Review of Literature
CHAPTER II

REVIEW OF LITERATURE

The review of literature is traditionally considered as a systematic critical review of the most important published scholarly literature on a particular topic. A thorough literature review focuses on prior research, provides foundation on which to base knowledge.

According to Polit and Hungler (2002) “review of literature is a critical summary of research on a topic of interest generally prepared to put a research problem in context or to identify gaps and weakness in prior studies so as to justify a new investigation”.

This chapter discusses on two parts, Part A and Part B. Part A deals with studies related to anxiety and depression, studies related to family burden, studies related to social support, studies related to quality of life, studies related to coping behaviour and studies on factors associated with myocardial infarction. Part B deals with the modified theoretical framework based on Betty Neuman’s Model (1995).
Literature review was done for the present study and presented under the following heading.

**PART A**

2.1 Studies related to Anxiety and depression.

2.2 Studies related to impact of illness on family.

2.3 Studies related to perceived social support.

2.4 Studies related to quality of life.

2.5 Studies related to coping behaviours.

2.6 Studies on factors associated with myocardial infarction.

**2.1 STUDIES RELATED TO ANXIETY AND DEPRESSION:**

Ballenger, J. (2009) presented an article on anxiety characteristics independently and prospectively predict myocardial infarction in men; the unique contribution of anxiety among psychologic factors at University of Miami, Coral Gables, Florida on 735 older men (mean age 60 years) without a history of coronary disease or diabetes at baseline from the Normative Aging Study. The tools used were psychasthenia, social introversion, phobia, and manifest anxiety and data were collected using interview method and found that, Anxiety characteristics independently and prospectively predicted MI incidence after controlling for age, education, marital status, fasting glucose, body mass index, high-density lipoprotein cholesterol, and systolic blood pressure in proportional hazards models. The adjusted relative risk (95% confidence interval [CI]) of MI associated with each standard deviation increase in anxiety variable was 1.37 (95% CI 1.12 to 1.68) for psychasthenia,
1.31 (95% CI 1.05 to 1.63) for social introversion, 1.36 (95% CI 1.10 to 1.68) for phobia, 1.42 (95% CI 1.14 to 1.76) for manifest anxiety, and 1.43 (95% CI 1.17 to 1.75) for overall anxiety. These relationships remained significant after further adjusting for health behaviours (drinking, smoking, and caloric intake), medications for hypertension, high cholesterol, and diabetes during follow-up and additional psychologic variables (depression, type A behaviour, hostility, anger, and negative emotion). Anxiety-prone dispositions appear to be a robust and independent risk factor of MI among older men.

Roberge Marie-Anne, Dupuis Gilles, Marchand, Andre (2008) carried out a study on prevalence and associated factors of acute stress disorder after myocardial infarction at Centre de Recherche Fernand-Seguin de Hospital Louis-H. Lafontaine, Montreal, Quebec, Canada using descriptive research design on 1344 MI patients admitted to three Canadian hospitals, 474 patients did not meet the inclusion criteria and 393 declined participation in the study; 477 patients consented to participate in the study and data were collected by administrating structured interview and questionnaires to patients 48 hours to 14 days post MI. The main findings of the study were four percent were classified as having ASD using the Structured Clinical Interview for DSM-IV, ASD module. The presence of symptoms of depression (Beck Depression Inventory; odds ratio (OR) = 29.92) and the presence of perceived distress during the MI (measured using the question "How difficult/upsetting was the experience of your MI?"; OR = 3.42, R2 = .35) were associated with the
presence of symptoms of ASD on the Modified PTSD Symptom Scale. The intensity of the symptoms of depression was associated with the intensity of ASD symptoms (R = .65). The models for the detection and estimation of ASD symptoms were validated by applying the regression equations to 72 participants not included in the initial regressions. The results obtained in the validation sample did not differ from those obtained in the initial sample and concluded that, symptoms of depression and the subjective distress during the MI could be used to improve the detection of ASD.

Martens, E, Nyklicek I, Szabo, (2008) conducted a study on depression and anxiety as predictors of heart rate variability after myocardial infarction at Tilburg University, The Netherlands using descriptive research design on ninety-three patients during hospitalization for MI using simple random sampling method. The tool used was self-reported symptoms of depression and anxiety and data were collected by self reported questionnaire and data were analysed using descriptive analysis and unadjusted analyses. The study findings were lifetime diagnoses of major depressive disorder was predictive of lower SDNN [standard deviation of all normal-to-normal (NN) intervals; [beta]=-0.26, p=0.022] and SDANN (standard deviation of all 5-min mean NN intervals; [beta]=0.25, p=0.023), and lifetime anxiety disorder of lower RMSSD (root mean square of successive differences; [beta]=-0.23, p=0.039). Depression and anxiety symptoms did not significantly predict HRV. After adjustment for age, sex, cardiac history and multi-vessel disease, lifetime
depressive disorder was no longer predictive of HRV. Lifetime anxiety disorder predicted reduced high-frequency spectral power ([beta]=–0.22, p=0.039) and RMSSD ([beta]=–0.25, p=0.019), even after additional adjustment of anxiety symptoms and concluded that clinical anxiety, but not depression, negatively influenced parasympathetic modulation of heart rate in post-MI patients. These findings elucidate the physiological mechanisms underlying anxiety as a risk factor for adverse outcomes, but also raise questions about the potential role of HRV as an intermediary between depression and post-MI prognosis.

White, Mary L, Groh, Carla J (2007) presented an article on depression and quality of life in women after a myocardial infarction at Detroit, Mich using descriptive research design on 27 women (mean age = 60.7 years) women with first MI were selected by convenient sampling method. The tools used were Beck Depression Inventory, and quality of life was measured using the Short Form-36 and data was collected by interview method and the main findings were the mean (SD) depression score was 9.4 (5.5), indicating mild to moderate depression. Depression had a significant negative correlation with the mental component. In addition, subjects reported lower scores on 3 of the 8 Short Form-36 subscales when compared with national norms of persons experiencing a recent MI and concluded that, many women continue to report mild to severe depression after MI, and depression seems to be related to some
aspects of quality of life. Screening for depression and treating if symptoms are significant is one intervention for improving quality of life after MI.

**Fukuoka Y, Dracup K, Froelicher ES, et.al.** (2007) published an article on Japanese workers who experience an acute myocardial infarction and believed their prolonged working hours were the cause for myocardial infarction at School of Nursing, University of California using cross-sectional study on 47 patients admitted to the hospital with acute myocardial infarction and 47 healthy workers visiting a hospital and the tool used was brief job stress questionnaire and data were collected by semi-structured interview and filled-in questionnaire. The major findings were compared with healthy workers (50.7+/−8.6 h), Acute myocardial infarction patients worked significantly longer hours per week (58.3+/−15.0 h) prior to their acute myocardial infarction. Among acute myocardial infarction patients, 38% reported that job stress might have contributed to their acute myocardial infarction. Acute myocardial infarction patients who reported acute stressful events at work during the month prior to acute myocardial infarction were 6.88 times (95% CI: 1.84, 25.75) more likely to believe that job stress/overwork caused their acute myocardial infarction after controlling for working hours per week and age. The study concluded that, like other known cardiac risk factors, it is important for clinicians to assess patient's excessive working hours. The education and counselling of patients following acute myocardial infarction must take into
consideration long working hours, acute stressful events at work, and the patient's perceived view of job stress.

**Soderman E, Lisspers J, Sundin O** (2007) carried out a study on impact of depressive mood on lifestyle changes in patients with coronary artery disease at MidSweden University, Sweden using experimental research design on 109 of the original 183 consecutive coronary artery disease patients (91 male and 18 female) of whom 48 recently had experienced an acute myocardial infarction, 36 had been treated with coronary bypass surgery, 13 with percutaneous transluminal coronary angioplasty, and 12 had angina pectoris that had not been invasively treated. The subjects were divided into 3 subgroups based on their pre-treatment level of depressive mood and the tools used were Hospital Anxiety and Depression scale and data was collected by completed instrument and medical records reviewed. The major findings were overall depressive mood ratings were significantly lower, both at the 4-week and 12-month assessments, compared with baseline, with the greatest improvements in patients with higher Hospital Anxiety and Depression. Original levels of depressive mood were not found to influence change of lifestyle habits during a 36-month follow-up period and concluded that, depressive mood might not be an obstacle to lifestyle changes when participating in a behaviourally oriented rehabilitation programme including exercise-training, which might be a component important for improved depressive mood.
Moser, Debra K, Riegel, Barbara, Sharon (2007) presented an article on impact of anxiety and perceived control on In-Hospital complications after acute myocardial infarction at Sydney and Royal North Shore Hospital (S.M.), Sydney using descriptive research design on 536 hospitalized for acute myocardial infarction and the tools used were State-Trait Anxiety Inventory and data was collected by filled questionnaire. The main findings were Patients' mean anxiety level was double that of the published mean norm. Patients with higher levels of perceived control had substantially lower anxiety (p = .001). A total of 145 (27%) patients experienced one or more in-hospital complications. Patients with higher levels of anxiety had significantly more episodes of ventricular tachycardia, ventricular fibrillation, and reinfarction and ischemia (p < .01 for all). In a multivariate hierarchical logistic regression model, left ventricular ejection fraction, history of myocardial infarction, anxiety score, and the interaction of anxiety and perceived control were significant predictors of complications and concluded that, anxiety during the in-hospital phase of acute myocardial infarction was associated with increased risk for in-hospital arrhythmic and ischemic complications that was independent of traditional sociodemographic and clinical risk factors. This relationship was moderated by level of perceived control such that the combination of high anxiety and low perceived control was associated with the highest risk of complications.

