5.1 Summary

Cancer patients experience many distressing symptoms during the course of their illness. In addition to pain, they commonly suffer from fatigue, anorexia, constipation, dyspnea, nausea, and vomiting. Further, some psychological conditions are also prevalent in these patients like fear of death, depression and anxiety. Therefore, it is important not only to diagnose and manage the cancer itself, but also to recognize and effectively treat associated symptoms, regardless of the outcome of the underlying disease. Some of the symptoms are due to the underlying disease, but some are due to adjuvant therapies.

People with cancer, who were previously very active, may be frustrated by their inability to participate in favorite leisure activities, which has a big impact on quality of life. Hence, there is a need to develop a programme which will be effective in controlling associated symptoms of cancer and improve their quality of life.

Accumulating evidence suggest that Yoga which is a form of nonaerobic exercise that involves a program of precise postures, breathing exercises, and meditation can be a useful method to help relieve some symptoms of cancer and can lead to increased relaxation and physical fitness. Since the supportive evidence on the role of yoga in cancer is meager, the present study has been conducted with the following objectives:
• To measure the status *death syndrome* and associated *neuro-immunological, psycho-physiological and biochemical* attributes of cancer patient.

• To study the effect of progressive yoga relaxation on death syndrome and associated psycho-neuro-haematological and physiological responses in cancer patients.

• To evaluate the role of yoga in establishing homeostasis in cancer patients for better living.

The state of progressive relaxation achieved by the cancer patients during the yoga training may probably help them in reducing death syndrome. It may also alter positively the psycho-neuro-physiological and haematological responses in them. This may leads to a considerable reduction in their agony and restores homeostasis to live longer. Although this study does not claim about its cure but firmly believes that progressive part of yoga intervention may obviously increase the pain-tolerance ability of the cancer patients. Along with cancer patients, Medical profession can take benefit of Yoga in treating cancer patients. However, other researchers being engaged with this field will also be benefited by the result of the present study.

However, the methodology considers thirty (n=30) cancer patients of homogenous disease group, age ranged from 25-55 yrs., was pulled as sample from Bharat Sevashram Sangha, Vashi, New Mumbai, who are taking treatment in the *Tata Memorial Hospital*, Jera bai Wadia Road, Parel, Mumbai. To record case history of each patient, standard checklist was prepared and separate file for each patient was maintained to preserve the same.

The entire 30 subjects was divided randomly into two groups, viz, Group-A (experimental group) and Group-B (control group).
The design of the experiment has been planned as follows:

- Group-A was treated with *Medical Treatment plus Progressive Yoga Relaxation*.

- Group-B was treated with *Medical Treatment* only.

- Duration of treatment was for 12 weeks (i.e., 6 weeks for training and 6 weeks for follow-up).

- The variables were tested 3 times (i.e., pre-test, post-test & follow-up).

The doctors of Tata Memorial Hospital, Mumbai, who were giving medical treatment to the patients, were consulted and according to their suggestion the researcher included the cancer patients in the experimental group.

The variables were psychological (*anxiety, depression, adjustment, death syndrome*), physiological (i.e., *heart rate, blood pressure, respiratory rate, breathing style i.e., abdominal or chest breathing, peak exploratory flow rate*), neurological (*neuromuscular coordination and reaction time*) and haematological (*Hb i.e., haemoglobin and W.B.C.*). For assessing these variables, different standard tests were administered.

Treatment stimuli or treatment schedule on “Progressive Yoga Relaxation” was developed as per literature of Yoga and on the basis of the suggestions of Yoga experts. The medical doctors further verified the schedule of Yoga.

After taking care of *pros and cons*, the patients of experimental group were allowed to participate in “Progressive Yoga Relaxation Programme”
daily 1 hr. in the evening including Sundays and holidays for a minimum period of 6 weeks. Although the subjects of the control group did not participate in the said training, however, they were kept busy with some recreation activities during this experiment. Dietary restriction, if any, as per specific types of cancer, was controlled by Bharat Sevashram Sangha, Vasi (New Mumbai). However, during this follow-up period, the drop-outs (due to death or absence in the experiment) were recorded carefully.

**Major findings**

Factorial ANOVA (analysis of variance) followed by *Scheffe’s post hoc* test revealed the following results:

**A) Yoga for altering psychological status of Cancer patients**

- Yoga group showed significant superiority over the control group in reducing Anxiety (CD=0.68, p<0.01). However, Follow Up study revealed that Yoga proved better in maintaining low Anxiety level than the control (CD=0.60, p<0.01) (Fig. 4.1).

- Yoga group showed significant superiority over the control group in reducing Depression (CD=0.57, p<0.01). However, Follow Up study revealed that although there is increased trend in depression, Yoga proved better in maintaining low Depression level than the control (CD=0.50, p<0.01) (Fig. 4.2).

