoms:**	**Rarely**	**Occasionally**	**Frequent**	**ConstantlyAlmost**	**Slight**	**Moderate**	**Severe**	**Very Severe**	**Not at all**	**A little bit**	**Some what**	**Quite a bit**	**Very much**
Stress	1	2	3	4	1	2	3	4	0	1	2	3	4	Stress	1	2	3	4	1	2	3	4	0	1	2	3	4
Anxiety	1	2	3	4	1	2	3	4	0	1	2	3	4	Anxiety	1	2	3	4	1	2	3	4	0	1	2	3	4
Depression	1	2	3	4	1	2	3	4	0	1	2	3	4	Depression	1	2	3	4	1	2	3	4	0	1	2	3	4

Scoring Procedure:

			Percentage		Physiological (60%)		Psychological (36%)	
0	-	No symptoms						
1	-	Good well being	1 – 24	1-25%	1-15	1-25%	1-9	1-25%
2	-	Moderate well being	25 – 48	26-50%	16-30	26-50%	10-18	26-50%
3	-	Poor well being	49 – 72	51-75%	31-45	51-75%	19-27	51-75%
4	-	Worst / intolerable well being	73 – 96	76-100%	46-60	76-100%	28-36	76-100%

TOOL – II (Tamil)

MODIFIED MEMORIAL SYMPTOM ASSESSMENT SCALE

nrhjidf;F Kd;				nrhjidf;Fg;gpd;			
	vt;tst[fhy ,ilbtspapy;	**vt;tst[jPtpukhf c';fis tHf;fkhf**	**vt;tst[nkhrkhf**		**vt;tst[fhy ,ilbtspapy;**	**vt;tst[jPtpukhf c';fis tHf;fkhf**	**vt;tst[nkhrkhf**

	eP';fs; ,ij czUtPh;fs;?				Mf;fpukpj;Js;sJ?										eP';fs; ,ij czUtPh;fs;?				Mf;fpukpj;Js;sJ?									
cly; hPjpahd mwpFwpfs;	**Mg{h;tkhd**	**vg;nghjhtJ**	**tHf;fkhd**	**epue;juk;VwjjhH**	**mh;gkhd**	**kpjkhd**	**jPtpukhd**	**kpft[k; jPtpukhd**	**my;ynt ,y;iy**	**Fiwe;j mst[**	**VwjjhH**	**KGikahd**	**epiwa**	**cly; hPjpahd mwpFwpfs;**	**Mg{h;tkhd**	**vg;nghjhtJ**	**tHf;fkhd**	**epue;juk;VwjjhH**	**mh;gkhd**	**kpjkhd**	**jPtpukhd**	**kpft[k; jPtpukhd**	**my;ynt ,y;iy**	**Fiwe;j mst[**	**VwjjhH**	**KGikahd**	**epiwa**
typ	1	2	3	4	1	2	3	4	0	1	2	3	4	typ	1	2	3	4	1	2	3	4	0	1	2	3	4
xkl;ly;	1	2	3	4	1	2	3	4	0	1	2	3	4	xkl;ly;	1	2	3	4	1	2	3	4	0	1	2	3	4
the;jp	1	2	3	4	1	2	3	4	0	1	2	3	4	the;jp	1	2	3	4	1	2	3	4	0	1	2	3	4
cly; nrhh;t[	1	2	3	4	1	2	3	4	0	1	2	3	4	cly; nrhh;t[	1	2	3	4	1	2	3	4	0	1	2	3	4
J}f;fkpd;ik	1	2	3	4	1	2	3	4	0	1	2	3	4	J}f;fkpd;ik	1	2	3	4	1	2	3	4	0	1	2	3	4
kdhPjpahd mwpFwpfs;	**Mg{h;tkhd**	**vg;nghjhtJ**	**tHf;fkhd**	**epue;juk;VwjjhH**	**mh;gkhd**	**kpjkhd**	**jPtpukhd**	**kpft[k; jPtpukhd**	**my;ynt ,y;iy**	**Fiwe;j mst[**	**VwjjhH**	**KGikahd**	**epiwa**	**kdhPjpahd mwpFwpfs;**	**Mg{h;tkhd**	**vg;nghjhtJ**	**tHf;fkhd**	**epue;juk;VwjjhH**	**mh;gkhd**	**kpjkhd**	**jPtpukhd**	**kpft[k; jPtpukhd**	**my;ynt ,y;iy**	**Fiwe;j mst[**	**VwjjhH**	**KGikahd**	**epiwa**
kd mGj;jk;	1	2	3	4	1	2	3	4	0	1	2	3	4	kd mGj;jk;	1	2	3	4	1	2	3	4	0	1	2	3	4
ftiy	1	2	3	4	1	2	3	4	0	1	2	3	4	ftiy	1	2	3	4	1	2	3	4	0	1	2	3	4
cw;rhfkpd;ik	1	2	3	4	1	2	3	4	0	1	2	3	4	cw;rhfkpd;ik	1	2	3	4	1	2	3	4	0	1	2	3	4

kjpg;bgz;fs;
bkhj;j mwpFwpfspd; mst[fs;