Kaptein, Kirsten, de Jonge, Peter, van den Brink et.al. (2006) made a latent class analysis on course of depressive symptoms after myocardial infarction and cardiac prognosis at four hospitals in the Netherlands using
historical research design on 475 subjects admitted with MI and the tools used were the Beck Depression Inventory (BDI) using latent class analysis (LCA) and data was collected. The main findings were the prevalence of significant depressive symptoms ranged from 22.7% to 25.5% throughout the post-MI year. Five distinct courses were found: no depressive symptoms (56.4%), mild depressive symptoms (25.7%), moderate and increasing depressive symptoms (9.3%), significant but decreasing depressive symptoms (4.6%), and significant and increasing depressive symptoms (4.0%). Subjects in this last class had, statistically, a significantly higher risk for a new cardiovascular event compared with subjects without depressive symptoms (hazard ratio (HR) = 2.73; p = .01). Controlling for baseline cardiac status and socio-demographic data did not alter the association (HR = 2.46; p = .03) and concluded that post-MI depressed subjects with significant and increasing depressive symptoms were at particular risk of new cardiac events. This subgroup may be most suited for evaluation of the effects of antidepressant treatment on cardiac prognosis.

Tel, Havva, Hatice (2006) conducted study on the effect of individualized education on the transfer anxiety of patients with myocardial infarction and their families at Sivas, Turkey using experimental research design on 90 patients with myocardial infarction who were admitted to the CCU and 90 individuals who were the relatives of the patients. The tools used was information form containing questions related to the disease and lifestyle habits, and Spielberger's State-Trait Anxiety Inventory and data was collected by interview and found that the relatives and patients in the CCU experienced
anxiety on the second day of admission and on the day of transfer. There was a statistically significant difference between the experimental and comparison groups with respect to the level of anxiety for the patients and their relatives on the second CCU day and on the day of transfer (P < .01) and concluded that patients in the CCU and their relatives experienced anxiety. An individualized education program was effective in decreasing the anxiety of patients and their relatives when the patients were transferred from the CCU to the general care unit.

**Koenig Harold G** (2005) published an article on depression outcome in inpatients with congestive heart failure at Veterans Administration Medical Centre, Durham using longitudinal research design on 404 (247 with minor depression and 157 with major depression, the tool used was Diagnostic and Statistical Manual of Mental Disorder, Fourth Edition (DSM-IV), Axis I Disorders, version 2.0 and data were collected by structured clinical interview and found that patients with minor depression were followed up for an average of 11.3 weeks, during which 64.0% went into remission; those with major depression were followed up for 20.2 weeks, during which 47.8% went into remission. Baseline predictors of shorter time to remission for minor depression were less severe depression (hazard ratio [HR], 0.95; 95% confidence interval [CI], 0.92–0.98) and fewer co-morbid illnesses (HR, 0.92; 95% CI, 0.87–0.98); patients who were younger and had better physical functioning and those not treated with antidepressants also tended to go into remission faster. For major depression, less severe depression was the primary
predictor (HR, 0.92; 95% CI, 0.88–0.96), although patients who were younger, male, without a history of depression, and with fewer comorbid medical disorders also tended to go into remission faster. Fewer than 50% of patients with major depression received treatment, and only 12% had psychiatric consultations and concluded that, outcome of minor depression may be more dependent on physical stressors, whereas major depression seems more affected by intrinsic vulnerability. Many patients with major depression were not treated, and few had psychiatric consultations.

Frasure Smith Nancy, Lespérance François (2004) made a review literature on reflections on depression as a cardiac risk factor at McGill University using descriptive research design on 79 articles. Medline, Current Contents, and PsychInfo databases were used to perform a systematic review of the literature and identified 21 etiologic and 43 prognostic publications that had prospective designs, used recognized measures of depression, and included objective outcome measures. In addition to issues of sample size, sample characteristics, and timing of measures, it was noted that heterogeneity in the definitions of depression, frequent repeat publications from the same data sets, heterogeneity of outcome measures, a variety of approaches for covariate selection, and a preponderance of review articles, all factors that cannot help to convince skeptics and concluded that despite these issues, the bulk of the data from prospective studies with recognized indices of depression and objective outcome measures were supportive of depression as a cardiac risk factor.
Brisson Chantal, Leblanc Richard, Bourbonnais Renée et al. (2004) carried out a study on psychologic distress in post myocardial infarction patients who had returned to work at institute de cardiologie de Québec, Canada using descriptive research design on 990 post-MI patients (106 women and 884 men) and 8829 other workers (3823 women and 5006 men), representative of the general working population. The tools used to measure psychological distress was French version of the Psychiatric Symptom Index (PSI) and data were collected by completed instrument and interview it was found that Mean PSI score was higher in post-MI women (30.3) than in post-MI men (20.3). This score was also higher in the post-MI population than in the general working population, both for women (30.3 compared with 17.0) and men (20.3 compared with 14.1). Psychological distress was more prevalent in post-MI women than in post-MI men (prevalence ratio [PR], 1.62; confidence interval [CI], 1.27–2.07). This score was also higher in post-MI women and post-MI men than in the general working population (PR, 2.18; CI, 1.75–2.71 and 1.76; CI, 1.48–2.08, respectively) and concluded that, among the presumably fittest post-MI patients, namely those who had returned to work, psychological distress was significantly more prevalent than in the general working population, particularly among women. Further research is needed to shed light on prognosis in post-MI workers experiencing psychological distress and on adequate intervention before and after their return to work.
Barth Jürgen, Schumacher, Martina, Herrmann-Lingen (2004) made a meta-analysis on depression as a risk factor for mortality in patients with coronary heart disease at the University of Freiburg, Germany using prospective studies on 62 publications, it was found that majority of the studies, tools used were Beck Depression Inventory, Diagnostic Interview Schedule, Zerssen Self-Rating Scale and data were collected from Medline, PsycInfo, PSYNDEX. The major findings were depressive symptoms increase the risk of mortality in CHD patients. The risk of depressed patients dying in the 2 years after the initial assessment is two times higher than that of nondepressed patients (OR, 2.24; 1.37–3.60). This negative prognostic effect also remains in the long-term (OR, 1.78; 1.12–2.83) and after adjustment for other risk factors (HR [adj], 1.76; 1.27–2.43). The unfavourable impact of depressive disorders was reported for the most part in the form of crude odds ratios. Within the first 6 months, depressive disorders were found to have no significant effect on mortality (OR, 2.07; CI, 0.82–5.26). However, after 2 years, the risk was more than two times higher for CHD patients with clinical depression (OR, 2.61; 1.53–4.47). Only three studies reported adjusted hazard ratios for clinical depression and supported the results of the bivariate models and concluded that, depressive symptoms and clinical depression had an unfavourable impact on mortality in CHD patients. The results are limited by heterogeneity of the results in the primary studies. There was no clear evidence whether self-report or clinical interview was the more precise predictor. Nevertheless, depression was considered to be a relevant risk factor in patients with CHD.
An, Kyungeh, De Jong, Marla, Riegel, Barbara J, et.al. (2004) carried out a cross-sectional examination of changes in anxiety early after acute myocardial infarction at 4 urban university medical centres and 2 private hospitals in the United States and 1 large university teaching hospital in Australia using cross-sectional research design on 486 patients with acute myocardial infarction. The Spielberger State-Trait Anxiety Inventory was used to measure anxiety once in each patient within 72 hours of the patient's admission to the hospital and data was collected by interview and found that Peak anxiety occurred within the first 12 hours after acute myocardial infarction ($P < .05$) and anxiety level differed among the time intervals ($F [5, 474] = 4.55, P < .001$). There was a main effect of gender on anxiety ($F [1, 474] = 11.86, P < .001$). Women reported higher anxiety than men at all time points except the time interval of 24.1 to 36 hours after acute myocardial infarction and concluded that Prospective, longitudinal, repeated measures research was needed to confirm the trajectory of anxiety in acute myocardial infarction patients, but data from this study suggested that anxiety should be assessed and treated in the early stages of acute myocardial infarction to prevent potential complications that may be exacerbated by anxiety and to provide comfort to acute myocardial infarction patients.

Pedersen, Susanne Schmidt, Middel, et.al. (2003) presented an article on posttraumatic stress disorder in first-time myocardial infarction patients at Aarhus University Hospital, Denmark using experimental research design on
112 consecutive patients and 115 healthy controls selected randomly using structured questionnaire and data were collected from the patients' medical records and interview and the main findings were twenty-five (22%) patients qualified for a diagnosis of posttraumatic stress disorder (PTSD) compared with 8 (7%) controls with patients being more than a three-fold (OR: 3.84; 95% CI: 1.65 to 8.94) risk of having the disorder. When adjusting for other variables, the risk was reduced to above a two-fold risk (OR: 2.71; 95% CI: 0.99-7.41). In patients and controls, depression and neuroticism were associated with a diagnosis of posttraumatic stress disorder adjusting for other variables. In patients, anxiety was associated with a diagnosis of posttraumatic stress disorder adjusting for other variables. Left ventricular ejection fraction and symptoms of angina pectoris were not related to a diagnosis of posttraumatic stress disorder in the patient group and concluded that persons with posttraumatic stress disorder are at increased risk of cardiovascular diseases, cardiac patients with the disorder may be at a higher risk of recurrent cardiac events. Although longitudinal studies were needed to confirm such a relationship, this disorder should not be overlooked because of its potential role in reinfarction and mortality.

