CHAPTER 3
METHODOLOGY

3.1 Overview

The preceding units provide an overview of the study related to Psychogenic NCCP, the predictors and outcomes, and approaches to the management of this symptom. A detailed literature review highlighted the lack of understanding of NCCP and the reasons behind the poor diagnosis and treatment. In particular, there is a dearth of research examining the high rush of patients to the emergency departments who come with severe chest pain assuming it to be cardiac related. An enhanced understanding could inform the effective management of these patients. This research was conducted in order to determine whether Bio-psycho social factors affect the individuals in development of chest pain. In order to reach these research goals, the researcher opted to obtain details from the patients in hospitals who presented with chest pain complaints and also normal healthy individuals who had come for health check-up as a preventive measure. 210 subjects took part in this study, under three different groups. This chapter aims at presenting the rationale, objectives, theoretical framework and design of the current study.

3.2 Study Rationale

A comprehensive understanding of Bio-psychosocial factors and their relation to cardiac and Non-cardiac chest pain, and to examine the psychological factors that
could lead to chest pain symptoms in psychogenic Non-cardiac chest pain and exploring the potential contributors to continuing symptoms and associated pain. The physical, psychological and social factors have been associated with these outcomes, but there is a dearth of research examining these associations. This research intends to see the impact of Bio-psychosocial factors that would predict in development of CCP and NCCP. The researcher developed an intervention program for the NCCP focused group. Through enhanced understanding of predictors of poor outcomes in NCCP, interventions can be targeted effectively and appropriately. Recommendations can be then made on the structuring of care to address these psychological aspects of chest pain. The model that is being developed for giving awareness of NCCP and for maintaining health and pain management should facilitate for easy recovery and thus help in treating psychogenic NCCP.

3.3 Theoretical framework

The theoretical framework for this study was adapted from the Bio-psychosocial model by Bass & Mayou (2002). This model approach clearly explains the importance of all the three main factors proposed by Bass & Mayou which suggested that NCCP is best understood as an interaction between normal or abnormal physiological processes. The biological factors like hypertension, diabetes, gastric irritations etc., psychological factors like anxiety, depression, stress etc, and lastly the social factors like economic status, type of family, geographic region, their employment and education all play a vital role. Bass & Mayou have these factors in their model and as it is specifically NCCP focused. This model helps in getting a clear idea about the theoretical inputs and thus it helped in getting an overall view of taking it forward for this study.
PHASE 1

Figure 3: First phase Data collection plan

In each group there were 70 subjects under NCCP and CCP category. The third group, had 70 normal individuals who participated in the research study after completely ruling out absence of health issues or psychological disturbances. They were considered in this research to see in case any of the factors could be identified or predicted as the causal factors for future health concern among healthy individuals. Data gathered from these research instruments were then computed and interpreted.
PHASE-2

Figure 4: Second phase data collection with pre and post intervention

The focus group with NCCP patients were given intervention to see the effectiveness of NCCP focused intervention program in reducing the psychological disturbances and thereby reducing the pain symptoms due to psychogenic factors. In this phase, after eligibility assessment, there were 18 NCCP patients who were eligible for the intervention program. Pre and post intervention psychological scales were computed and interpreted to see the effectiveness of the intervention program. The pain severity scale was administered to record the pain intensity in three phases; pre-intervention, during and post intervention.

3. 4 Aim of the study:

To explore Bio-psychosocial factors in the persistence of psychogenic NCCP
To develop NCCP focused supportive intervention program for Psychogenic NCCP patients.

3.5 Statement of the problem:

Psychogenic Non-cardiac chest pain: An exploratory study of Bio-psycho social factors and effectiveness of intervention

3.6 Objectives:

3.6.1. To examine the Bio-psychosocial factors that influence Non-Cardiac chest pain (NCCP) and Cardiac chest pain (CCP) patients

- To examine the influence of age below 40 years and above 40 years in NCCP and CCP patients
- To examine the influence of gender in CCP and NCCP patients
- To examine the influence of the type of family in CCP and NCCP patients
- To examine the influence of socioeconomic status in CCP and NCCP patients
- To examine the influence of the region in CCP and NCCP patients
- To examine the influence of marital status in CCP and NCCP patients
- To examine the influence of smoking behavior in CCP and NCCP patients
- To examine the influence of alcohol consumption in CCP and NCCP patients
- To examine the influence of diabetes in CCP and NCCP patients
- To examine the influence of Blood pressure in CCP and NCCP patients
- To examine the influence of food habits in CCP and NCCP patients

3.6.2 To identify the psychogenic factors that could lead to NCCP and CCP

- To examine the difference between psychogenic factors among NCCP and CCP
- To examine the difference between perceived stress among NCCP and CCP
- To examine the difference between Type A behavior among NCCP and CCP
- To examine the difference between anxiety among NCCP and CCP
- To examine the difference between depression among NCCP and CCP

3.6.3 To examine the impact of Bio-psychosocial factors in NCCP patients.

3.6.4 To examine the impact of Bio-psychosocial factors in CCP patients

3.6.5 To examine the relationship between pre and post intervention among NCCP patients.
To examine the relationship between pre and post intervention in perceived stress among NCCP patients.

