Chapter 5

A. RESUME OF THE STUDY

It is predicted that by 2020, lifestyle diseases will be causing 7 out of 10 deaths in developing countries (Boutayeb et al., 2005). Poor diet, lack of exercise, sedentary jobs, long hours of work, ready made junk food and in the late 2000s even poor sleep may contribute to these illnesses or be their primary cause. The increasing emphasis on the interaction between psychological factors and development of these diseases is attracting considerable attention. The studies reviewed found that psychological factors have an important role in the incidence and prognosis of these diseases. Life style disease especially cardiovascular disease and cancer seem to be increasing in women in Kerala. Some significant differences regarding the incidence of cardiovascular diseases and cancer have been noticed in men and women. Having noticed such differences, this study is taken to probe the psychological factors leading to cardiovascular diseases and cancer in women.

(a) Objectives: The main objective of the study is to find out the psychological factors such as personality factors and psychological distress variables leading to the incidence of cardiovascular diseases and cancer in women. The study also attempts to find out whether the level of psychological distress variables like depression, anxiety, stress and total psychological distress of the sample under study will vary according to their socio demographical & life style factors. The study furthermore aims to execute an alternative intervention technique like listening to music and to find out whether it reduce the level of depression, anxiety, stress and total psychological distress of the cvd and cancer patients.
(b) **Variables:** The variables used in the study were **psychological variables** such as personality factors (extraversion, agreeableness, conscientiousness, neuroticism and openness) and psychological distress variables (depression, anxiety, stress and total psychological distress). The **socio demographical variables** such as age, birth order, number of siblings, marital status, number of children, education, work status, income level, locale and type of family; & **life style factors** such as marital satisfaction level, type of job, job satisfaction level, practice of prayer, practice of exercise, presence of an intimate friend and leisure time activities were also used.

(c) **Sample:** The sample for the present study consisted of 225 women from Kerala, which consist of 75 cardiovascular patients, 75 cancer patients, and 75 normals. The cvd patients and cancer patients were selected using purposive sampling technique from the various hospitals across Kerala. Comparable group of normals were selected from the general population. Cardiovascular disease types selected for the study were coronary artery disease, cardiomyopathy, aneurysm, myocardial infarction, ischemic heart disease. The cancer types were breast cancer, ovarian cancer, lung cancer, colorectal cancer, thyroid cancer and cervical cancer. The group selected from the sample under study for music intervention were, 30 cardiovascular patients and 30 cancer patients. The patients were selected based on their willingness to attend the intervention programme.

(d) **Tools:** The tools used for collecting the data were Five factor personality inventory, Depression Anxiety Stress scale (DASS 21), Personal data schedule and Music intervention cd recorded with seven
songs pre-recorded with the help of an expert musician. The songs were based on ragas like Hindolam, Abhogi, Hamsadhwani, Sree Ragam, Sreeranjini, Sivaranjani, Revathi.

(e) Data Collection Procedure: Data were collected individually after ascertaining the willingness and co-operation on the part of the respondents. Incomplete response sheets were not scored and used for analysis.

(f) Statistical techniques: The statistical techniques used for analyzing the data were the $t$-test, one-way ANOVA, Duncan test, Paired $t$-test and Pearson product moment method of correlation.

B. FINDINGS OF THE STUDY

SECTION I

(a) Differences in the Personality Pattern among the groups under study

The findings of the study support the first hypothesis that the ‘Cardiovascular disease patients and cancer patients will differ significantly from the normals with regard to the five personality factors namely extraversion, agreeableness, conscientiousness, neuroticism and openness’.

➢ With regard to the personality pattern, it was seen that the cvd patients possess significantly more of the characteristics of extraversion and openness compared to cancer patients and normals.
The cancer patients were seen to possess significantly more of the personality characteristics of agreeableness, conscientiousness and neuroticism compared to cvd patients and normals. The personality pattern of the cvd patients was found to be significantly different from that of the cancer patients. Both the patient groups differ significantly from the normal group with regard to the five personality factors.

(b) Differences in the level of total psychological distress variables among the groups under study

The second hypothesis that the ‘Cardiovascular disease patients and cancer patients will differ significantly from the normals with regard to the level of depression, anxiety, stress and total psychological distress’ is partially accepted based on the following findings:

- Cvd patients had significantly higher level of depression and normals had significantly lower level of depression compared to cancer patients. The patient groups and normals differ significantly among themselves with regard to their level of depression.