**Frazier, Susan K, Moser, Debra K, et.al.** (2002) conducted study on management of anxiety after acute myocardial infarction at Mount Carmel Health, Columbus, Ohio using descriptive correlational research design on 101 subjects with acute myocardial infarction and the tool used was Spielberger
State Anxiety Inventory (SAI) and data was collected through medical records review to evaluate the use of pharmacological and nonpharmacological anxiety management strategies for the period that encompassed 12 hours before and 12 hours after administration of the Spielberger State Anxiety Inventory and found that subjects were primarily white (93%), married (72%) individuals with a hospital admission Killip classification of I (71%). Documentation of subjective anxiety assessment was found for only 45 subjects (44.6%). Subject rating of anxiety with Spielberger State Anxiety Inventory ranged from 20 (no anxiety) to 77 (extreme anxiety; mean, 37.2 +/- 12.4). Seventy-two subjects had documentation of anxiety management (pharmacological, 25.7%; nonpharmacological, 45.6%). No significant relationship was seen between the subject Spielberger State Anxiety Inventory score and the clinician assessment of anxiety ([lambda] = 0.03;P < .05). Although documentation was seen that 72 subjects received anxiety management, no association was found between the clinician evaluation of anxiety and the use of anxiety management strategies (pharmacological: [lambda] = 0.11;P = .65; nonpharmacological: [lambda] = 0.07;P = .08). A small but significant relationship was found between the subject SAI score and the use of pharmacological anxiety management ([lambda] = 0.10;P = .03) but no association was found between SAI score and the use of nonpharmacological anxiety management ([lambda] = 0.6;P = .50). Evaluation of efficacy was not routinely documented (pharmacological, 58%; nonpharmacological, 2%). Only 2 subjects (2%) received consultation to social work for management of anxiety and concluded that Anxiety was not
systematically and accurately assessed or logically managed in this sample of patients with acute myocardial infarction. Critical care clinicians need a comprehensive understanding about the importance of anxiety to patient outcome in addition to objective, reliable, and valid anxiety measures and a useful repertoire of evidence-based management strategies to effectively manage anxiety. Effective management of anxiety positively influences patient outcome and should be a goal for all critical care MI patients.

Koivula, Meeri, Paunonen-Ilmonen, Tarkka, et.al. (2001) carried out a study on fear and anxiety in patients awaiting coronary artery bypass grafting at Tampere University Hospital using descriptive survey research design on 240 patients placed on the waiting list for coronary artery bypass grafting. The Bypass Grafting Fear Scale, the State-Trait Anxiety Inventory, and the Hospital Anxiety and Depression Scale were used and data were collected from completed questionnaire form. It was found that half of the patients experienced low fear and anxiety and found that twenty-five percent had high fear, but only 5% had high anxiety. Patients who felt high fear were mainly women, had no vocational education, were on sick leave, were depressed, had a tendency towards anxiety, and had a short wait for operation. Patients who displayed medium or high anxiety were mostly under 55 years of age and had depression, but only low or no pain and concluded that the results facilitate better identification of predictors of high fear and anxiety as well as direct support and information for those patients.
Friedman, Maureen, Griffin, Judy A (2001) conducted a study on relationship of physical symptoms and physical functioning to depression in patients with heart failure at Rochester and Buffalo, New York using an exploratory; co relational longitudinal design on 170 subjects with heart failure using depression scale and data were collected by interview schedule. Multiple regression analysis indicated that physical symptomatology was more closely related to depression than is physical functioning in adults with heart failure and found that 30% of the sample (n = 52) had scored high indicating clinical depression. Both physical symptoms (r = 0.48) and physical functioning (r = -0.32) were moderately correlated with depression. Physical symptoms contributed 13% uniquely to the variance in depression while physical functioning contributed only 2% uniquely to the variance in depression and concluded that, the patients with heart failure who had increased physical symptoms and poorer physical functioning reported increased symptoms of depression. Physical symptoms explained a greater portion of the variance in depression than did physical functioning. Thus, it appeared that patients with heart failure were affected emotionally by both their physical symptoms and their limitations in their physical functioning, but depression was more strongly related to having more physical symptoms than having greater limitations in physical functioning.
Summary of findings on anxiety and depression

By reviewing the literature on the areas of anxiety and depression of patients diagnosed with myocardial infarction it was found that,

- Anxiety-prone dispositions appeared to be a robust and independent risk factor of MI among older men (Ballenger J, 2009).

- Symptoms of depression and the subjective distress during the MI could be used to improve the detection of ASD (Roberge Marie-Anne, Dupuis Gilles, Marchand, Andre, 2008).

- Clinical anxiety, but not depression, negatively influenced parasympathetic modulation of heart rate in post-MI patients (Martens, E, Nyklicek I, Szabo, 2008).

- Depressive features affected quality of life (White Mary l.Groho.Carla J 2007)

- Acute myocardial infarction patients who reported acute stressful events at work during the month prior to acute myocardial infarction were more likely to believe that job stress/overwork caused their acute myocardial infarction (Fukuoka Y, Dracup K, Froelicher ES, et.al, 2007).

- Myocardial infarction patients suffered with anxiety and depression demanding life style changes (Soderman E,Lisspers J,Sudin O,2007)

- The features of anxiety increased the complication in Myocardial infarction patients (Moser, Debra K,Rigel,Barbara,Sharon,2007)

- Increased depression was a risk for a new cardiovascular event(Kaptein Kirsten,de Jonge, Peter, van dan Brink 2006)
• Shifting Myocardial infarction patients from C.C.U to intermediate care unit increased the anxiety and there is a need to provide individual education programme while patients getting transfer from CCU to general care unit (Tel, Havva, 2006)

• Need for simultaneous treatment for Myocardial infarction and depression was seen. Severe depression increased the remission of myocardial infarction. (Koenig Harlod G 2005)

• Depression in Myocardial infarction patients was seen as a cardiac risk factors (Frasura-Smith Nancy, 2004)

• Men suffered with less psychological distress comparing to women diagnosed with Myocardial infarction (Brisson Chantal, Leblanc Richard, 2004)

• Depression increased risk of mortality in coronary heart diseases patients (Barth Jurgen, Schumacher, 2004)

• One of the core suggestion was that anxiety in Myocardial infarction patients should be assessed and treated in early stage of acute Myocardial infarction to prevent potential complications (Birks Yvonne, Tompson, 2004)

• There was a positive correlation between post traumatic stress disorder and anxiety with remission of Myocardial infarction in patients (Kyunghe, De Jong, 2004)

• Myocardial infarction patients needed anxiety treatment for better outcome (Frazier, Susan K, 2002)
• Fear and anxiety was seen in preoperative coronary artery bypass grafting patients demanding greater support and treatment (Koivula, Meeri, 2001).

• Myocardial infarction suffered with depression due to limitation in their physical functioning (Friedman, Mauren, 2001).

2.2 STUDIES RELATED TO IMPACT OF ILLNESS ON FAMILY:

Bressi, Cinzia, Porcellana et al., (2009) carried out a study on expressed emotion in wives of myocardial infarction patients at Vita Salute University San Raffaele, Milan, Italy using experimental research design on 50 consecutive male in-patients with a diagnosis of AMI and their wives were selected using random sampling method. The tools used were Camberwell Family Interview and ratings of Expressed Emotion, Patients completed the State-Trait Anxiety Inventory (STAI X1-X2) and the Beck's Depression Inventory (BDI) and data were collected by self report method after 12 months (T1), during appropriate treatment by a cardiologist blinded to the Expressed Emotion ratings, the existence or absence of serious adverse events (death or hospitalizations because of cardiac causes) were determined as an all-or-none phenomenon. Stepwise logistic regression analysis was performed to estimate associations among illness course and Expressed Emotion subscales, STAI X1-X2, BDI scores and clinical variables and found that High family Emotional Over involvement (EOI) scores were associated with higher study entry levels of depression (P = 0.003) among the patients and high Warmth was related to
higher score on state anxiety scale (P = 0.000). Poor illness course at T1 was associated with high EOI [P = 0.005, exp (B) = 0.502, 95% confidence interval 0.308-0.818] and concluded that, association among wives' emotional profile, patients' psychological variables and illness course suggested the importance of a family assessment and of interventions directed towards changing emotional behaviours which could threaten the patient's psychological adjustment and the clinical course following a heart attack.

Luttik, Marie Louise, Jaarsma Tiny, Veeger Nic, et.al. (2006) carried out a study on marital status, quality of life, and clinical outcome in patients with heart failure at Groningen, The Netherlands, using descriptive research design on 179 patients using Cantril Ladder of Life (0-10) and data were collected by patient interview and chart review. The main study findings were 96 (54%) were married or were living with a partner. Differences in quality of life between married patients and those living alone were most pronounced with regard to future expectations of quality of life (6.5 vs 5.0, P = .00). However, in a multivariate model quality of life was primarily associated with socioeconomic status, age, and gender. Married patients had 12% less events in the 9-month follow-up period compared with patients living alone (P = not significant) and concluded that most patients with heart failure who were living alone were mostly elderly women with a low socioeconomic status, who were at risk for recurrent events and a worse quality of life.
Giallauria F, Paragliola T, Pilerci F et al. (2005) presented an article on role of smokers in the household and of cardiac rehabilitation in smoking behaviour after acute myocardial infarction at Napoli, Italy using experimental research design on 164 male post-AMI patients. Tools used was standardized questionnaire and data were collected by interview method and medical measures and found that, smoking resumption at 12 months was influenced by the presence of household smokers (HS): 38% of patients with HS resumed smoking compared to 27% of patients without HS (p <0.01). Adherence to a cardiac rehabilitation programme was inversely correlated to smoking resumption: there were fewer smoking patients at 12 months from AMI in Group C than in Groups A or B (11% in C vs. 29% and 55% in B and A, respectively, p <0.001) and concluded that, long term maintenance of cardiac rehabilitation programme seemed to be the best way to achieve a reduction of long term smoking habit and maintain adherence to prescription in patients after AMI. Counselling and behavioural intervention should also be extended to family members in order to maximize the benefit of secondary prevention.