To examine the relationship between pre and post intervention in Type ‘A’ behavior pattern among NCCP patients.

To examine the relationship between pre and post intervention in anxiety among NCCP patients.

To examine the relationship between pre and post intervention in depression among NCCP patients.

3.6.6 To examine the influence of intervention in severity of pain among NCCP patients

3.7 Study Design

As observed, NCCP being multifactorial a quantitative research design was chosen. The between group design facilitates for a better understanding of Bio-psychosocial factors and its relation to the NCCP. The design starts with the collection and analysis of quantitative data, which is followed by intervention and subsequent collection and analysis of quantitative data. The intervention program builds up the initial data that is the pre intervention data to check the effect of intervention with post intervention data. The pain severity is analyzed with the Psychogenic NCCP cases under case series method.

3.8 Hypotheses

Phase 1:

3.8.1 There will be a significant influence of Bio-psychosocial factors among NCCP and CCP

- There will be a significant influence of age among CCP and NCCP
- There will be a significant influence of gender among CCP and NCCP
- There will be a significant influence of family type among CCP and NCCP
- There will be a significant influence of the region among CCP and NCCP
- There will be a significant influence of marital status among CCP and NCCP
- There will be a significant influence of socioeconomic status among CCP and NCCP
- There will be a significant influence of smoking behavior among CCP and NCCP
There will be a significant influence of alcohol consumption among CCP and NCCP
There will be a significant influence on diabetes among CCP and NCCP
There will be a significant influence of Blood pressure among CCP and NCCP
There will be a significant influence of food habits among CCP and NCCP

3.8.2 There is a significant difference between psychogenic factors in NCCP and CCP
- There will be a significant difference between perceived stress in NCCP and CCP
- There will be a significant difference between Type A behavior in NCCP and CCP
- There will be a significant difference between anxiety in NCCP and CCP
- There will be a significant difference between depression in NCCP and CCP

3.8.3 To study the impact of Bio-psychosocial factors in NCCP patients.

3.8.4 To study the impact of Bio-psychosocial factors in CCP patients.

**Phase 2**

3.8.5 There will be a significant influence of intervention by pre and post intervention among NCCP patients.
- There will be a significant influence of intervention on perceived stress among NCCP patients.
- There will be a significant influence of intervention on Type A behavior pattern among NCCP patients.
- There will be a significant influence of intervention on anxiety among NCCP patients.
- There will be a significant influence of intervention on depression among NCCP patients.

3.8.6 There will be a significant influence of intervention in severity of pain among NCCP patients
3.9 Participants

Participants were 210 Indian adults (112 men and 98 women) their ages ranged from 21 to 60 years. Socio demographic details were assessed based on their education level, geographic region, marital status, socioeconomic status and habits.

This sample comprised three groups, with 70 subjects in each group.

The first group was the target group of NCCP patients. The following criteria were used for admission to the study:

a) A chief complaint of midline chest pain or discomfort, which has restricted the patient from normal routine work

b) A compulsory routine examination in the hospital to rule out any of the cardiac related disease.

c) Physical examination and laboratory investigations undertaken should clearly indicate that chest pain is not due to gastrointestinal or peptic ulcer disease.

d) And chest pain is also not due to Pulmonlogical or dermatological causes.

e) Only after report that indicates some psychological and social factors as the reason for chest pain were considered for the study.

f) Eligible NCCP patients were subjected from the cardiology division of” Jayadeva Institute of Cardiology and Research Sciences”, Bangalore and “Panacea Hospital”, Bangalore.
The second group was the control group of 70 subjects with CCP who were from the same hospitals. They have been suffering from chronic chest pain related to cardiac disease and other cardiac related ailments.

The following criteria were considered for admission to the study

a) A chief complaint of chest pain and discomfort.

b) The coronary angiogram which shows a blood vessel blockage

c) It could be congenital or valvular heart disease

d) Congestive heart failure or arrhythmia, mitral valve prolapse or any other organic cardiac problem

e) Eligible CCP patients were from Jayadeva Hospital and Research Sciences, Bangalore and Panacea Hospital, Bangalore.

The third group was the control group of 70 normal subjects who are normal healthy individuals concerned with their physical and mental health undergoing all health checkups, so that they can prevent illness or will be able to track their health conditions.

a) This group of subjects had no past history of cardiac or Non cardiac chest pain or any other illness like peptic ulcer, gastric irritation, gall stones, rheumatism or any medical condition or psychological disturbances.

b) The subjects were considered only after ruling out the above mentioned medical conditions.

c) They were individuals who came for medical examinations and laboratory investigations as a preventive measure for good health and well-being.
d) Their medical reports gave a clear indication of their health status, and thus they were considered for this study under control group.

e) This group was given information regarding the purpose of the research study and hence their complete health condition was scrutinized in a manner essential for the study requirement.

