

# CHAPTER I

## INTRODUCTION

Cancer is a cluster of diseases portrayed by unavoidable development and multiplication of unusual cells in the body. (American Cancer Society 2017)

Worldwide, among the many causes of human death, the primary cause is cancer. There was an average of 8.8 million deaths in the year of 2015 due to cancer. The main cancers resulting in deaths were lung cancer, liver, colorectal, stomach and breast cancer. (WHO 2017)

The World Health Organization reported that around 70% of deaths, as a result of cancer occurred in countries, having people with little or moderate incomes. Around one third of deaths from cancer were because of five important behavioral and diet related risk factors - a high body mass index, eating a diet lacking in fruits & vegetables, not getting enough exercise, and consumption of tobacco & alcohol. (WHO 2017)

Cancer develops when normal cells of the body transform into tumor cells through a multistage progression. The changes in the normal cells occur as a result of genetic factors of an individual and exposure to carcinogens present in the environment i.e. radiation, carcinogens in the chemicals i.e. asbestos, tobacco smoke, aflatoxin, arsenic and carcinogens in viruses, bacteria and parasites. (WHO 2017)

### **Background of the study**

Among cancer of different organs in the body, the carcinoma of the breast is highest in occurrence worldwide, after lung cancer. It occurs mostly in women. In 2012 there were over 1.67 million women who were newly diagnosed with breast carcinoma. (GLOBOCAN 2012)

Among a total of five lakh and twenty two thousand deaths which occurred due to cancer, breast carcinoma was ranked 5<sup>th</sup> in deaths because of cancer. In underdeveloped countries the carcinoma of the breast is the commonest etiology of cancer mortality in

females which accounted for 14.3 % of deaths out of three lakh and twenty- four thousand cancer deaths. In developed nations breast cancer ranked second cause of death from cancer preceded by cancer of the lung (198,000 deaths,15.4%). The death rates in various parts of the world was less compared to the incidence, due to better survival of breast cancer patients ranging from six per lakh in Eastern Asia to twenty per lakh in western Africa. (GLOBOCAN 2012)

According to World Health organization, worldwide cancer is the 2<sup>nd</sup> most important reason of mortality in people. Worldwide, about one in six deaths is because of cancer. It was predicted that in 2018 nine point six million people died due to cancer. Among these 2.09 million people died because of cancer of breast. (World Health Organization 2018)

American cancer Society predicted that in 2017 there would be 252,710 newly diagnosed cases of carcinoma breast among females and 2,470 cases in males. It was also predicted that in 2017, 40,610 females and 460 males would die from cancer of breast. (American cancer Society 2017)

Malvia S. et al. (2017) stated that cancer of breast was rated number one cancer in Indian women. Overall the incidence of breast carcinoma rate after adjusting for age was 25.8 per one lakh females; and death rate 12.7per one lakh females. The prevalence rate of breast cancer after adjusting for age was 41 per one lakh females in Delhi, 37.9 in capital city of Tamilnadu, 34.4 in Bangaluru and 33.7 in Thiruvananthapuram. Moreover, it was observed that younger age was significant susceptible cause for carcinoma of breast. The predicted incidence of breast cancer for India by 2020 proposes that digit may increase to 1797900.

Manoharan N. et al. (2017) reported on the basis of Delhi's cancer data registry. In 2012 a total nineteen thousand seven hundred and forty six people were registered as having cancer. In women the most common location of cancer was in the breast, which accounted for 28.6%, in women who were in their 5<sup>th</sup> decade of life. The greater prevalence was among females who resided in cities in comparison to those residing in villages. This might be because of late marriage, giving birth to first baby late, having less parity, and greater social and economical conditions.

A survey conducted by Bag A. et al. in the year 2012 in Nainital Uttarakhand, reported that lung cancer was the highest among types of cancer in that region. Among women the incidence of breast cancer was highest followed by cervical and ovarian cancers. Cancers caused by tobacco and alcohol use were common in males e.g., lungs, larynx, oropharynx, oral cavity, and esophagus. ( Bag A et al. 2012)

Mathew A et al. (2017) based on Trivandrum district, Kerala cancer registry reported, that during 2012 to 2014, there were 15,649 cases and almost 5667 deaths from cancer. There were highest incidences of prostate, breast, colorectal and urinary bladder cancers found equally in both genders. The cause could be the high life expectancy in the state.