- Cvd patients had significantly higher level of anxiety and differ significantly from cancer patients and normals. Cancer patients and normals showed no significant differences in their level of anxiety.

- Cvd patients had significantly lower level of stress than cancer patients. Normals had significantly higher level of stress than the patient groups. The patient groups and the normals differ significantly among themselves with regard to the level of stress.
Cvd patients had significantly higher level of total psychological distress and differ significantly from cancer patients and normals. Cancer patients and normals showed no significant differences in their level of total psychological distress.

(c) Personality factors and psychological distress variables

The third hypothesis that ‘the five factors of personality namely extraversion, agreeableness, conscientiousness, neuroticism and openness will have a significant correlation with the level of the depression, anxiety, stress and total psychological distress among cardiovascular disease patients, cancer patients and normals’ is partially accepted based on the following findings:

- The personality factor, extraversion was positively correlated with the level of stress of cvd patients. There was no significant correlation of extraversion with the level of depression, anxiety, stress and total psychological distress of cancer patients and normals.

- The personality factor, agreeableness was positively correlated with the level of depression of cvd patients. There was no significant correlation of agreeableness with the level of depression, anxiety, stress and total psychological distress of the cancer patients and normals.

- The personality factor, conscientiousness was positively correlated with the level of depression of cvd patients and negatively correlated
with the level of stress of cancer patients. There was no significant correlation of conscientiousness with the level of depression, anxiety, stress and total psychological distress of normals.

➢ There was no significant correlation of the personality factor, neuroticism with the level of depression, anxiety, stress and total psychological distress of the cvd patients, cancer patients and normals.

➢ The personality factor openness was positively correlated with level of depression of cancer patients. There was no significant correlation of openness with the level of depression, anxiety, stress and total psychological distress of cvd patients and normals.

SECTION II

(a) Socio-demographic variables and psychological distress variables

The fourth, fifth and sixth hypotheses that the ‘Cardiovascular disease patients categorized on the basis of socio-demographic variables will differ significantly in the level of depression, anxiety, stress and total psychological distress’; ‘Cancer patients categorized on the basis of socio-demographic variables will differ significantly in the level of depression, anxiety, stress and total psychological distress’; and ‘Normals categorized on the basis of socio-demographic variables will differ significantly in the level of depression, anxiety, stress and total psychological distress’ are partially accepted based on the following findings:
➢ **Age**

Cvd patients categorized on the basis of age differed significantly in their level of depression, while no significant differences were seen in their level of anxiety, stress and total psychological distress. Young cvd patients were found to have lower level of depression and differed significantly from the middle aged and old aged cvd patients. Both cancer patients and normals categorized on the basis of age showed no significant differences in their level of depression, anxiety, stress and total psychological distress.

➢ **Birth order**

Cvd patients, cancer patients and normals categorized on the basis of birth order showed no significance differences in their level of depression, anxiety, stress and total psychological distress.

➢ **Number of siblings**

Cvd patients, cancer patients and normals categorized on the basis of number of siblings showed no significant differences in their level of depression, stress, anxiety and total psychological distress.

➢ **Marital status**

Cvd patients categorized on the basis of marital status differed significantly in their level of depression, while no significant differences were seen in their level of anxiety, stress and total psychological distress.
Cvd patients who were single had lower level of depression and cvd patients who were divorced or separated had higher level of depression. Both the cancer patients and normals categorized on the basis of marital status showed no significant differences in their level of depression, anxiety, stress and total psychological distress.

- **Number of children**

Cvd patients, cancer patients and normals categorized on the basis of number of children showed no significant differences in their level of depression, anxiety, stress and total psychological distress.

- **Education**

Cvd patients categorized on the basis of education status differed significantly in their level of depression while no significant differences were seen in their level of anxiety, stress and total psychological stress. Cvd patients who have not completed school had lower level of depression and the graduates had higher level of depression. Both the cancer patients and normals categorized on the basis of education status showed no significant differences in their level of depression, anxiety, stress and total psychological distress.

- **Work status**

Cvd patients, cancer patients and normals categorized on the basis of work status showed no significant differences in their level of depression, anxiety, stress and total psychological distress.
➢ Income

Cvd patients categorized on the basis of income level differed significantly in their level of depression while, no significant differences were seen in their level of anxiety, stress and total psychological distress. Cvd patients with high income had lower level of depression and those with low income had higher level of depression. Cancer patients categorized on the basis of income level differed significantly in their level of total psychological distress, while no significant differences were seen in their level of depression, anxiety and stress. Cancer patients with middle level of income had lower level of total psychological distress and those with low income had higher level of total psychological distress. Normals categorized on the basis of income level showed no significant differences in their level of anxiety, depression, stress and total psychological distress.