Figure 5: Data collection centers- Jayadeva Hospital And Panacea Hospital

3.10 Research Design

Phase 1:

A quantitative research method to understand the Bio-psychosocial factors in relation to chest pain in Cardiac chest pain patients and Non cardiac chest pain patients. The normal control group which is considered to see if any Bio-psycho social factors could be predicted in the development of cardiac or non-cardiac chest pain.

To develop an NCCP focused supportive intervention model.
Phase 2:

NCCP patients were considered for the intervention programme. Their pre intervention and post intervention psychogenic scale score were measured. Using appropriate statistical tools the relationship between pre and post intervention programme was studied. NCCP patients in this phase were also screened for pain severity, pre and post intervention to see if there is any influence of intervention in reduction of pain symptoms.

3.11 Variables:

**Dependent variable:**

- Non Cardiac chest pain (NCCP),
- Cardiac chest pain (CCP) and
- Normal group (NG)

**Independent variable:**

- Bio-social details
- Perceived Stress
- Type ‘A’ behavior pattern
- Anxiety
- Depression
- Severity of pain
3.12 Assessment of tools:

**Bio-Social details:** A profile sheet was developed to record the various social and biological details of the participants in the study. It included, age, gender, family type, marital status, geographic region, socioeconomic status, habits like smoking, alcohol and type of food intake. Biological factors like diabetes and Blood pressure were also recorded in the profile sheet. The age was the primary factor to distinguish the groups below 40 years and above 40 years to see the development of pain in NCCP or CCP. The normal group can be considered for predicting the development of any pain under the age criteria accordingly. The gender details, under which we have men and women. The type of family gives details about the subjects under nuclear and joint family. The marital status, clearly records the subjects who are married, not married divorced/widowed. The SES , under this we have three different income groups, the high income, middle income and low income groups. The geographic region distinguishes subjects under rural and urban population. Habits like smoking and alcohol determine the details with a yes or no. The food habits under vegetarian and non-vegetarian. The biological factors diabetes and blood pressure are recorded with presence or absence. Thus these details help in distinguishing the factors under three different groups.

**The psychological scales**


It is the most widely used psychological instrument for measuring the perception of stress. It is a measure used to indicate the degree to which situations in one’s life are appraised as stressful. Psychological stress has been defined as the extent to which persons perceive (appraise) that their demands exceed their ability to cope. Potentially stressful life events are thought to increase the risk for disease when one perceives that the demands these events impose on a person exceed his/ her adaptive capacity.
The Perceived Stress Scale (PSS) by Sheldon Cohen measures psychological stress associated with sex, age, education, income, employment status, and a number of other demographics.

Reliability and Validity: The perceived stress scale (PSS-10) reliability and validity were evaluated on Brazilian adults. Participants were 793 Brazilian university teachers. The exploratory factor analysis showed two factors with values greater than 1.0 (56.8% of variance). The Cronbach’s alpha coefficients were 0.83 (Factor 1), 0.77 (Factor 2) and 0.87 (Total Score). The test-retest reliability scores were 0.83 (Factor 1), 0.68 (Factor 2) and 0.86 (Total Score). PSS-10 and perceived health correlations ranged from -0.22 to -0.35. The PSS-10 showed an adequate reliability and validity supporting its use in this population.

Scoring: The PSS 10 item scale consists of a choice under 5 –point agreement. Item numbers are scored corresponding to each level of the scale are marked . Items 4,5,7 and 8 require reverse coding. To compute the total we have to sum up all the scale items. Total scores will range from 0-40.

2. Type A behavior pattern (TABP) by Dhar (2001)
Type-A/B Behavior Pattern Scale (ABBPS) by Dhar (2001) has been used. The scale is divided into two parts – Form ‘A’ and Form ‘B’. Form ‘A’ has six factors and 17 items and form ‘B’ has five factors and 16 items. Factors of the form ‘A’ or Type-A Personality is tensed, impatience, restlessness and achievement orientation, and factors of form ‘B’ or Type-B Personality are complacent, easy going, non assertive, relaxed and patience. In this study only Type ‘A’ form is used with 17 items. The sub six factors were not measured in specific and overall score was obtained.

The Type A construct was initially proposed by Friedman and Rosenman in 1974 to describe certain kinds of individuals who, they believed through study and research, where people with a highly competitive desire for achievement and recognition, together with the tendency towards hostility and aggression and a sense of immense time urgency and impatience. A prospective study designed to identify risk factors in coronary heart disease was conducted by Rosenman and his colleagues which showed that, after controlling for the effects of such classical risk factors as blood pressure,
serum cholesterol levels, etc., men who exhibited the Type A behavior pattern were twice as likely to suffer coronary heart disease than their Type B counterparts.