Dracup Kathleen, Evangelista, Lorraine S et al. (2004) conducted a study on emotional well-being in spouses of patients with advanced heart failure at, Los Angeles, California using descriptive research design on 69 spouses of patients with advanced heart failure using 2 subscales of the SF-36, control attitudes scale-family version and caregiver appraisal tool. Descriptive statistics, Pearson correlations, and stepwise multiple regression were used to analyze data and found that the model explained 40% of the variance in the
emotional well-being of spouses \( (P = 0.001) \). Perceived control \( (P = 0.001) \) and age \( (P = 0.046) \) were associated with emotional well-being. In spouses with higher levels of control, emotional well-being was significantly higher than in spouses with lower levels of control \( (P = 0.003) \). Older spouses had higher levels of emotional well-being compared with younger spouses \( (P = 0.01) \) and concluded that, health care professionals must assess the level of control perceived by spouses of patients with advanced heart failure and provide information and counselling directed toward increasing their sense of control. Younger spouses were particularly at risk for decreased emotional well-being and required special intervention.

**Moser DK, Dracup K** (2004) conducted a study on role of spousal anxiety and depression in patients' psychosocial recovery after a cardiac event at College of Nursing, University of Kentucky, USA using descriptive research design on 417 patient-spouse pairs hospitalized for either acute myocardial infarction or coronary revascularization. Tools used were structured questionnaire and data were collected by interview method and found that, spouses had higher levels of anxiety \( (p <.001) \) and depression \( (p <.001) \) than did patients, but there were no differences in level of hostility. Patients also expressed higher levels of perceived control than did spouses \( (p <.001) \). Spouse anxiety, depression, and perceived control remained correlated with patient psychosocial adjustment to illness, even when patient anxiety and depression were kept constant. Patients' psychosocial adjustment to illness was worse when spouses were more anxious or depressed than patients, and it was best
when patients were more anxious or depressed than spouses, whereas psychosocial adjustment to illness was intermediate to these 2 extremes when patient and spouse anxiety and depression levels were similar (p = .001) and concluded that, spouses often experienced greater anxiety and depression and less perceived control than patients themselves. Attention to the psychological distress experienced by spouses of patients who had suffered a cardiac event improved outcomes in patients.

Greenberg S, Almaro N, Keren G, Sheps D (2004) published an article on effect of spouse participation in cardiac rehabilitation program on patients' compliance and exercise level at Tel Aviv Sourasky Medical Centre Israel using experimental research design on 14 couple who had suffered a myocardial infarction (Group 1--Rehabilitation program) and 10 couple with myocardial infarction (Group 2--secondary prevention). Outcome was measured by number of sessions attended, basic and final physical training level and found that, rehabilitation groups, the participants attended a larger number of sessions (87.3 + 17) compared to control (47.7 + 6) (p < 0.05). There was no difference in the basic training level between the groups (3.5 + 0.2 METS; compared with 3.4 + 0.2 METS) (P = 0.5) and both groups had similarly improved their training level by 0.79 + 0.1 METS compared with 0.6 + 0.1 METS in the control group (p = 0.2). In the secondary preventive groups, the control group attended a larger number of sessions (51 + 13 compared with 31.2 + 6 sessions) (p < 0.02). There was no difference in the basic training level between groups 3.7 + 0.3 METS compared with 4.2 + 0.2 in the control group
(p = 0.2). However, at the end of the training period, the control group showed greater improvement in their training level by $0.7 + 0.2$ METS compared to $0.3 + 0.1$ METS (p < 0.05). The spouses themselves had attended a greater number of sessions (45 + 10 compared with 37 + 6 in the control group) (p = 0.2). There was no difference between those groups in the training level at baseline and at the end of training period and concluded that, active support during the rehabilitation programme might have improved the rates of participation but in the secondary prevention program active spouse support might have encouraged early dropout.

Tel H, Tel H (2004) carried out a study on the effect of individualized education on the transfer anxiety of patients with myocardial infarction and their families at School of Nursing University of Cumhuriyet, Turkey using experimental research design on 90 patients with myocardial infarction who were admitted to the CCU and 90 individuals who were the relatives of the patients. Tool used was Spielberger's State-Trait Anxiety Inventory and data were collected by completed instrument and disease information form and found that, the relatives and patients in the CCU experienced anxiety on the second day of admission and on the day of transfer. There was a statistically significant difference between the experimental and comparison groups with respect to the level of anxiety for the patients and their relatives on the second CCU day and on the day of transfer (P<.01) and concluded that, patients in the CCU and their relatives experienced anxiety. An individualized education
program was effective in decreasing the anxiety of patients and their relatives when the patients were transferred from the CCU to the general care unit.

**Keleş I, Onat A, Toprak S** (2003) presented an article on family income a strong predictor of coronary heart disease events but not of overall deaths among Turkish adults at Turkish Society of Cardiology, Turkey using prospective population-based survey on 2704 men and women. Tools used were based on history, physical examination of the cardiovascular system, and Minnesota coding of resting ECGs and found that, all-cause deaths failed to be significantly associated with income brackets in logistic regression analysis when adjusted for age, sex, and three major risk factors. Systolic blood pressure and cigarette smoking were significant independent predictors of overall mortality. In regard to fatal and nonfatal CHD, even after adjusting for age, sex and three major risk factors, a significant excess was noted in the two lowest brackets as opposed to the high income bracket (relative risk 1.56 and 1.75, respectively, P<0.03 and concluded that, family income in the Turkish community was not predictive of overall mortality, but was strongly predictive of future CHD events independent of age, sex, and three major factors, posing a huge coronary risk on the individual and the society.

**Santavirta N, Kettunen S, Solovieva S** (2001) conducted a study on coping in spouses of patients with acute myocardial infarction in the early phase of recovery at University of Helsinki, Finland using descriptive research design on fifty-seven spouses. Data were collected by structured questionnaires
and found that age, negative life event during the last 12 months, time since infarction, and the spouse's fears influenced the choice of strategies. In the early stage of the crisis, positive reappraisal seemed to be a strategy that increased physical strain and concluded that, spouses needed social support in the early stage of the crisis was a factor for health care providers to bear in mind. Besides giving information, empathy, and understanding by health care personnel can try to assist spouses in their efforts to reappraise their situation.

Stewart M, Davidson K, Meade D (2001) published an article on group support for couples coping with a cardiac condition at University of Alberta, Canada using descriptive research design on 28 first-time myocardial infarction patients. Data were collected by interview schedule and found that, support processes in the group included social comparison, social learning, and social exchange. Three types of support; emotional, information, and affirmation were provided. All participants were satisfied with the support intervention and referred to the positive effect on their coping, confidence, outlook, and spousal relationship. Factors that influenced the intervention effect were participant input, co facilitation, similarity of group members, and the provision of information and support. The study concluded that, future interventions could consider similarity of peers, leadership, and optimum timing and duration.
Summary of findings on impact of illness on family:

♦ High family Emotional Over involvement (EOI) scores were associated with higher study entry levels of depression among the MI patients (Bressi, Cinzia, Porcellana et.al, 2009).

♦ Most patients with heart failure who were living alone were mostly elderly women with a low socioeconomic status, who were at risk for recurrent events and a worse quality of life (Luttik, Marie Louise, 2006).

♦ Smoking resumption was influenced by the presence of household smokers. Counselling and behavioural intervention should also be extended to family members in order to maximize the benefit of secondary prevention (Giallauria F, Paragliola, 2005).

♦ Younger spouses were particularly at risk for decreased emotional well-being and required special intervention toward increasing their sense of control (Dracup Kathleen, 2004).

♦ The psychological distress experienced by spouses of patients correlated with patient psychosocial adjustment to illness (Moser DK, 2004).

♦ Active support of the spouses during the rehabilitation programme might have improved the rates of participation by the myocardial infarction patients but in the secondary prevention programme active spouse support encouraged early dropout (Greenberg S, 2004).

♦ Patients in the CCU and their relatives experienced anxiety. An individualized education program was effective in decreasing the
anxiety of patients and their relatives when the patients were transferred from the CCU to the general care unit (Tel H, Tel H, 2004).

- Family income in the Turkish community was strongly predictive of future CHD (Keleş I, 2003).

- Spouses needed social support in the early stage of the crisis. Besides giving information, empathy, and understanding, health care personnel should try to assist spouses in their efforts to reappraise their situation (Santavirta N, 2001).

- Group support for couples coping with a cardiac condition gave positive effect on their coping, confidence, outlook, and spousal relationship (Stewart M, Davidson K, 2001)

2.3 STUDIES RELATED TO PERCEIVED SOCIAL SUPPORT:

Baigi Amir, Hildingh Cathrine, Virdhall Helen, Fridlund, Bengt (2008) conducted a short term follow up on sense of coherence as well as social support and network as perceived by patients with a suspected or manifest myocardial infarction at Primary Health Care, Halland, using prospective short-term follow-up design on 246 patients with a suspect or manifest myocardial infarction. The tools used were The Lubben Social Network Scale (LSNS-R), the Medical Outcome Study (MOS) Social Support Survey and the Sense of Coherence Scale were included in a self-administered questionnaire and answered twice, together with sociodemographic variables. The main findings of the study were changes in social support (practical support increased in men
and decreased in women; both \( P = 0.003 \) and social network (family network increased among >65 year olds; \( P = 0.001 \), men; \( P = 0.013 \), and women; \( P = 0.033 \), those with a low; \( P = 0.017 \), and intermediate; \( P = 0.033 \), educational level, as well as those cohabiting; \( P = 0.0001 \)), but did not reveal any difference in sense of coherence and concluded that, Sociodemographic variables have no influence on sense of coherence but do affect social support (i.e. practical support and social network, family). Ischemic heart disease patients' short stay in hospital implies that the network outside the hospital has to assume responsibility, but at the same time it is important for health care professionals to have sufficient knowledge to be able to support the specific needs of patients and their family members.