0	?	mwpFwpfs; mw;wit	rjtPjk;	cly;hPjpahd (60%)		kdhPjpahd (36%)
1	?	kpft[k; Mnuhf;fpakhd cly;epiy	1 ? 24	**1-25%**	**1-15** **1-25%**	**1-9** **1-25%**
2	?	Xustpw;F Mnuhf;fpakhd cly;epiy	25 ? 48	**26-50%**	**16-30** **26-50%**	**10-18** **26-50%**
3	?	nkhrkhd cly;epiy	49 ? 72	**51-75%**	**31-45** **51-75%**	**19-27** **51-75%**
4	?	kpft[k; nkhrkhd cly;epiy	73 – 96	**76-100%**	**46-60** **76-100%**	**28-36** **76-100%**

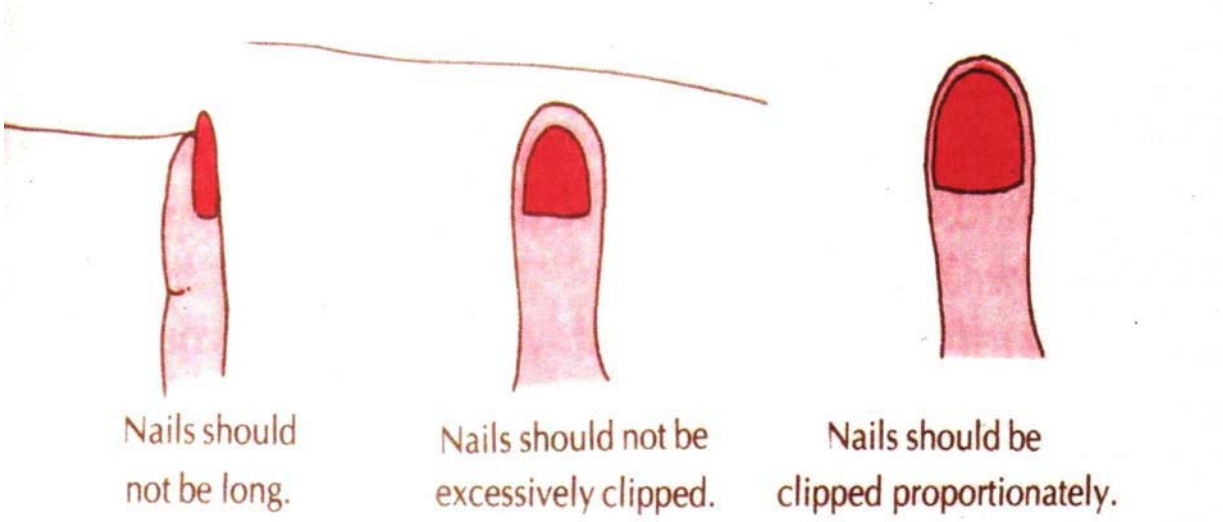
APPENDIX – VIII

FOOT REFLEXOLOGY INTERVENTION:

The intervention for the present study is foot reflexology. It helps in improving the physiological and psychological well being among cancer patient. Reflexology works as the pressure technique applied to the feet or hands. It interacts as a part of the body nervous system creating relaxation, improved circulation of nervous system and it gives benefit of touch. Pressure sensors in the feet and hands are a part of the body's reflex response that makes possible or tight reaction to danger ready to feel and hands ready to communicate with the body's internal organ's to make possible.

Reflexology is the therapeutic method of applying pressure to the specific areas of the feets, the reflex points to receive the pain foot reflexology was provided to the cancer patient who receiving radiation therapy for 30 minutes each day and continued for 10 days.