Reliability and Validity: The odd- even reliability of the form A of the scale was determined by calculating the reliability coefficient, corrected for the full length of a sample of 200 subjects. The reliability of form A was found to be .54. All items on the scale are concerned with the personality types. Experts have also assessed that items of the scale were directly related to the concept of personality types. The reliability index was calculated to find out the validity from the coefficient of reliability which was .73 for both forms A and B. The reliability index is considered to be a measure of validity which is to form A.

Scoring: The ABBPS is a 5 point scale. Responses were given under 5 categories.

Strongly agree, Agree, Uncertain, Disagree, Strongly disagree. 5, 4, 3, 2, 1

In this study only form A was measured, scored accordingly. Marks were given for each response respectively for the scale Type-A. The total score was considered as a main score for Type ‘A’ measurement.

3. Hamilton rating scale for anxiety (HAM-A) by M. Hamilton (1959)

The Hamilton Anxiety Rating scale has been one of the scales developed to measure the severity of anxiety, and it consists of 14 items which measure the anxiety symptoms. The scale is also called by its abbreviated term HAS (Hamilton Anxiety Scale) or HAMA. It is still widely used in clinical as well as research settings.

Reliability and Validity: Several validation studies were done on the HAMA. One done on 292 adults, who were administered a computer and the clinician HAMA showed an internal consistency of .92 (coefficient alpha), and a main item-to-total scale correlation of .65. The correlation between the computer and clinician HAMA scores was .92, which provides support for the concurrent validity of the computer HAMA. The mean score difference between the computer and clinician HAMA was small yet significant 1.37 points. Yet, for subjects with an anxiety disorder, the difference in scores between versions was not significant. The test- retest reliability was .96 of the study. In yet another study with 72 subjects, on the IVR version of the
HAMA, the internal consistency found was .93. Item-to-total scale correlation was .67 and a test-retest showed .97 which is high.

Scoring: Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score of 0-56, where < 17 indicates mild severity, 18-24 mild to moderate severity and 25-30 moderate to severe.

**4. Hamilton rating scale for depression (HAM-D) by M. Hamilton(1980)**

The Hamilton Rating Scale for Depression (HRSD) is also called the Hamilton Depression Rating Scale (HDRS), abbreviated HAM-D. It is a multiple item questionnaire used to provide an indication of depression, so as to guide the recovery. The questionnaire is designed for adults, and is used to rate the severity of the depression by probing the mood, feelings of guilt, suicide ideation, insomnia and somatic symptoms.

Reliability and Validity: Several validation studies of the computer HAMD have been conducted and in one of the studies, the desktop PC version with 97 subjects, a correlation of .96 was found between the computer- and clinician-obtained HAMD scores. The mean score difference between the computer and the clinician were not significantly different and both the computer and clinician showed high as well as similar levels of internal consistency reliability. Both versions differentiated patients with major depression from patients with minor depression, with significant mean score differences between the groups.

Scoring: The scale takes generally 15-20 minutes to complete, along with the interview and scoring of results. Eight of the items are scored on a 5-point scale, ranging from 0 = not present to 4 = severe. The remaining nine are scored from 0-2.

Full Scale Score: 0-7 = Normal, 8-13 = Mild Depression, 14-18 = Moderate Depression
19-22 = Severe Depression, ≥ 23 = Very Severe Depression

In this study only questions from 1-17 are administered. Questions 18-21 may be recorded to give further information about the depression (such as whether diurnal variation or paranoid symptoms are present), but are not part of the scale. Severe depression scores indicate immediate help from professionals.

3.13 Operational definitions:

Perceived stress: It is the feelings or thoughts that an individual has about how much stress they are under at a given point of time or over a given time period. It incorporates feelings about the uncontrollability and unpredictability of one’s life, the confidence in one’s ability to deal with problems or difficulties. (Cohen 1983)

Type A behavior pattern: It is the behavior pattern characterized by tenseness, impatience and aggressiveness, often resulting in stress related symptoms possibly increasing the risk of heart disease. (American Heritage Medical Dictionary 2007)

Anxiety: It is an emotion, characterized by a feeling of tension, worried thoughts and physical changes like increased blood pressure, sweating, trembling, dizziness and rapid heartbeat. (APA 2000)

Depression: It is more than just sadness; people with depression may experience a lack of interest and pleasure in daily activities, significant weight loss or gain, insomnia, lack of energy and feelings of worthlessness, recurrent thoughts of death or suicide. (WHO 2012)

Pain: It is an unpleasant sensory or emotional experience associated with actual or potential damage, which could be either to a tissue or it could be due to medical
conditions. Pain is that kind of a feeling that disturbs and affects both physical and mental well being. It also creates uneasiness and discomfort. (WHO 2012)