**Barry Lisa, Lichtman Judith, John A et al.** (2007) published an article on patient satisfaction with treatment after acute myocardial infarction at Atlanta, GA using descriptive research design on 1847 acute myocardial infarction patients and the tools used were Treatment Satisfaction scale of the Seattle Angina Questionnaire and the data were collected by interview schedule. The main findings were Study participants were primarily white (77.6%) and male (68.8%), with a mean age of 60.6 +/- 12.7 (SD) years. Satisfaction with post hospitalization treatment following acute myocardial infarction increased as social support (Wald \( \chi^2 = 35.02 \), \( p < .001 \)) and dispositional optimism ([\( \beta \] = 1.42; 95% CI 0.24, 2.60) increased. Participants with mild (-3.10, 95% CI -5.77, -0.44), moderate (-4.77, 95% CI -
8.16, -1.38), moderately severe (-8.49, 95% CI -13.47, -3.52), and severe (-11.65, 95% CI -18.77, -4.53) depression had significantly worse treatment satisfaction compared with the nondepressed participants and concluded that assessing psychosocial variables, such as social support, dispositional optimism, and depression severity before hospital discharge, may indicate who is likely to be more satisfied with post hospitalization cardiac care 1 month following acute myocardial infarction. Without controlling for psychosocial status, treatment satisfaction may be a biased indicator of quality. Future studies should evaluate whether psychosocial intervention after acute myocardial infarction can improve satisfaction.

**Lett HS, Blumenthal JA, Babyak MA, Catellier DJ et al. (2007)** conducted a study on social support and prognosis in patients at increased psychosocial risk recovering from myocardial infarction at Duke University Medical Centre, Durham, NC, US using descriptive research design on 2,481 acute myocardial infarction patients. Tools used were Interpersonal Support and Evaluation List, Tangible Support subscale, Beck Depression Inventory and data were collected by completed instruments. The main findings were over the follow-up period, 599 patients (24%) died or had a nonfatal acute myocardial infarction. Survival models controlling age, sex, race, socioeconomic status, smoking, antidepressant use, and a composite measure of increased risk revealed that higher levels of perceived social support were associated with improved outcome for patients without elevated depression but not for patients with high levels of depression. Neither perceived tangible
support nor network support were associated with more frequent adverse events and concluded that, acute myocardial infarction patients should be assessed for multiple dimensions of perceived functional support and depression to identify those at increased psychosocial risk who may benefit from treatment.

Schmaltz HN, Southern D, Ghali WA (2007) presented an article on living alone, patient sex and mortality after acute myocardial infarction at University of Calgary, Canada using historical cohort study on 880 patients discharged with a primary diagnosis of AMI. Tools used were patient’s sociodemographic and clinical characteristics. Data were obtained by standardized chart review and linked to vital statistics data through December 2001 and found that, of 880 patients, 164 (18.6%) were living alone at admission and they were significantly more likely to be older and female than those living with others. Living alone was independently associated with mortality [adjusted hazard ratio (HR) 1.6, 95% confidence interval (CI) 1.0-2.5], but interacted with patient sex. Men living alone had the highest mortality risk (adjusted HR 2.0, 95% CI 1.1-3.7), followed by women living alone (adjusted HR 1.2, 95% CI 0.7-2.2). The study concluded that, living alone, an easily measured psychosocial factor was associated with significantly increased longer-term mortality for men following AMI. Further prospective studies are needed to confirm the usefulness of living alone as a prognostic factor and to identify the potentially modifiable mechanisms underlying this increased risk.
Czajkowski SM, Freedland KEMendes De Leon CF et.al. (2006) published an article on the effect of a psychosocial intervention and quality of life after acute myocardial infarction clinical trial at Rush University Medical Centre, Chicago, Illinois using experimental research design on 2,481 patients. Tools used were Medical Outcomes Study Short Form summary measures of physical functioning (SF12-PCS) and mental functioning (SF12-MCS), a Life Satisfaction Scale (LSS), and a measure of overall QOL based on the ladder of life (LOL) technique and data were collected by completed instruments and the main findings were, significant treatment differences on the SF12-MCS (difference 2.2, 95% confidence interval [CI] 1.2-3.2), the LSS (difference 1.0, 95% CI 0.5-1.5), and the LOL (difference 0.3, 95% CI 0.1-0.6), but not on the SF12-PCS (difference 0.8; 95% CI = -0.5-2.0). Effect sizes for the intervention on QOL outcomes were modest and concluded that, psychosocial interventions of limited duration confer modest QOL benefits in post-MI patients who were depressed or have low perceived social support. Interventions of longer duration or greater intensity may be required to produce more substantial improvements in QOL in these patients.

Burg MM, Barefoot J, Berkman L et.al. (2005) carried out a study on low perceived social support and post-myocardial infarction prognosis in the enhancing recovery in coronary heart disease clinical trial: the effects of treatment at Columbia University School of Medicine, New York, USA using experimental research design on 1503 subjects with coronary heart disease and tools used were Partner status (partner, no partner) and score (<12 = low
support; >12 = moderate support) on the ENRICHD Social Support Instrument (ESSI). The main findings were all 4 LPSS risk groups demonstrated improvement in perceived support, regardless of treatment assignment, with a significant treatment effect only seen in the LPSS risk group with no partner and moderate support at baseline. During an average 29-month follow-up, the combined end point of death/nonfatal MI was 10% in the MI comparison group and 23% in the ENRICHD LPSS patients; LPSS conferred a greater risk in unadjusted and adjusted models (HR = 1.74-2.39). Change in ESSI score and/or improvement in perceived social support were not found to predict subsequent mortality and concluded that, baseline LPSS predicted death/recurrent MI in the ENRICHD cohort, independent of treatment assignment. Intervention effects indicated a partner surrogacy role for the interventionist and the needed for a moderate level of support at baseline for the intervention to be effective.

Riegel B, Gocka I (2005) conducted a study on gender differences in adjustment to acute myocardial infarction at six hospitals in the Southern California using longitudinal survey on 32 women experiencing a first acute myocardial infarction they were matched on neuroticism and cardiac dysfunction with 32 men from the same sample and the tools used were Self-Perception Inventory (self-esteem); Profile of Mood States (emotional distress); General Health Perceptions Questionnaire (health perceptions); Interpersonal Dependency Inventory (dependency); and the UCLA Social Support Inventory (social support). The Eysenck Personality Inventory (neuroticism) and data was
collected by completed instruments. The major findings were Women experienced improved perceptions of current health whereas their ratings of prior health decreased. Overall emotional distress, anxiety, and depression decreased significantly over time in women. Women reported wanting, receiving, and giving more support than men did at 1 month and receiving and giving more support than men did at 4 months, although stress in support relationships rose over time. In men anxiety, depression, and health concern all decreased significantly over time whereas their ratings of prior health rose. The match between social support wanted and received decreased over time in males as did their satisfaction with the support received. Men reported a higher functional class than women at 1 month, but return to work at 4 months did not differ and concluded that both women and men experienced improved psychologic adjustment within 4 months after acute myocardial infarction, although the specific areas of improvement differed. Return to work was comparable in spite of differences in functional class. The women appeared to activate their social support system more effectively than the men after acute myocardial infarction. Further research is needed to determine whether differences in social support contribute to adjustment that is better than what normative data predict for women.

Brummett Beverly H, Mark Daniel B, Siegler Ilene C et.al. (2004) published an article on perceived social support as a predictor of mortality in coronary patients: effects of smoking, sedentary behaviour, and depressive symptoms at Duke University Medical Centre, North Carolina using
descriptive research design on 2711 patients with CAD and tool used was Interpersonal Support Evaluation List and data were collected by interview and completed instrument. The main findings were Social support, smoking, sedentary behaviour, and depressive symptoms were predictors of mortality ($p$’s <.01). Results also indicated that sedentary behaviour, but not smoking status or depressive symptoms, may substantially mediate the relationship between support and mortality. No evidence for moderation was found and concluded that relation between social support and longevity may be partially accounted for by the association between support and sedentary behaviour.

Hughes JW, Tomlinson A, Blumenthal JA et.al. (2004) presented an article on social support and religiosity as coping strategies for anxiety in hospitalized cardiac patients at Kent State University, USA using prospective research design on 228 (71% male, 29% female) hospitalized CHD patients. Tool used was Spielberger State-Trait Anxiety Inventory and found that, higher levels of social support were related to lower levels of state and trait anxiety (state anxiety, $r = -.26$, $p < .01$; trait anxiety, $r = -.30$, $p < .01$). Religiosity was related to lower state anxiety ($r = -.27$, $p < .01$) but only modestly related to lower trait anxiety (trait anxiety, $r = -.18$, $p < .01$). The relationship between religiosity and trait anxiety was no longer significant after controlling for social support ($p = .26$) and concluded that, these findings suggest that religiosity and social support provide a buffer against anxiety in CHD patients and that higher levels of social support may account for the relationship between religiosity and trait anxiety. These findings underscore the importance of social support
and religiosity as buffers against distress, with possible implications for prognosis in a patient group where high levels of anxiety appear to confer increased risk of mortality.