The commonest symptom of cancer of the breast is presence of a mass or lump in the breast. Other symptoms are presence of growth, alteration in shape and size of breast, redness, irritation in the skin, and discharge from the nipple. (American Cancer Society 2017)

Pakseresht S. et al. (2009) reported that females from the Northern parts of India had a strong association between cancer of breast and risk factors such as such as breast feeding, geographical locality, and more than normal body mass index ( $p < 0.05$ ).

A study done by Mathew A et al.(2009) at Trivandrum and Chennai amongst women living in cities and villages reported that household tasks also contributed in both groups in the development of cancer in the breast. Women who spent more time in doing household work had less risk of getting cancer of breast.

Ali R et al. (2008) reported that unwed, widowed/ divorced, with lower education and postmenopausal females possessed high risks for the breast cancer and sought medical care at late stage of the disease.

The term, Health Related QOL (HR-QOL) is individual's perception of physical, emotional, social and cognition aspect of health either negatively and positively. (Moinpour C 1994)

Treatment of cancer and cancer itself cause many side effects and complications, which influence the quality of life (QOL) and cause a considerable consequence on Health Related QOL (HR-QOL) in common. (Johnson B et al 2008)

Greene D et al. (1994) studied the adverse effects and disturbance in activities of daily living caused by three chemotherapeutic drug regimen groups reported by eighty six female patients receiving treatment for cancer of the breast. The most commonly reported side effects were tiredness, vomiting, loss of appetite, changes in taste, and pain in head. The incidences of these side effects were similar for these regimen groups. Fatigue was significantly associated with duration of receiving the drugs. Patients also reported that they experienced disturbance in activities of daily living at a moderate level.

Palappallilet al.(2011), compared the toxicities of anthracycline alone against a sequential anthracycline and taxane regimen. The patients on the anthracycline regimen (FAC) had significantly higher incidence of anemia and skin/mucosal toxicity including hyperpigmentation/stomatitis ( $P < 0.005$ ). The patients on the sequential chemotherapy regimen (AC followed by paclitaxel) had significantly higher rates of leucopenia, muscle pain, joint pain, and neuropathy in extremities ( $P < 0.005$ ).

Brezden CB et al.(2000) observed that breast carcinoma clients who received chemotherapy before surgery reported differences in cognitive functions compared to women who were healthy.

So W.K et al. (2010) researched the effectiveness of anxiety and depression on quality of life of female patients who were receiving medical treatment for carcinoma breast i.e. chemotherapeutic drugs and radiotherapy. It was observed that intensity of anxiety or apprehension and depression or sadness was greater in study participants who were receiving chemotherapy in comparison to those receiving radiotherapy. Anxiety and depression had unfavorable effects on overall and different areas of QOL of these patients taking treatment for breast cancer.

Redeker NS et al. (2000) examined the correlation of insomnia i.e sleeplessness & fatigue and anxiety & depression and their correlation with quality of life in clients

getting chemotherapeutic drugs for treatment of cancer. A significant positive relationship was observed among insomnia, fatigue & anxiety, depression ( $p < 0.001$ ). However, these variables and quality of life were correlated negatively. More anxiety & fatigue and poorer quality of life were reported by women than men.

Van'tSpijker A. et al.(1997 reviewed studies done between 1980 to 1994 on mental problems occurring in cancer patients. Meta-analysis revealed no relationship between cancer patients' anxiety and emotional distress. However, the prevalence of depression in cancer patients was significantly more compared to healthy people. Depression, anxiety and distress were significantly less in cancer patients compared with mentally ill patients. Cancer patients were significantly less anxious than patients with other medical conditions.

Nikbakhsh N et al. (2014) explored prevalence of anxiety and depression among 150 recently diagnosed cancer patients. They observed that 29.3% of patients reported mild anxiety, 16.7 % symptomatic anxiety. However 26.7% of the patients reported mild and symptomatic depression respectively. A significant relationship was observed between depression, anxiety and patients' age groups, with a higher occurrence in advanced age patients. A significant correlation was found among anxiety depression with the site of the cancer and the treatment received. Depression and anxiety levels were higher in patients who had carcinoma of mammary gland and stomach.