3.14 Procedure

The study was conducted in hospitals which had a research Centre. All the precautionary inputs were taken by the researcher to carry on the research study in a systematic and error free manner. Patients with chest pain are usually rushed to the emergency rooms at hospitals, and also there are many patients in the outpatient department at the hospital. Depending on the etiology involved in a person’s complaint of chest pain, the patients are evaluated and treated accordingly. As known, chest pain could be due to various factors. Patients undergo a thorough clinical evaluation along with laboratory investigations. To identify a group of individuals under three different groups for the study, hospital protocol was strictly followed. After this they are grouped according to the consultant's suggestions and patients medical reports. The researcher here took 70 cases which were under Non-cardiac chest pain due to psychogenic condition in one group and then another group with 70 cases under Cardiac chest pain with cardiac ailment. And also there were 70 healthy people under a control group, who had come for their general health checkup as a preventive measure for good health and well being. They were taken for this study, after scrutinizing the medical reports about their health conditions. Detailed assessment of pain and eligibility for the research study was looked into under the supervision of the hospital authority and unit head consultants. Potential patients who were willing to participate were provided with a more detailed description of the nature and purpose of the study by the researcher. Informed consent was then obtained from the hospital authority on behalf of the patients, as they were under the hospital care.
Phase 1:

The Demographic profile with Bio-social details was first completely filled up and then the psychological measures were administered by the researcher. Details were properly entered in the allocated space by the researcher. The psychological questionnaires were also translated to Kannada language, so that it would be convenient to record the details in the local spoken language. The psychological measures like Hamilton Anxiety scale, Hamilton Depression scale, Cohen’s perceived stress scale and Dhar’s Type ‘A’ behavioral pattern were carefully administered to the participants. Whenever the participants needed further explanations on certain questions, the researcher explained clearly the questions to make it convenient for them to answer correctly. The researcher saw to it, that all the details were taken in demographic profile and also the four psychological measures which measured their psychogenic condition were answered by the participants. It would take normally 30 to 45 minutes to finish filling up the demographic details and the four psychological scales, none of the participants were hurried or forced to finish. After the administration of the questionnaires, the participants were told that they would be given the details of their condition through the consultant under whom they were being treated at the hospital. Patients who came with cardiac chest pain and were in the hospital for further care and treatment under cardiac department were being supervised on various aspects depending on their psychological condition after the researcher gave the information to the concerned authority in the hospital.
Phase 2:

The Non-cardiac chest pain patients, who were ruled out by the absence of cardiac related problems were under the physician, these patients were further considered for the second phase of the research study with permission from the physician and willingness by the participants. Based on the results, the patients with pain under moderate psychological conditions either with anxiety, perceived stress, depression or Type ‘A’ behavioral issues were assessed for an NCCP focused supportive intervention programme. Eligibility criteria were considered for the NCCP patients who could participate and physician’s approval was taken. Among 70 participants, many were omitted who were under exclusion criteria. Either due to non-willingness, lack of time, severe symptoms, many were excluded. Only 18 of them completed an intervention program to treat their condition with pain. For these participants, pre and post intervention psychological scales were measured and also the severity of pain was recorded before starting the supportive program. The hospital scale which measures the severity pain was administered to the participants and it was recorded according to patient’s pain experience. The pre-intervention, in between and post intervention results gave details about their condition with painful symptoms. Further, these scales and symptoms of pain were computed and the results were considered for further analysis. The participants who were part of the intervention programme were advised to take counselling and guidance related to health and pain management if required even after the research study.

3.15 Instructions

Instructions for Demographic profile: Researcher asked the details personally and filled up the profile sheet. Following instructions were given, “Please listen to the
questions properly, and they are very simple and easy to answer. Its regarding your age, economic status, habits and health status etc., please respond with relevant details, it will take just a few minutes”.

**For Psychological measures**: The scales were administered to the participants one by one and relevant details with instructions were given depending on the details that is required. The perceived stress scale, Type ‘A’ behavior pattern, Hamilton anxiety scale and Hamilton depression scale were administered, the participants were instructed not to waste time by thinking a lot, but they have to reply as what they think and feel about the questions asked.

It almost took 30 to 45 minutes to fill up the demographic details and to administer the psychological scales.

**3.16 Pilot Study**

The questionnaires were piloted with ten participants to ensure that the study presentation were understandable and acceptable for participants. Following the completion of the questionnaires, participants were asked about the clarity of the instructions and the questions and how comfortable they were answering them. After the participants mentioned that they were all satisfied with the questionnaires presentation and the questions, it was taken for future administration on other participants. Since no changes were required, the data collected on these participants have been included in the study for overall analysis.

Translation of questionnaires: The questionnaires were translated from English to Kannada, so that it would be convenient to administer for Kannada speaking population. The questionnaires were evaluated by language and subject experts. These
were tested during the pilot study by administering both Kannada and English version to a set of 10 patients. This was carried out to check if the questions gave same meaning in both the languages. These were evaluated and there were no changes that had to be made after evaluation.