**Berkman LF, Blumenthal J, Burg M, Carney RM et.al.** (2002) conducted a study on effects of treating depression and low perceived social support on clinical events after myocardial infarction: the enhancing recovery in coronary heart disease patients (ENRICHD) randomized trial at Harvard University, Boston, MA, USA using experimental research design on 2481 MI patients (1084 women, 1397 men). Tools used were Hamilton Rating Scale for Depression (HRSD); LPSS was determined by the Enhancing Recovery in Coronary Heart Disease Patients (ENRICHD) Social Support Instrument (ESSI) and data were collected by completed instruments. The main findings were improvement in psychosocial outcomes at 6 months favoured treatment: mean (SD) change in HRSD score, -10.1 (7.8) in the depression and psychosocial intervention group vs -8.4 (7.7) in the depression and usual care group (P<.001); mean (SD) change in ESSI score, 5.1 (5.9) in the LPSS and psychosocial intervention group vs 3.4 (6.0) in the LPSS and usual care group (P<.001). After an average follow-up of 29 months, there was no significant difference in event-free survival between usual care (75.9%) and psychosocial intervention (75.8%). There were also no differences in survival between the psychosocial intervention and usual care arms in any of the 3 psychosocial risk groups (depression, LPSS, and depression and LPSS patients) and concluded that, intervention did not increase event-free survival. The intervention
improved depression and social isolation, although the relative improvement in the psychosocial intervention group compared with the usual care group was less than expected due to substantial improvement in usual care patients.

Rankin Sally H (2002) conducted study on women recovering from acute myocardial infarction: Psychosocial and physical functioning outcomes for 12 months after acute myocardial infarction at 5 West Coast major medical centres and 1 northeastern major medical centre using prospective, comparative, longitudinal research design on 76 women (81% white, 19% African American; mean age, 67.8 years) with acute myocardial infarction using Duke Activity Status Index (DASI), a measure of cardiac and physical functional capacity; the Profile of Mood States (POMS), a measure of mood disturbance; the Mastery instrument, a sense of mastery in one's life; and the Support Requirements Interview, a measurement of needs for social support and assistance during recovery and data were collected by interview. Repeated measures analysis of variance results revealed that white women recovered more quickly than did African American women, with Duke Activity Status Index (DASI) scores approximately 50% better. Profile of Mood States (POMS) and Mastery results improved over time for both groups, with limited differences between African American and white women. At 6 weeks after acute myocardial infarction, age, social support, and mastery contributed significantly and predicted 42% of the variance in functional status (DASI) and 44% of the variance in mood disturbance as measured with the Profile of Mood States (POMS) and concluded that African American women and white women
had similar recovery trajectories in terms of psychosocial recovery from acute myocardial infarction but different physical recovery trajectories.

**Cowan MJ, Pike KC, Budzynski HK** (2001) published an article on Psychosocial nursing therapy following sudden cardiac arrest at School of Nursing, University of California, USA using experimental, longitudinal research design on 129 survivors of out-of-hospital ventricular fibrillation or asystole. Data were collected by measures of anxiety, depression and coping strategies and found that, risk of cardiovascular death was significantly reduced 86% by psychosocial therapy, p = .03. Six of the seven cardiovascular deaths in the control group were caused by ventricular arrhythmias. The cardiovascular death in the therapy group was due to stroke. Controlling for depression, previous myocardial infarction, low ejection fraction, decreased heart rate variability, and ventricular ectopic beats had little impact on estimated treatment effect. The risk of all-cause mortality was reduced by 62% in the therapy group, p = .13. There were a total of three deaths in the therapy group and eight deaths in the control group and concluded that, psychosocial therapy significantly reduced the risk of cardiovascular death in sudden cardiac arrest survivors.

**Niedhammer I, Goldberg M, Leclerc A** (1998) presented an article on psychosocial work environment and cardiovascular risk factors in an occupational cohort at Hospital National de Saint-Maurice, France using cross sectional research design on 13,226 volunteers in the cohort and tools used
were psychological demands, decision latitude, and social support and data were collected by filled self administered questionnaire. The main findings were psychosocial work factors were significantly associated with hypertension, hyperlipidaemia, overweight, smoking, and alcohol consumption, but not with diabetes. In men, low decision latitude was associated with hypertension, high decision latitude and high social support with overweight, low decision latitude with alcohol consumption. Moreover, the risk of hyperlipidaemia increased in men exposed to both high psychological demands and low social support. In women, low decision latitude was related to hyperlipidaemia, high psychological demands with overweight, high psychological demands and high decision latitude with smoking, and low social support with alcohol consumption and concluded that, these cross sectional results underline the potential effects of psychosocial work characteristics on cardiovascular risk factors and the differences between the effects of job stress in men and women, and confirm the direct mechanisms (through physiological variables) and indirect mechanisms (through behavioural risk factors) potentially involved in the relation between psychosocial work characteristics and cardiovascular disease.

**Summary of findings on perceived social support**

♦ Changes in social support and social network increased among >65 year olds, men & women, and those with a low & intermediate educational level, as well as those cohabiting but did not reveal any difference in sense
of coherence (Baigi Amir, Hildingh Cathrine, Virdhall Helen, Fridlund, Bengt, 2008).

♦ Social support increased post hospitalization cardiac care 1 month following acute myocardial infarction (Barry Lisa, 2007).

♦ Higher levels of perceived social support were associated with improved outcome for patients (Lett HS, 2007).

♦ Men living alone had the highest mortality risk followed by women living alone (Schmaltz HN, 2007).

♦ Psychosocial interventions of limited duration benefits in post-MI patients who were depressed or had low perceived social support (Czajkowski SM, 2006).

♦ Improvements in perceived social support were not found to predict subsequent mortality, partner surrogacy role and moderate level of support were found effective (Burg MM, 2005).

♦ Women reported wanting, receiving, and giving more support than men did at 1 month and receiving and giving more support than men did at 4 months, although stress in support relationships rose over time women appeared to activate their social support system more effectively than the men after acute myocardial infarction (Riegel B, Gocka I 2005).

♦ Social support, smoking, sedentary behaviour, and depressive symptoms were predictors of mortality (Brummett Beverly H, 2004).

♦ Religiosity and social support provide a buffer against anxiety in CHD patients (Hughes JW, 2004).
The intervention improved depression and social isolation (Berkman LF, 2002).

Social support contributed significantly and predicted functional status (Rankin Sally H, 2002).

Psychosocial therapy reduced the risk of cardiovascular death in sudden cardiac arrest survivors (Cowan MJ, 2001).

The risk of hyperlipidaemia increased both in men and women exposed to both high psychological demands and low social support (Niedhammer I, 1998).

2.4 STUDIES RELATED TO QUALITY OF LIFE:

Schweikert, Bernd, Hunger et al, (2009) published an article on quality of life several years after myocardial infarction at University of Leipzig, Leipzig, Germany using comparative research design on 2950 MI survivors. The tool used was HRQOL inventory and data were collected by filled in instrument. The findings of the study were moderate or severe problems were most frequent in EQ-5D dimension pain/discomfort (55.0%), anxiety/depression (29.2%), and mobility (27.9%). Mean EQ VAS score was 65.8 (SD 18.5). Main predictors of lower HRQL included older age, diabetes, increasing body mass index, current smoking, and experience of re-infarction. Type of revascularization treatment showed no impact on HRQL. Compared with the general population, adjusted EQ VAS was 6.2 (95% confidence
interval 3.4-8.9) points lower in 45-year-old MI patients converging with growing age up to the age of 80. With regard to HRQL dimensions, MI survivors had a significantly higher risk of incurring problems in the dimension pain/discomfort, usual activities, and especially in anxiety/depression which was more pronounced in younger age. Mobility was the single dimension, in which MI showed an inverse effect and concluded that, MI is combined with significant reduction in HRQL compared with the general population. The main impairments occur in the dimension pain/discomfort, usual activities, and particularly anxiety/depression. The relative impairment decreases with higher ages.

**Hanssen, Tove Aminda et.al, (2009)** studied on does telephone follow-up intervention for patients discharged with acute myocardial infarction have long-term effects on health-related quality of life at Centre for Clinical Research, Haukeland University Hospital, Bergen, Norway using a randomised control trial on 288 patients allocated to a telephone follow-up intervention group (n = 156) or control group (n = 132). The tool used was health-related quality of life using the SF-36. The main findings of the study were significant improvements over time on most dimensions of health-related quality of life in both the intervention and control group to US norm population levels on most SF-36 dimensions and summary scores. The intervention group showed no overall significant improvement beyond six months in the physical or mental summary scores, but there was a significant effect for those aged 70 or above.
Although there was a promising effect for rehospitalisation due to chest pain, no significant differences were found between the groups on the secondary endpoints after six months and concluded that, despite positive short-term effects at six months, the telephone follow-up intervention had no long-term effects on health-related quality of life or secondary endpoints. However, the potential for improvement beyond six months was less than anticipated reflecting a reduced morbidity among acute myocardial infarction patients.