Bahall M (2017) studied 350 patients diagnosed with cancer on utilization of Complementary and Alternative Medicine (CAM) and observed that 39.1% were using CAM. Most of the patients (93.6%) were generally satisfied with use of CAM and majority (89.8%) thought it was helpful. Patients perceived that CAM was useful in empowerment, control, cure, and improvement of quality of life.

Research by Linde CD & Stuart AD (2002) revealed a reduced level of anxiety in cancer patients undergoing radiation therapy after receiving a cognitive-relaxation-visualization intervention.

A study by Yazdani F (2014) observed that short term yoga was effective in improving adverse effects of chemotherapy such as cognitive performance, sleep patterns and reduction of fatigue, sickness and vomiting in cancer patients.

Song Q et al. (2013) investigated the effectiveness of intervention consisting of relaxation techniques on anxiety means tension and effects occurring while getting chemotherapy in clients with carcinoma of the breast. The control group was given routine nursing intervention and patients in the experimental group received routine nursing intervention and relaxation instructions. Before chemotherapy started the pre test mean scores of patients in both groups were the same. After chemotherapy the post test mean scores of anxiety and symptoms of side effects of the control group were significantly higher, whereas post test mean scores of the experimental group were similar to the pre test scores. The scores related to mental and physical health were significantly less in the experimental group in comparison to the control after receiving chemotherapeutic drugs.

Wesa K et al. (2008) stated that supportive or complementary therapies are easy to administer, economical, and useful in reducing the adverse effects of cancer treatment and helpful in enhancing the cancer patients' quality of life. Thorough scientific research done on these has confirmed that complementary therapies are helpful in decreasing the symptoms in cancer patients, may it be physical or emotional in nature. They have less risk and more benefits and permit cancer survivors to cope with their personal care more effectively.

### **Rationale of the study**

Women with cancer of the breast and other types of cancers undergo various treatment modalities such as surgery, chemotherapy and radiotherapy. Among these the lengthiest treatment is chemotherapy as it is given after every 21 days in six to eight cycles. While going through cycles of chemotherapy, breast cancer patients experience many aftereffects which are nausea, vomiting, weakness, anemia, and alopecia. Breast surgeries such a mastectomy which means removal of breast and alopecia i.e. loss of hair cause changes in the body and disturb the body image of women. This leads to

psychological stress in women undergoing cancer treatment. These side effects and psychological stress adversely affect coping mechanisms of breast cancer patients and decreased their quality of life.

Recent studies on complementary therapy as yoga, for patients undergoing chemotherapy are emerging rapidly in cancer treatment. Based on the review of literature the investigator recognized that none of the earlier researches actually investigated the effectiveness of yoga on stress level and quality of life of breast cancer patients across chemotherapy's six cycles.

Therefore the investigator aimed to teach some of the relaxation techniques used in yoga such as: diaphragmatic breathing, systematic relaxation, alternate nostril breathing, & exercises for joints and glands to breast cancer patients undergoing chemotherapeutic drugs and instruct them to practice these. The investigator planned to evaluate its effect on stress level and quality of life throughout six cycles of chemotherapy with the hope that it would decrease their stress level and it would be helpful in sustaining and maintaining their quality of life during chemotherapy.

**Research Statement:** Study to assess the effectiveness of Yoga on Stress Level and Quality of Life of breast cancer patients undergoing Chemotherapy.

**Objectives:** The objectives of the study were-

1. To determine the effectiveness of yoga on the stress level of breast cancer patients undergoing chemotherapy
2. To determine the effectiveness of yoga on the quality of life of breast cancer patients undergoing chemotherapy.

**Operational definition of terms:**

**Yoga:** In the present study, yoga refers to relaxation techniques such as diaphragmatic breathing, systematic relaxation, alternate nostril breathing, and joints and glands exercise of neck and shoulder. These techniques were taught by researcher to breast cancer patients when they came for receiving first dose of chemotherapy. They were

instructed to practice yoga twice daily at home. The investigator supervised their yoga practices when these patients came for 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> cycles of chemotherapy.

**Stress level:** In this study stress level refers symptoms of anxiety, depression and stress experienced by breast cancer patients while going through six cycles of chemotherapy, as measured by ADSS Anxiety, depression and stress scale. (By Pallavi Bhatnagar, et al.).