### 3.17 Precautions

At most care was taken to understand the participants for this study. And all the details and considerations were given top priority to maintain confidentiality of participant’s records. Being a researcher and a psychologist, it was a responsibility to interact and communicate and help in maintaining the professional decorum for this study. Patients conditions with pain symptoms were dealt according to the requirement, and no one was forced or requested to be part of the study.

### 3.18 The Ethical considerations:

As the research required the participation of human respondents, especially the patients who come to the hospital with chest pain, ethical issues were addressed. The consideration of these ethics was necessary for the purpose of ensuring safety as well as the privacy of the participants. The safety of the participants was the significant ethical issues that were considered in the research process including consent and confidentiality. The hospitals “Jayadeva Institute of cardiology and Research Centre and Panacea Hospital” issued a consent letter behalf of the patient’s participation. In order to secure the consent of the selected participants, the researcher relayed all important details of the study, including its aim and purpose. By explaining these important details, the respondents were able to understand the importance of their role in the completion of the research. The respondents were also advised that they could withdraw anytime during the process of study. So, with this they were not forced by
either the researcher or the hospital authority. As the hospital was responsible for the patient's consent behalf of the patients who were under their supervision for medical care. The details about all the data collected was mentioned to them. The confidentiality of the participants was also ensured by not disclosing their names or personal information in the research. The Hospital Research In charge head had all the rights to supervise and monitor during the study process.

3.19 Statistical Analysis:

Descriptive statistics: It is used here to describe the basic features of the data in this study. These provide simple summaries about the sample and measures. This will form the basis of virtually every quantitative analysis of data.

Inferential statistics: This is applied here to infer from the sample data what the population might be judged for the probability that an observed difference between groups is dependable one or one might have happened by chance in this study

Chi-square: Chi square Test procedure tabulates a variable into categories and computes a chi-square statistics. This goodness of fit test compares the observed and expected frequencies in each category to test that all categories contain the same proportion of values or tests each category contains a user specified proportion of values. The number and the percentage of non-missing and missing cases, the number of cases observed and expected for each category and chi square statistics.

Independent t test: The independent samples t Test procedure compares the means of two groups of cases. Ideally, for this test the subjects should be in two groups so that any difference is observed between two different conditions. In this study the two groups NCCP and CCP was observed. Statistics- sample size, mean, standard deviation, and standard error of the mean

Logistic Regression: It is almost similar to ordinary regression, estimates the probability of an event or a factor occurring. That can be predicted with the help of a
model to see the relationship between a dependent and one independent variable, and allows us to look at the fit of the model as well as the significance of the relationship (between dependent and independent variables)

Paired t test: The paired-samples t Test procedure compares the means of two variables for a single group. The procedure computes the differences between values of the two variables for each case and tests whether the average differs from 0. Statistics- For each variable: mean, sample size, standard deviation and standard error of the mean.

**3.20: NCCP FOCUSED SUPPORTIVE INTERVENTION MODEL**

**DESCRIPTION**

NCCP focused intervention is essential for patients with psychogenic Non-cardiac chest pain. Patients who have pain associated with anxiety, depression and stress and other behavioral issues often go through a stage of uncertainty and lack of interest in self-care. This model is developed after a thorough evaluation of the patient’s condition and it should facilitate not only in treating after a condition has raised up but can also serve as an awareness programme for preventing oneself from health issues related to both physical and psychological well being. As this model focuses on Non-cardiac chest pain in specific, we can see that stage wise it will help in improvising one’s understanding of the condition they are in, and its relevance to Health Management. The NCCP Focused supportive programme will help the patients in handling their psychogenic condition and thus it helps in the management of pain through guidance and counseling. It is a model where the four important patients’ concerns are considered. This model has 6 stages to follow under specific time framed sessions. 12 week programme with 24 sessions under physician’s supervision, the
clinician initiates the intervention programme after the patient eligibility for intervention is considered under inclusion and exclusion criteria.

**Figure 6: NCCP FOCUSED SUPPORTIVE INTERVENTION MODEL**
**STAGE 1- Orientation on NCCP:**

First session, after developing a rapport with the patient, a detailed discussion with the patient begins with an orientation on Non-cardiac chest pain, which is often difficult to understand as the person may experience chest pain even if heart illnesses have been ruled out. Non-cardiac chest pain can be the result of muscle spasms, onset of shingles (a painful condition of the sensory nerves), or different types of neuralgia or nerve irritation (causes a band of pain radiating from the spine to the front of the chest or other areas) patients assume that chest pain is directly related to organic damage and that is of cardiac origin. So, it is essential to first explain that the condition is NCCP, which clearly indicates that there is no role for any heart related ailment and it is purely due to psychological conditions which can be managed under proper guidance and intervention. How it affects the physical health is explained with the help of some of the symptoms that patients themselves present with their pain and most of the time, the patient is able to see the changes that they are undergoing due to pain symptoms. They have to receive awareness about psychological health as much as physical health. How the anxiety or stress can alter the state of mind, in turn lead to painful symptoms and thereby experiencing chest pain and associated problems. Once the patient realizes the importance of physical and psychological health, they do get an assurance that they can handle their health condition with help from the health care professionals.