**Bergman Eva, Malm Dan, Karlsson, (2009)** carried out a study on sense of coherence, quality of life, and symptoms after myocardial infarction at division of nursing science, Linkoping University, Sweden using a longitudinal and predictive study on 100 MI patients in the heart care unit of a county hospital in southern Sweden. The tools used were Short Form-12 Health Survey Questionnaire, Seattle Angina Questionnaire and health curves baseline. The main findings of the study were, women score lower on SOC than men. Persons with high SOC scores have fewer angina attacks, are more physically active, drink more alcohol, are more satisfied with their treatments, and have better disease perception and concluded that, by following SOC scores, a trend emerges that suggests it may be a useful tool for identifying those who will need extra support.
Bagher H (2007) carried out a study on Evaluation of the effect of group counseling on post myocardial infarction patients at Shahroud Iran using a randomized-controlled trial design. Sixty-two patients with myocardial infarction were chosen, case group, (31 patients), distributed in five subgroup (each subgroup conclude six or seven patients) and control group (31 patients). Tools used were MacNew Quality of Life after Myocardial Infarction questionnaire and data were collected by filled questionnaire. The main findings were there was no significant difference between the mean quality of life score of case and control groups before group counseling program. While there was a significant difference ($P = 0.001$) between the mean of quality of life score after the group counseling in both groups. The mean of quality of life score, before and after group counseling program indicated a significant difference ($P < 0.001$) in the case group, while there was no significant difference in the control group. The statistical comparison of the mean of quality of life score in general and in each dimensions before and after group counseling program indicated that there was a significant difference between before and after group counseling in the case group whereas in the control group it has slightly decreased. Pearson's correlation coefficient test ($P = 0.002$) showed a significant correlation between the duration of myocardial infarction and the quality of life score. The effectiveness of the planned counseling program on quality of life was estimated 24.08 by growth test and concluded that, As indicated by the results of this study, group counseling program can promote patient's quality of life in all dimensions.
Goyal Tanya M, Idler Ellen L, Richard J et.al. (2005) conducted a study on quality of life following cardiac surgery at New Jersey-Robert Wood Johnson Medical School, New Jersey (T.J.K.) using descriptive research design on ninety patients. Tools used were Beck Depression Inventory & Medical Outcomes Study instrument and data were collected by interview. The main findings were: Higher levels of presurgical depressive symptoms predicted poorer physical functioning after cardiac surgery. A similar effect on psychosocial functioning fell short of significance. An increase in depressive symptoms 2 months after surgery was significantly predictive of poorer physical and psychosocial functioning at 6 months. The effect of increased depressive symptoms on psychosocial functioning was significantly stronger in patients with high presurgical Beck Depression Inventory scores and concluded that both preoperative depressive symptoms and postoperative increases in depressive symptoms seem associated with poorer quality of life  6 months after cardiac surgery. Further examination of these associations and the mechanisms they reflect may provide a basis for guiding treatment decisions before and after coronary artery bypass graft surgery. Quality of life in the dimensions of perceived general health, thoracic pain, breathlessness, feeling of arrhythmia, anxiety, depression, self-esteem, experience of social life and sex life.
Doerfler LA, Paraskos JA, Piniarski L (2005) published an article on relationship of quality of life and perceived control with posttraumatic stress disorder symptoms 3 to 6 months after myocardial infarction at Assumption College, USA using descriptive research design on 52 patients with myocardial infarction. Structured interview was used to obtain information about PTSD symptoms, quality of life, and ratings of perceived control, danger, and predictability, as well as information about stressful events that occurred during hospitalization and found that, four patients (7.7%) met criteria for the diagnosis of PTSD. Elevated PTSD scores were associated with poorer quality of life ($r = -0.32$ to $-0.79$). Lower perceived control was associated with higher PTSD symptom scores ($r = -0.30$ to $-0.52$). Finally, PTSD scores were significantly correlated with the number of times patients were readmitted to the hospital ($r = 0.35$-0.57) and concluded that, approximately 8% of patients experienced PTSD 3 to 6 months following MI. Increasing levels of PTSD symptoms were correlated with poorer quality of life. Perceived lack of control during the MI and multiple hospitalizations may be related to the severity of PTSD symptoms.

Gary Rebecca A, Sueta Carla A, Dougherty Molly et.al. (2004) carried out study on home-based exercise improves functional performance and quality of life in women with diastolic heart failure at Chapel Hill, North Carolina and Athens, Georgia using experimental research design in which exercise and education program (intervention) or education only program (control) on 32 patients with class II and III DHF and data were collected by
interview and medical records and structured questionnaire and found that The intervention group improved in the 6-minute walk test from 840 +/- 366 ft to 1043 +/- 317 ft versus 824 +/- 367 ft to 732 +/- 408 ft in the control group (P = .002). Quality of life also improved in the intervention group compared with the control group as measured by the Living with Heart Failure Questionnaire and concluded that women with DHF exhibit significant comorbidities and physical limitations. Home-based, low-to-moderate intensity exercise, in addition to education, is an effective strategy for improving the functional capacity and quality of life in women with DHF. Further study is needed to assess the long-term effect of exercise on clinical outcomes.

Westlake, Chery,l Dracup, Kathleen et.al (2002) conducted study on correlates of health-related quality of life in patients with heart failure at 2 university-affiliated, outpatient, heart failure programmes, Fullerton using a descriptive, correlational design on 61 patients with heart failure and tool used was structured questionnaire and data were collected from chart review, a 6-minute walk, and patient-completed instruments and found that demographic characteristics, functional status, neuroticism, social network, social support, spirituality, and time since symptom onset explained 26% of the variability in the physical health component of health related quality of life (HRQOL) and 44% of the variability in the mental health component of health related quality of life (HRQOL) in patients with advanced heart failure. In analyzing the data for the most parsimonious model, New York Heart Association classification, 6-minute walk distance, and neuroticism explained 49% of the variability in the
mental health component of health related quality of life (HRQOL) and concluded that New York Heart Association classification, 6-minute walk distance, and neuroticism are related to the mental health component of health related quality of life (HRQOL) and can be easily included in the assessment of patients with heart failure who are undergoing heart transplantation evaluation. The findings of the current study require replication but may be used to identify patients with heart failure who are potentially at risk for reduced health related quality of life.

Riedinger, Mary S, Dracup, Kathleen A, Brecht, Mary-Lynn et.al. (2001) presented an article on Quality of life in patients with heart failure at multicenter studies of left ventricular dysfunction trials using matched comparisons of secondary data on 1382 patients (691 men and 691 women). Ladder of Life, items from the Profile of Mood States Inventory, the Functional Status Questionnaire, the [beta]-Blocker Heart Attack Trial instrument, and an item from the RAND Medical Outcomes Study instrument were used and data were collected by completed instruments and found that Women had significantly worse general life satisfaction, physical function, and social and general health scores than men. There were no significant differences found between gender groups for current life situation or emotional distress. After controlling for New York Heart Association classification, women still had significantly worse ratings for intermediate activities of daily living (a sub-dimension of physical functioning) and social activity and concluded that, Despite controlling for age, EF, and New York Heart Association
classification, women had worse quality of life ratings than did men for intermediate activities of daily living and social activity. Research should focus on identifying why differences exist and developing measures to improve quality of life, particularly physical functioning, in women with heart failure.

**Lane D, Carroll D, Ring C et.al. (2000)** carried out a study on effects of depression and anxiety on mortality and quality-of-life 4 months after myocardial infarction at Birmingham, UK using descriptive research design on 288 MI patients. Tools used were Dartmouth COOP charts and questionnaire measures of depression and anxiety. Data were collected by interview a filled questionnaires and found that, 25 patients died, 22 from cardiac causes, during the 4-month follow-up. Symptoms of depression and anxiety did not predict either cardiac or all-cause mortality. Severity of infarction, extent of heart failure, and a longer stay in hospital predicted mortality. Symptoms of depression and anxiety predicted 4-month quality-of-life among survivors, as did gender, partner status, occupational status, living alone, previous exercise behaviour, length of hospital admission, and Peel Index scores. In a multiple regression model, depression emerged as the strongest predictor of quality-of-life. State anxiety, severity of infarction, and partner status also entered the model and concluded that, neither depression nor anxiety predicted mortality 4 months after MI. Both depression and anxiety predicted quality-of-life at 4 months among survivors.
Jaarsma, Halfens R, Tan F, Diederiks (2000) conducted a study on Self-care and quality of life in patients with advanced heart failure at the University Hospital in Maastricht, The Netherlands using experimental study design on 179 patients (mean age 73 years, 58% men). Self-care abilities (Appraisal of Self-care Agency Scale), self-care behaviour (Heart Failure Self-care Behaviour Scale), 3 dimensions of quality of life (functional capabilities, symptoms, and psychosocial adjustment to illness), and overall well-being (Cantril's ladder of life) tools were used and data were collected by filled questionnaire. Major findings were Self-care abilities did not change as a result of the intervention, but the self-care behaviour in the intervention group was higher than the self-care behaviour in the control group during follow-up. The effect of the supportive educational intervention on quality of life was limited. The 3 dimensions of quality of life improved after hospitalization in both groups, with no differences between intervention and control group as measured at each follow-up measurement. However, there was a trend indicating differences between the 2 groups in decrease in symptom frequency and symptom distress during the 9 months of follow-up and concluded that a supportive educational nursing intervention is effective in improving self-care behaviour in patients with advanced (New York Heart Association class III-IV) heart failure; however, a more intensive intervention is needed to show effectiveness in improving quality of life.
Westin L, Carlsson R, Israelsson B et al. (1997) conducted a prospective controlled study on quality of life in patients with ischemic heart disease at University of Lund, University Hospital, Malmö, Sweden using experimental research design on 296 acute myocardial infarction, 99 CABG, 18 PTCA patients and 88 randomly selected healthy controls. Tools used were Patients differed from controls in both psychological and somatic aspects of QL after 1 month. Furthermore, 1 month after the event acute myocardial infarction patients experienced more anxiety (P = 0.001) than CABG patients, whilst CABG patients experienced a poorer sex life (P < 0.001) than acute myocardial infarction patients. One year after the event patients differed from controls primarily in somatic symptoms: no significant differences were found across patient groups. Patients who sought emergency out-patient care during the follow-up year for clinically diagnosed angina pectoris or cardiac incompensation had reported higher levels of thoracic pain (P < 0.001) and breathlessness (P < 0.001) at 1 month follow-up than patients who did not seek such care and concluded that quality of life is considerably affected in patients following a cardiac event, especially during the initial recovery phase. Although substantial improvement in quality of life occurs over time, the persistence of residual distress at 1-year follow-up is a challenge for clinicians concerned with the full rehabilitation of the cardiac patient.