➢ Family type

Both the cvd and cancer patients categorized on the basis of family type showed no significant differences in their level of depression, anxiety, stress and total psychological distress. Normals categorized on the basis of family type differed significantly in their level of stress and total psychological distress while no significant differences were seen in their level of depression and anxiety. Normals from joint family had significantly lower level of stress and total psychological distress than those from nuclear family.
➢ **Locale**

Cvd patients and normals categorized on the basis of locale showed no significant differences in their level of depression, anxiety, stress and total psychological distress. Cancer patients categorized on the basis of locale differed significantly in their level of depression and total psychological distress while no significant differences were seen in their level of anxiety and stress. Cancer patients from urban area had significantly lower level of depression and total psychological distress than those from rural areas.

**(b) Life style factors and the level of total psychological variables**

*The seventh, eighth and ninth hypotheses that the ‘Cardiovascular disease patients categorized on the basis of lifestyle factors will differ significantly in the level of depression, anxiety, stress and total psychological distress’; ‘Cancer patients categorized on the basis of lifestyle factors will differ significantly in the level of depression, anxiety, stress and total psychological distress’; and ‘Normals categorized on the basis of lifestyle factors will differ significantly in the level of depression, anxiety, stress and total psychological distress’ are partially accepted based on the following findings:*

➢ **Marital satisfaction**

Cvd patients, cancer patients and normals categorized on the basis of marital satisfaction level showed no significant differences in their level of depression, anxiety, stress and total psychological distress.
➢ Type of job

Cvd patients categorized on the basis of type of job showed no significant differences in their level of depression, anxiety, stress and total psychological distress. Cancer patients categorized on the basis of type of job differed significantly in their level of anxiety, while no significant differences were seen in their level of depression, stress, and total psychological distress. Cancer patients who do sedentary jobs had significantly lower level of anxiety than who do non-sedentary jobs. Normals categorized on the basis of type of job differed significantly in their level of total psychological distress while no significant differences were seen in their level of depression, anxiety and stress. Normals who do non-sedentary jobs had lower level of total psychological distress than who do sedentary jobs.

➢ Job satisfaction

Cardiovascular patients, cancer patients and normals categorized on the basis of job satisfaction level showed no significant differences in their level of depression, anxiety, stress and total psychological distress.

➢ Practice of prayer

Cvd patients, cancer patients and normals categorized on the basis of practice of prayer showed no significant differences in their level of depression, anxiety, stress and total psychological distress.
➤ Practice of exercise

Cvd patient group categorized on the basis of practice of exercise differed significantly in their level of stress, while no significant differences were seen in their level of depression, anxiety and total psychological distress. Cvd patients who do not exercise had significantly lower level of stress than those who exercise. Cancer patients categorized on the basis of practice of exercise differed significantly in their level of depression, anxiety and total psychological distress, while no significant difference was seen in their level of stress. Cancer patients who exercise had significantly lower level of depression, anxiety and total psychological distress than those who do not exercise. Normals categorized on the basis of practice of exercise differed significantly in their level of stress and total psychological distress while no significant differences were seen in their level of depression and anxiety. Normals who exercise had significantly lower level of stress and total psychological distress than those who do not exercise.

➤ Intimate friend

Cvd patients categorized on the basis of presence of an intimate friend differed significantly in their level of stress and total psychological distress, while no significant differences were seen in their level of depression and anxiety. Cvd patients who had an intimate friend have significantly lower level of stress and total psychological distress than who do not have an intimate friend. Cancer patients categorized on the basis of presence of an intimate friend showed no significant differences in their level of depression, anxiety, stress and total psychological distress. Normals
categorized on the basis of presence of an intimate friend differed significantly in their level of depression, while no significant differences were seen in their level of anxiety, stress and total psychological distress. Normals who do not have an intimate friend had significantly lower level of depression than who have an intimate friend.

- **Leisure time activities**

  Both the cvd patients and normals categorized on the basis of practice of leisure time activities showed no significant differences in their level of depression, anxiety, stress and total psychological distress. Cancer patients categorized on the basis of practice of leisure time activities differed significantly in their level of anxiety and total psychological distress while no significant differences were seen in their level of depression and stress. Cancer patients who have leisure time activities had significantly lower level of anxiety and total psychological distress than who do not have leisure time activities.