**STAGE 2- Awareness on psychogenic condition:**

Psychogenic condition is something that originates in the mind or in mental or emotional processes, having a psychological rather than physiological origin. Once the patient understands the purpose of the intervention and the clarity about NCCP, it
is important to explain their psychological condition. This is done with the help of the health care team which has provided reports regarding their health condition. Various factors like anxiety, depression, stress and behavioral issues could have been the reason for their chest pain symptoms. These have to be discussed in detail with the patient to see how they can be dealt with. So, how do these affect their health is the next important challenge. Usually, patients come with a combination of pain symptoms. These have to be neatly classified under various categories. Mainly the pain in the chest area, associated pain in the arm or back, discomfort like uneasiness, spasm, cramps and etc. should be discussed to see how these can be dealt with. A thorough knowledge about its effects is very essential. Usually, it is a matter of concern for both the patient and the clinician to see if it is treatable, as the clinician is aware of the causal factors related to the symptom presented by the patient. Conditions where the anxiety or stress related symptoms are moderate and can be handled by a clinician with the interest of the patient and their cooperation are explained and suggested for treatment. This is a very important stage to give the assurance to the patient that their conditions can be dealt with their participation for recovery from pain symptoms

**STAGE 3: Thought Modification (Robert Schuler’s CBT)**

According to Schuler, thoughts cause feelings: The wrong kind of thoughts can cause stressful feelings- so looking at the same event in different ways is essential. Usually we come across patients being either optimistic or pessimistic- but being realistic helps in the management of good mind and thus it leads to the maintenance of good health. So during a critical situation Schuller’s perspective are very useful in dealing with the situations in a simple manner. While asking questions to the patients, Health is important or the problem? They are basically differentiating the positives and
negatives of the condition they are in. Explaining that the problem they are facing is limited to a period of time, and they can hold positive strengths in overcoming the issues. The other question is, Suffering or freedom? This mainly puts the patient in clarifying their own thoughts about their interest in choosing what they want to do? Either suffer with pain and be disturbed or to handle the situation and be free from the conditions which is disturbing. A simple technique with support will help them overcome the hurdles in the process of recovery for better health when a question, Do you want support or isolation is asked? Patients usually by now understand that they can handle the condition with support for improvisation in their health with the help of a clinician. Clarifying to them that isolation will lead to complications. After the discussion It is convenient to the patient and clinician to deal with the situation. The patient has to just learn to deal according to the health demand with the help of the health care professionals.

**STAGE 4: Supportive Intervention**

Supportive intervention according to Otto F. Kernber, a well know psychoanalyst and professor of Psychiatry at Weill Cornel Medical college, gives a very clear definition on two important techniques under Supportive Therapy- ‘Clarification and Confrontation’ The technique of clarification involves exploring, with the patient, the implications of his statements and questioning what is contradictory, unclear or incomplete. Clarification is an attempt to bring out additional facts, while making more obvious what questions are implied, but left unexplained, in the patient’s understanding of the problem in question, and later clarifying it o the patient. It is a distinct intervention method rooted in the psychoanalytic frame of reference. It is a therapeutic modality on its own, which is supportive and is characterized by a determined primary goal and their implementation in concrete hours of treatment.
Kernberg believes that in this kind of intervention, primitive ego defenses, such as denial and projection ought not to be left undisturbed, as it has been suggested by many earlier authors. He proposes that primitive defense operations themselves weaken the patient’s ability to deal constructively with the problems they face and these defenses should be tactfully confronted. So the main goal is to clarify the patient’s problems and confront the patient with what he/she is not considered in resolving the situation.

**STAGE 5: Pain Management**

Pain Management is a branch of medicine employing an interdisciplinary approach for easing the pain symptoms and improving the health condition. Pain management can be a simple or a complex procedure depending on the cause of pain. There are varied techniques under Pain management in treating the pain. Techniques like Interventional procedures, medications, physical therapy and psychological support techniques are commonly used. The NCCP focused intervention has been combined with pain management which will help the patient to cope with pain, and to be responsible enough in addressing the health issues so that pain symptoms are reduced. The patient should be given awareness of the condition to handle the situation with the help of guidance.

**Coping strategies** Psychological mechanisms are commonly termed coping strategies or coping skills. These are very essential in every individual, especially in patients who fear about their health conditions. The term coping generally refers to adaptive or constructive strategies, that is, the strategies that reduce stress levels. Here the patient is taught how to cope up with pain disturbances. There are three major strategies under this, the Appraisal-focused (adaptive cognitive), Problem-focused( coping
behavior) and the Emotion-focused (change one’s emotional reaction to a stressor) These strategies help in making changes in pain management and adapting themselves in overcoming the pain symptoms.