**Quality of life:** In this study quality of life refers to the overall health status, functional status and symptoms of side effects of chemotherapy experienced by breast cancer patients while going through six cycles of chemotherapy as measured by European Organization for Research and Treatment of Cancer Quality of Life Tool- EORTC QLQ-C30 (version 3) and QLQ-BR23

**Breast cancer patients undergoing chemotherapy-** Refers to female patients who were operated for breast cancer and were scheduled to receive six cycles of chemotherapy such as Cyclophosphamide, 5 FU, Methotrexate and Adriamycin, after every 21 days as part of the cancer treatment, prescribed by the oncologist.

### **Hypothesis:**

**H<sub>1</sub>**- There would be a significant decrease in the stress level scores of breast cancer patients undergoing chemotherapy, in the experimental group compared to those in the control group after implementation of yoga at  $p < 0.05$  level of significance.

**H<sub>2</sub>**- There would be significant improvement in the quality of life scores of breast cancer patients undergoing chemotherapy, in the experimental group compared to those in the control group after implementation of yoga at  $p < 0.05$  level of significance.

**Assumptions:** the researcher assumes that

1. Sample will be true representative of the population
2. Yoga can be practiced by study participants at home



**Delimitation:** The present study was delimited to

1. Breast cancer patients who were receiving six cycles of chemotherapy at Cancer Research Institute , Swami Rama Himalayan University, Dehradun.

**Conceptual Framework:**

The conceptual framework of the present study was based on goal attainment theory by **Imogene King**. The real meaning of her theory is that the nurse and the patient come together as strangers with their own value and judgment, talk to one another, in that nurses identifies needs of patients after that they set goals regarding meeting need of patients and work to achieve the goals they have set. (Alligood MR 2014)

The investigator and breast cancer patients, who were scheduled to receive chemotherapy met and interacted with each other by talking to each other focusing on the side effects of chemotherapy and its management and control. The investigator explained the benefits of practicing yoga and how it helps in reducing stress and improves quality of life. They both set the goals to reduce the stress level and improve the quality of life of breast cancer patients during the period of chemotherapy. The investigator and the patients worked together to achieve these goals. The main concepts of theory are-

**Perception**-According to king in perception a person gathers information with the help of five senses and memory, organize and interpret them. In this study the researcher and patients with breast cancer perceived that side effects of chemotherapy would increase the stress level and decrease the quality of life of patients with breast cancer. Researcher and breast cancer patients also perceived that yoga would help in decreasing the stress level and improving their quality of life.

**Communication**-According to king it is process of giving and receiving information between two people either through meeting personally or by phone call or else by other means. The investigator and the breast cancer patients communicated with each other. The investigator explained the benefits of practicing yoga, which included diaphragmatic breathing, systematic relaxation, alternate nostril breathing, and neck and shoulder exercises. The investigator also explained that she will teach them these and they will

practice them twice daily. Therefore they set the goals to reduce the stress level of breast cancer patients and improve their quality of life during chemotherapy by practicing yoga.

**Action-** According to king action involves series of mental and physical activities carried out for achievement of health related goals.

In this phase the investigator learned yoga from an experienced and practicing yoga teacher, for one month, prepared intervention with the help of same teacher, selected tools for data collection, identified eligible study participants, and randomized them into control and experimental groups by concealed randomization.

**Interaction-** According to king in interaction phase the conversation takes place between nurse and the patient which is represented by spoken and unspoken behavior, and this communication is to set goals.

In the present study during interaction the investigator taught yoga to study participants who were in the experimental group during 1<sup>st</sup> cycle to chemotherapy. She instructed participants to practice at home twice daily. She also taught about diet and care after chemotherapy to control group. The investigator assessed the stress level and quality of life of patients with cancer of breast during 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> cycles of chemotherapy.