**SECTION III**

**Music intervention programme**

*The findings of the study support the tenth and eleventh hypotheses that’ the cardiovascular disease patients will differ significantly in the level of depression, anxiety, stress and total psychological distress before and after music intervention’; and ‘the cancer patients will differ significantly in the level of depression, anxiety, stress and total psychological distress before and after music intervention’.*
There were significant differences in their level of depression, anxiety, stress and total psychological distress in both cvd and cancer patients before and after music intervention. It was found that the music intervention programme, reduced the level of depression, anxiety, stress and total psychological distress of the cvd and cancer patients.

C. IMPLICATIONS OF THE STUDY

The findings of the present study exposed the role of psychological factors leading to the incidence and prognosis of cardiovascular disease and cancer patients. A cardiovascular disease prone and cancer prone personality pattern was revealed. Cardiovascular disease patients possess more of the characteristics of extraversion and openness while, cancer patients have more of the characteristics of conscientiousness, agreeableness and neuroticism. The study also revealed the role of socio-demographic variables and life style factors in the increase/decrease of the level of depression, anxiety, stress and total psychological distress among the groups under study. The music intervention used in this study was found to be useful in reducing the level of depression, anxiety, stress and total psychological distress in both cardiovascular disease and cancer patients.

When the relevance of the present study is considered, it can be said that all the findings of the present investigation can be of much help for cardiovascular disease patients and cancer patients, and others directly or indirectly related to the welfare of cardiovascular disease patients and cancer patients.
• **Implications for Cardiovascular disease and Cancer patients**

Whoever may be the persons using the findings of this study, the final beneficiaries will be the cardiovascular disease and cancer patients themselves. If they are aware of the risk factors of their illness, life style modification techniques and interventions to reduce their psychological distress, they will benefit from it.

• **Implications for cardiologists, oncologist, psychologists and counselors**

The role of psychological factors in the incidence and prognosis of a disease is explored. It is found that psychological factors have a significant role in the incidence and prognosis of cardiovascular disease and cancer. These findings can be immense value for cardiologists, oncologists, psychologists and counselors. They can initiate steps so that the cardiovascular disease patients and cancer patients will undergo the intervention strategies for life style modification and psychological distress reduction techniques, with the support of all who are concerned about the future of the patients.

• **Implication towards awareness programme.**

In order to be more beneficial to common people, a general awareness about the risk factors leading to cardiovascular disease and cancer along with its prevention and management has to be created by means of mass communication. For this purpose, services of print / electronic media will play a significant role. In addition, to this, regular medical camps / awareness programs can be organized with the help of various clubs such as Lions / Rotary etc. Regular visits by social workers /
counselors to old age homes, and other social functions will be useful for educating the people about cardiovascular diseases and cancer.

As per World Health Organization reports, the approximate number of cardiovascular patients and cancer patients expected to be a whopping figure of 70 lakhs by 2020. To meet this exigency, cardiologist, oncologists and psychologists and major hospitals will have to put in more efforts to organize awareness programs in a phased manner. It is suggested that major hospitals should make earnest endeavor to set up special departments consisting cardiologists, oncologists, psychologists and music therapists solely for this program.

D. LIMITATIONS AND CHALLENGES

The psychological variables included in the present study were limited to personality factors and psychological distress variables. However, a wide variety of other equally important variables remain to be explored. The sample size was limited.

E. SUGGESTIONS FOR FURTHER RESEARCH

The investigator had made a sincere attempt in making the study meaningful, and as useful as possible, but certain limitations may have crept into the design, as well as in the execution. These limitations may be taken into account for further research in this area. The following are some of the suggestions for future research:

- The personality factors of cvd and cancer patients on the basis of socio-demographical and life style factors can be analysed.
Variables such as quality of life, well-being, emotional adjustment etc. of cardiovascular disease patients and cancer patients can also be used in future studies.

The research design in further studies can be formulated to use statistical techniques such as multivariate analysis of variance, and factor analysis.

More intervention strategies such as the practice of yoga, cognitive behavioural treatment, spiritual healing, transcendental meditation, visualization can be applied for further studies to find out the effect of these techniques on the level of depression, anxiety, stress and total psychological distress of cardiovascular disease patients and cancer patients.

The follow up of the effect of music intervention on patients groups can be subjected to study in further investigation.

The effect of particular ragas on the level of depression, anxiety, stress and total psychological distress of patient group can be analysed.

The investigator would be gratified, if the findings of the present investigation are used for further research and beneficial for those involved in the welfare of cvd and cancer patients.