**Patient responsibility** It is the responsibility of the patient to communicate and participate in the treatment process. It has long been recognized that successful patient care requires an ongoing collaborative effort between patients and the clinicians. Health care professionals have the equal responsibility in guiding the patients to participate in the intervention program accordingly to manage their pain symptoms and thereby managing their physical and psychological condition.

**Guided counseling.** In this section patients will be provided with a background of the procedures, guidelines, and overall structure to help them and handle their health conditions. They are taught how to manage the importance of flexibility in the pain intervention and the ways in which they can facilitate this process. They are provided with tips on how to manage their health and what are the requisites for healthy living. Constant support is provided to not only assess their health condition but also investigate and treat according to the requirement.

**STAGE 6: Health Literacy**

It is essential to add this health literacy in the model to educate the patients regarding various psychological factors that could affect their physical health and lead to various illnesses and disease. One of them is the NCCP due to psychogenic condition. Health literacy as a discrete form of literacy which is becoming increasingly important for social, economic and health development. General literacy is an important determinant of health; it is not to just address the major health challenges
but also the new challenges which are developing due to psycho-social factors along with the physiological origin.

**Psycho-education** is the method of giving knowledge which represents cognitive and social skills which determine the motivation and ability of individuals to gain access and to understand and use information in ways which promotes and maintains good health. The psycho-education helps the patient in understanding the essentials of managing their psychological health to have good physical and mental health. Thus to avoid situations where they could develop health related problems this gives assurance to the patient that their involvement is very essential for healthy living.

**Risk factors**: NCCP risk factors are plenty, if the patient experiences chest pain without cardiac origin along with anxiety, stress, depression and behavioral issues. It could lead to other health ailments like heart attacks, stroke, and if the patient has high blood pressure, diabetes and habits like smoking and alcohol consumption, it can worsen the situation. So explaining the conditions and giving precautions is very important when a patient is under the intervention program. Patients have to be aware of the risk factors if they don't pay attention to their health and lifestyle.

**Health Insurance**: The term health insurance is popularly known as Medical Insurance or med claim is a type of insurance that covers the medical expenses of the patient. The concept of health insurance is new in India, but its awareness is fast spreading. Life is unpredictable; the policies usually come in handy in case of severe emergencies. Insurance can make it safe and secure from bearing huge financial demands. It’s a contract between the individual and the health care company. Sometimes it is associated with covering disability and custodial needs. Very surprisingly we come across many of them not having knowledge about the health
care industry, which can provide benefits during emergencies and also take care of other essential laboratory investigations and treatment plans. It is very important to ensure health of an individual to be on the safer side. Public policies need to set certain preconditions for health. People must actively participate in their health as part of their contribution to civil society. Health promotion frames health as a resource for everyday life, and it describes health creation as a process of increasing people’s control over health and its determinants. According to their age and health status, individuals can plan their insurance depending on their requirement of care. Promoting health insurance is very essential. Most of the health care professionals should have prior knowledge about the policies and thereby it becomes easy to give the people who seek guidance regarding health Insurance. After this, the entire model will help the patients in handling their health condition and thereby gaining knowledge in health management through various inputs as guided by the clinician.

The intervention model was designed in such a way to facilitate the patient not just acquiring the knowledge about NCCP but also make an attempt at treating psychogenic pain symptoms. Care was taken regarding the entire intervention administered to patients to whom it was applied. An inclusion and exclusion details helped in assessing the patients for intervention and thus it helped in proceeding with the intervention program. The following chart gives details regarding the selection of NCCP patients.
**Intervention program method:** In this study the intervention was initiated for the focus group only. Non-experimental design: Impact evaluation and case series method: These are so called because they do not have a comparison group to have access to the intervention. The method is used to compare pre and post intervention.
A case series method was used for evaluation of intervention among 18 Psychogenic NCCP cases. The Case series method is used in conditions, there may be cases where No-experimental designs are the only feasible impact evaluation design, such as group specific interventions, universally implemented programs or national policy reforms in which no isolated comparison groups are likely to exist. Studies have also shown that understanding the conditions for improvement, the context influence affect improvement success (BMJ Qual Saf, 2011) the practical improvisation is essential to make changes more effectively by reflecting on and revising their own theories of assumption about the conditions which will help and hinder the improvements they aim to implement.(John, 2011) The applications to which this design is relevant, for example in calculating time-saving from an intervention which improves access to improvisation in health conditions

The case series summary

The NCCP patients were administered an intervention program to improve their psychological condition and for pain management. Under the inclusion and exclusion criteria, 18 patients underwent a systematic program developed by the researcher involving various techniques for specific psychogenic conditions. This method was followed for the intervention designed for psychogenic NCCP patients.