- Yoga group showed significant superiority over the control group in improving Adjustment ability (CD=0.60, p<0.01). Further the result of Follow Up study revealed that Yoga proved better in maintaining good Adjustment level than the control (CD=0.46, p<0.01) (Fig. 4.3).
• Yoga group showed significant superiority over the control group in lowering Death Syndrome (CD=0.66, p<0.01). Follow Up study revealed that Yoga proved better in maintaining lower level of Death Syndrome than the control (CD=0.58, p<0.01) (Fig. 4.4).

B) Yoga for controlling physiological parameters of Cancer patients

• Yoga group showed significant superiority over the control group in lowering Heart rate (CD=0.56, p<0.01) and the result of Follow Up study revealed that Yoga proved better in maintaining lower level of Heart rate than the control (CD=0.51, p<0.01) (Fig. 4.5).

• Yoga group showed significant superiority over the control group in lowering Systolic Blood Pressure (CD=0.65, p<0.01). However, Follow Up study revealed that Yoga proved better in maintaining lower level of Systolic Blood Pressure than the control (CD=0.55, p<0.01) (Fig. 4.6).

• Yoga group showed significant superiority over the control group in lowering Diastolic Blood Pressure (CD=0.54, p<0.01), whereas Follow Up study revealed that Yoga proved better in maintaining lower level of Diastolic Blood Pressure than the control (CD=0.44, p<0.01) (Fig. 4.7).

• Yoga group showed significant superiority over the control group in lowering Respiratory rate (CD=0.50, p<0.01). Follow Up study revealed that Yoga proved better in maintaining lower level of Respiratory rate than the control (CD=0.40, p<0.01) (Fig. 4.8).

• Yoga group showed significant superiority over the control group in changing Breathing style i.e., from chest breathing to abdominal breathing (CD=0.64, p<0.01). Follow Up study revealed that Yoga
proved better in changing Breathing style i.e., from chest breathing to abdominal breathing than the control (CD=0.56, p<0.01) (Fig. 4.9).

- Yoga group showed significant superiority over the control group in improving Peak Exploratory Flow Rate (CD=0.60, p<0.01). Follow Up study revealed that Yoga proved better in maintaining higher level of Peak Exploratory Flow Rate than the control (CD=0.54, p<0.01) (Fig. 4.10).

C) Yoga for controlling haematological parameters of Cancer patients

- Yoga group showed significant superiority over the control group in maintaining Haemoglobin level (CD=0.43, p<0.05). Follow Up study revealed that Yoga proved better in maintaining higher level of Haemoglobin than the control (CD=0.38, p<0.05) (Fig. 4.11).

- Yoga group showed significant superiority over the control group in controlling WBC level (CD=0.57, p<0.01). Follow Up study revealed that Yoga proved better in maintaining lower level of WBC than the control (CD=0.45, p<0.01) (Fig. 4.12)

D) Yoga for controlling neurological parameters of Cancer patients

- Yoga group showed significant superiority over the control group in controlling Neuromuscular Coordination level (CD=0.63, p<0.01). Follow Up study revealed that Yoga proved better in maintaining higher level of Neuromuscular Coordination than the control (CD=0.51, p<0.01) (Fig. 4.13).
• Yoga group showed significant superiority over the control group in maintaining Reaction time reasonably (CD=0.62, p<0.01). Follow Up study revealed that Yoga proved better in maintaining lower state of Reaction time than the control (CD=0.45, p<0.01) (Fig. 4.14).

5.2 Conclusion

The result, within limitations, records the following conclusion:

• Progressive relaxation programme of Yoga helped the cancer patients to maintain the associated psycho-physio-neurological and haematological attributes plausibly at normal level. This, in fact, signifies a symptom of good health for cancer patients, which may prolong their longevity.

• Combined therapy of Medical treatment plus Yoga could restore some favourable hope to live in reducing death syndrome of the cancer patients.

• Yoga was found to be an added advantage along with modern medicine for treating cancer.

5.3 Recommendations

The result and conclusions of this study helped to recommend the followings:

• Progressive relaxation part of Yoga might be incorporated in treating cancer patients under the overall supervision of consulting Oncologists. This helps to initiate some positive thinking and positive attitude towards life and reduces intensity of sufferings.
• Case reports revealed that majority of patients are suffering from cancer at the preliminary phase. Hence inclusion of Yoga is recommended along with medical treatment.

• Special care is to be taken while selecting Yoga practices as a treatment intervention for cancer patients. Treatment with Yoga alone may not be sufficient and may be a life-risk. Further, random / hypothetical selection of Yoga practices without proper planning may also harm and may lead to a death risk. Therefore, Yoga relaxation is suggested for inclusion in the system of modern medical treatment. Moreover, planned Yoga in consultation with the Oncologists is only recommended.

5.4 Contribution to the Knowledge

Literature revealed that several trials have been made so far on Yoga along with modern medicines in treating cancer patients. However, controlled trials were lacking. This study contributed an evidence of controlled trials and the results were found amazingly favourable among the cancer patients practicing Yoga along with oncologists’ medication. This study, therefore, made a special contribution to the knowledge of medical science and also in the field of Yoga, which is an indispensable part of Physical education in India.