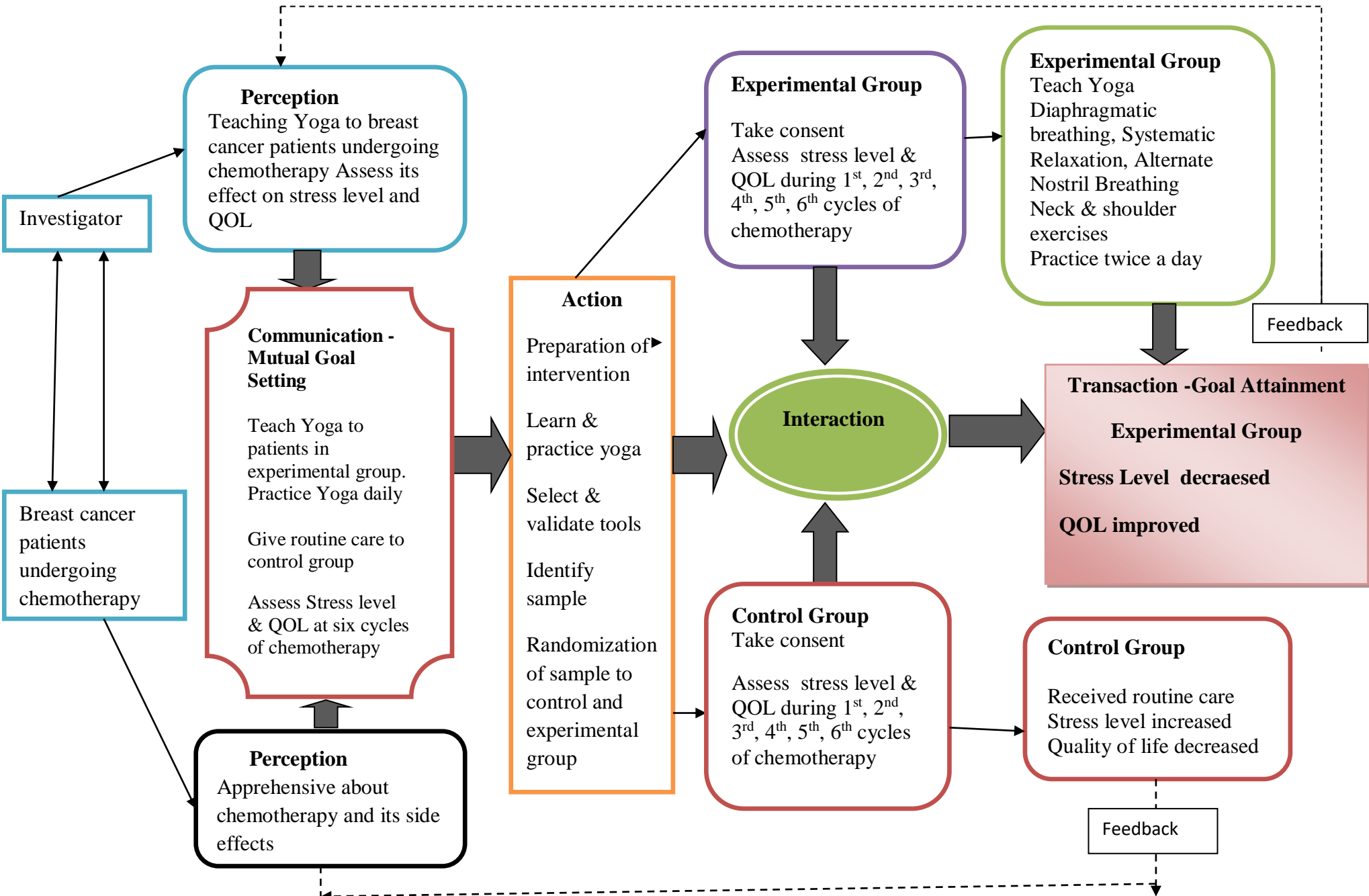
**Transaction-** According to king in transaction the nurses and the patient together agrees on means and ways to achieve the goals they have set. They identify the roles and work towards meeting the goals.

The breast cancer patients who were in experimental group agreed to practice yoga daily at home, investigator supervised them in their practice in consecutive cycles of chemotherapy in the day care center of cancer research institute. The breast cancer patients who were in control group were given instructions regarding diet and general care after chemotherapy.

**Goal Attainment:** The breast cancer patients practiced yoga daily at home. The goals sets by investigator and breast cancer patients were achieved. This helped them in decreasing of stress level and improvement of quality of life.

The breast cancer patients who were in experimental group agreed to practice yoga daily at home, investigator supervised them in their practice in consecutive cycles of chemotherapy in the day care center of cancer research institute. The stress level decreased and quality of life improved and the goals sets by investigator and breast cancer patients were achieved.

**Summary:** This chapter included background of the study, rationale of the study, research statement, objectives, operational definition of the terms, assumptions, hypothesis, delimitation and conceptual framework.



KEY:  
-----  
 Not under study

Figure 1: Conceptual Framework based on Imogene King's Theory of Goal Attainment