PRACTICAL HINTS FOR FOOT REFLEXOLOGY PROCEDURE



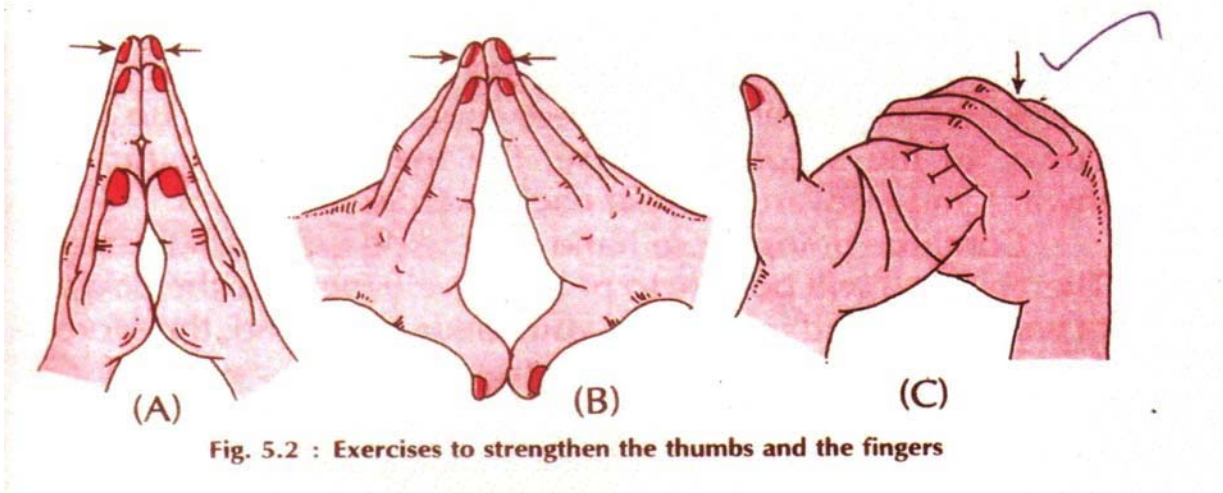
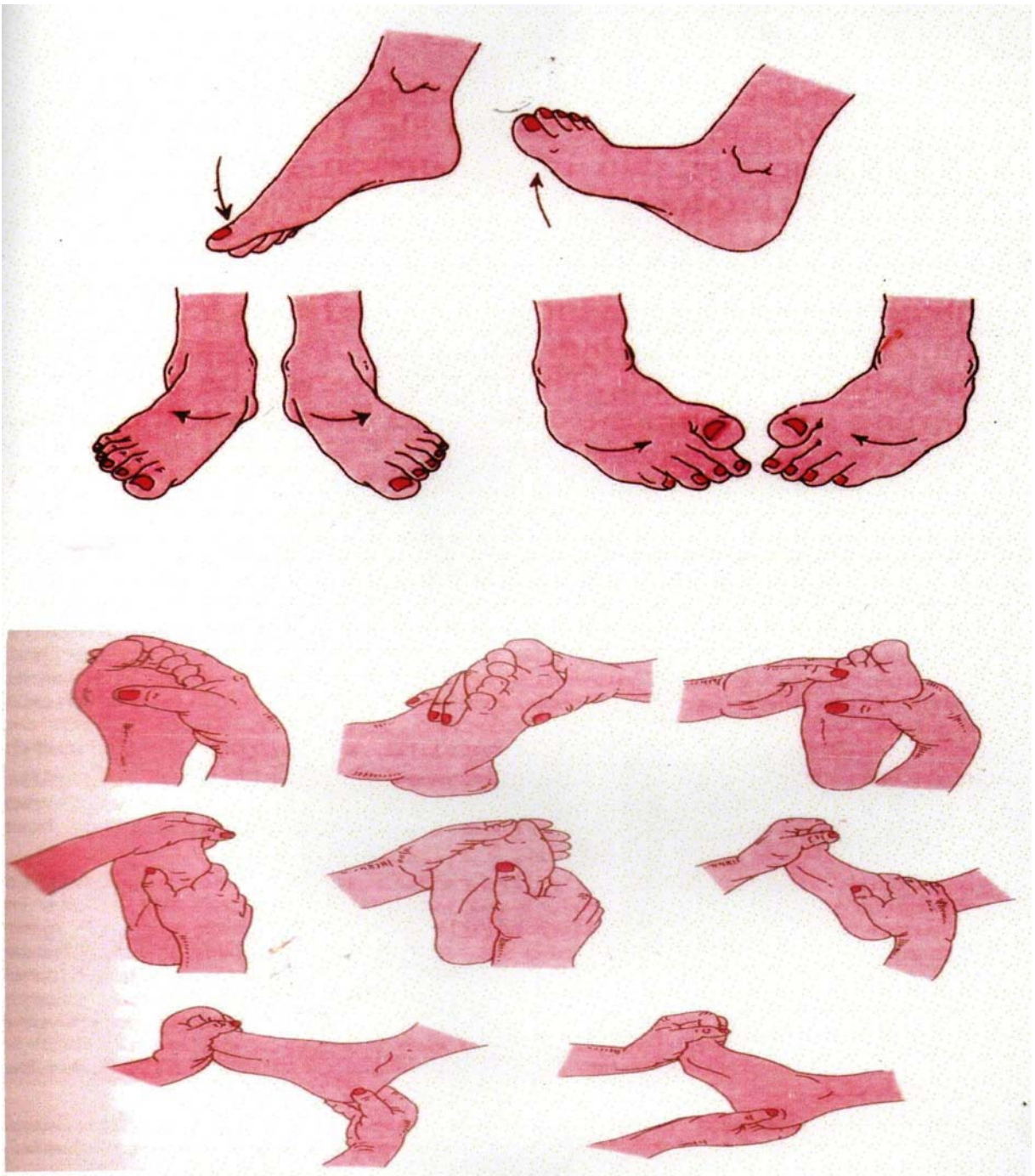
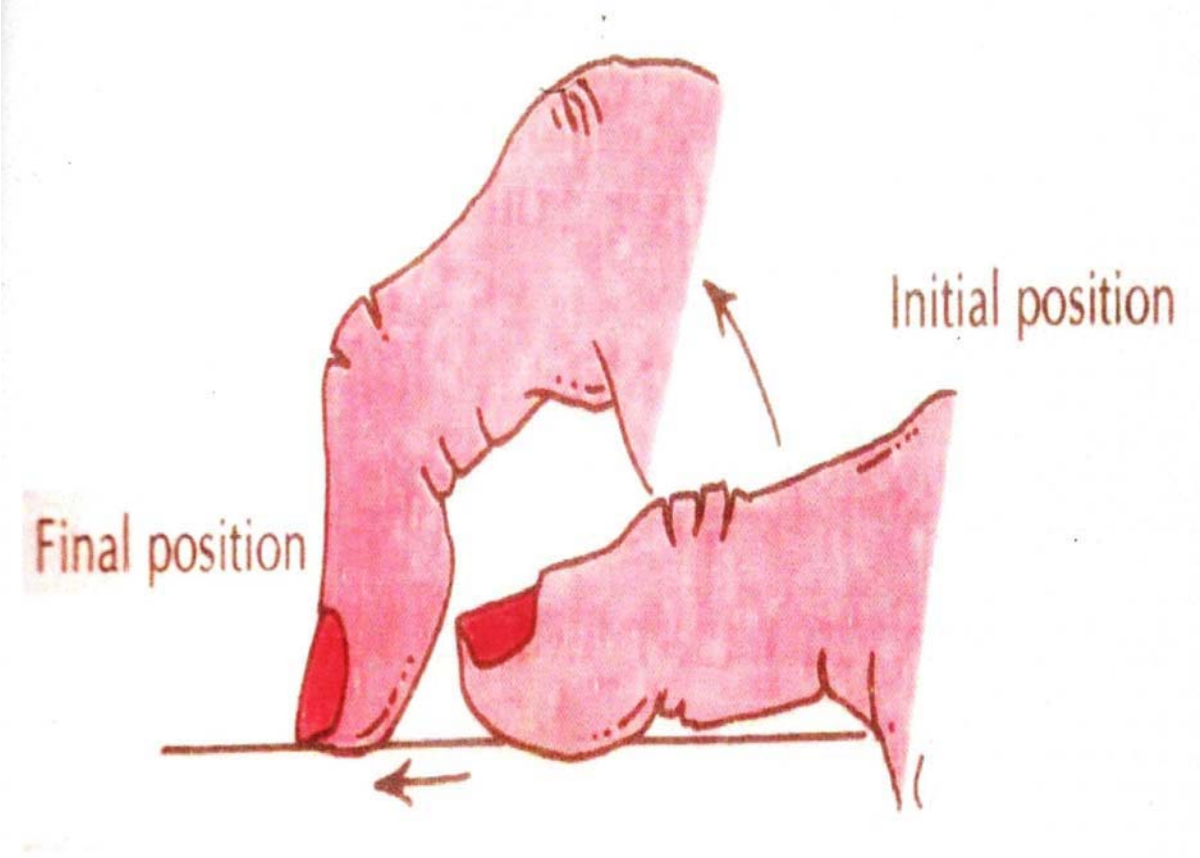


Fig. 5.2 : Exercises to strengthen the thumbs and the fingers



Thumb Walking Technique


Initial position
Final position

APPENDIX – IX

PHOTOGRAPHS