Cox S, O'Donoghue AC, McKenna WJ et al. (1997) published an article on health related quality of life and psychological wellbeing in patients with hypertrophic cardiomyopathy at University of London, UK using
descriptive research design on 171 patients with hypertrophic cardiomyopathy. Tools used were short form 36 (SF-36) health survey, the hospital anxiety and depression questionnaire, and measures of adjustment, worry, and patient satisfaction and found that, there was an 80.1% response rate to the questionnaire. Patients had severe limitations in all eight dimensions of quality of life assessed by the SF-36: physical functioning, role limitations owing to physical problems, role limitations owing to emotional problems, social functioning, mental health, general health perceptions, vitality, and bodily pain. Levels of anxiety and depression were also high compared with population norms. Quality of life was particularly impaired in patients with chest pain and dyspnoea, but was less consistently related to clinical cardiological measures. Adjustment to the condition and patient satisfaction were generally good. In multivariate analysis, quality of life was associated with a combination of symptom patterns and psychosocial factors. No differences in quality of life, anxiety or depression were observed between patients with no known family history, those with familial cardiomyopathy, and patients with a family history of premature sudden death and concluded that, hypertrophic cardiomyopathy is associated with substantial restrictions in health related quality of life. Symptoms, adjustment, and quality of interactions with clinical staff contribute to these limitations. Recognition of the problems confronted by patients with hypertrophic cardiomyopathy requires continued efforts at education both of the public and health professionals.
Summary of findings on quality of life:

♦ MI was combined with significant reduction in HRQL compared with the general population (Schweikert, Bernd, Hunger et.al, 2009).

♦ The telephone follow-up intervention had no long-term effects on health-related quality of life or secondary endpoints. However, the potential for improvement beyond six months was less than anticipated reflecting a reduced morbidity among acute myocardial infarction patients (Hanssen, Tove Aminda et.al, 2009).

♦ Women scored lower on sense of coherence than men. Persons with high sense of coherence had fewer angina attacks, were more physically active, drank more alcohol, were more satisfied with their treatments, and had better disease perception (Bergman Eva, Malm Dan, Karlsson, 2009).

♦ Group counseling programme after myocardial infarction promoted patient’s quality of life (Bagher H, 2007).

♦ Both preoperative depressive symptoms and postoperative increased in depressive symptoms were associated with poorer quality of life 6 months after cardiac surgery (Goyal Tanya M, 2005).

♦ Elevated PTSD scores were associated with poorer quality of life Increasing levels of PTSD symptoms were correlated with poorer quality of life (Doerfler LA, 2005).

♦ Home-based, low-to-moderate intensity exercise, in addition to education, is an effective strategy for improving the functional capacity and quality of life in women with DHF (Gary Rebecca A, 2004).
♦ Six-minute walk distance, and neuroticism are related to improve the mental health component of health related quality of life (Westlake, 2002).
♦ Women had worst quality of life compared to men in client with heart failure (Riedinger, 2001).
♦ Neither anxiety nor depression was able to predict on mortality and quality of life four months after myocardial infarction (Lane D, 2000).
♦ Supportive educational nursing intervention is essential in improving self-care behaviour in advanced myocardial infarction patients (Jaarsma, 2000).
♦ Persistent residual distress was the result inspite of improved quality of life in patients with acute myocardial infarction (Westin L, 1997).
♦ No differences in quality of life, anxiety or depression were observed between patients with no known family history (Cox S, O'Donoghue AC, 1997).

2.5 STUDIES RELATED TO COPING BEHAVIOUR:

Brink Eva (2009) presented and article on adaptation positions and behaviour among post-myocardial infarction patients at University of Gothenburg and University West, Sweden using exploratory research design on 19 respondents (10 women, 9 men) who have suffered a first-time myocardial infarction. A constant comparative method for grounded theory provided the strategies used for data collection and analysis and found that, codes emerged and memos clarified theoretical reflections. The resulting model was able to
illustrate possible mechanisms underlying two different behaviours: self-modifying and self-protecting behaviour. Four different adaptation positions were identified: put up with current health, struggle for health, ignore illness, and struggle against illness. These categories were related to two core categories: self-agency and coping with illness consequences. This model may clarify the different adaptive behaviour observed among post-myocardial infarction patients.

**Denollet, Johan, Martens, Elisabeth et.al, (2008)** carried out a study on clinical Events in coronary patients who report low distress: adverse effect of repressive coping at Tilburg University, The Netherlands using prospective follow-up research design on 731 CAD patients. The tools used were Trait-Anxiety (distress), Marlowe-Crowne (defensiveness), and Type D scales and data were collected by filled in instruments. The major outcomes of the study were no patients were lost to follow-up; 91 patients had a clinical event (including 35 cardiac death and 32 MI). Repressive patients reported low levels of anxiety, anger and depression at baseline, but were at increased risk for death/MI (21/159 = 13%) compared with nonrepressive patients (22/360 = 6%), p = .009. Poor systolic function, poor exercise tolerance, 3-vessel disease, index MI and Type-D personality-but not depression, anxiety or anger-also independently predicted clinical events. After controlling for these variables, repressive patients still had a twofold increased risk of death/MI, OR = 2.17, 95% CI = 1.10-4.08, p = .025). These findings were replicated for cardiac
mortality/MI and concluded that CAD patients who use a repressive coping style are at increased risk for clinical events, despite their claims of low emotional distress. This phenomenon may cause an underestimation of the effect of stress on the heart.

Strickland, Ora Lea, Giger, Joyce Newman, et. al. (2007) presented an article on the relationships among stress, coping, social support, and weight class in Premenopausal African American women at risk for coronary heart disease at Los Angeles, California using descriptive research design on 178 women with eligible data sets from a larger study of 236 subjects (Genetic Predictors of Coronary Heart Disease in Premenopausal African American Women) using perceived stress scale, the Norbeck social support questionnaire, and the Jalowiec coping scale, data were collected by using structured interview schedule. Statistical analysis included Spearman's rho, Chi-square, and regression analysis and major findings were confrontive coping was shown to be used more often to a "high" degree in normal-weight African American women than in overweight and obese African American women ([chi]2 = 24.024; P = .0001). Confrontive coping was the only independent predictor of weight class in a regression model that included perceived stress, life events, social support, and optimistic, self-reliant, and evasive coping strategies. The study findings concluded that, African American women who used confrontive coping to a high degree were more likely to confront problems, such as weight
control issues, than those who used this coping strategy to a low or medium degree.

Kentsch M, Rodemerk U, Müller-Esch G et al. (2007) conducted a study on Emotional attitudes toward symptoms in acute myocardial infarction patients at Germany using descriptive research design, 739 consecutive patients with confirmed acute myocardial infarction (median age 65.3 years, 30.2% females) patients were interviewed and tools used were a standardized interview covered acute myocardial infarction symptoms, attitudes toward symptoms, coping strategies, and clinical and sociodemographic variables. Data were collected by completed instruments and main findings were Of patients, 93.3% knew an acute myocardial infarction could be deadly. 43.9% of the patients who suspected an acute myocardial infarction, and knew it could be deadly, decided late (> 1 hour) to seek medical help. In univariate analyses, attitudes toward symptoms and coping strategies had the highest impact on a late decision. Stepwise logistic regression identified the following independent contributors to a late decision to seek medical help (relative risk, 95% confidence interval): wanting to wait and see (3.53; 2.32-5.39), not taking symptoms seriously (2.47; 1.64-3.72), not wanting to bother anybody (2.14; 1.29-3.57), symptoms improved at first (2.33; 1.52-3.56), asking others for advice (0.46; 0.30-0.71), taking pain medication (2.01; 1.01-4.03), age > 65 years (1.69; 1.17-2.44), very strong intensity of angina (0.60; 0.42-0.87) and concluded that, emotional attitudes to acute myocardial infarction symptoms and inadequate coping strategies are the major determinants of patient decision.
delay. They should be considered as a key factor in patient and public education. Modification of these emotional factors might best be achieved by an individualized approach.

Fox-Wasylyshyn SM, El-Masri MM, Krohn HK (2007) presented an article on Comparison of coping responses to symptoms between first-time sufferers and those with a previous history of acute myocardial infarction at University of Windsor, Canada using secondary data analyses on 26 persons with acute myocardial infarction and 109 without acute myocardial infarction. Tool used was 5-point Likert scale. Mann-Whitney U test was performed to compare coping strategies and found that, patients with a history of AMI were more likely to use prescribed medications to deal with their symptoms than were patients who did not have a previous AMI (M = 1.5 and 0.20; median = 2.0 and 0.0, respectively; P < .001). However, patients who had no previous AMI were more likely to respond by taking non-prescription medications (M = 0.90 and 0.60; median = 1.0 and 0.0, respectively; P = .04) and concluded that, patients with and without a history of AMI tend to respond to their symptoms with similar coping strategies. When differences occurred, patients with and without a history of AMI differed only with respect to the type of self-medication choices they made.

Edell-Gustafsson, Ulla, Svanborg, Eva, et.al.(2006) carried out a study on a gender perspective on sleeplessness behaviour, effects of sleep loss, and coping resources in patients with stable coronary artery disease at
University Hospital, Sweden using comparative-correlation and predictive
design on 47 women and 88 men with CAD and tools used were validated
questionnaires covered sleep quality and sleep habits, effects of sleep loss,
psychological resources, and depression and data was collected by structured
interviews and multiple stepwise regression analysis showed that sleeplessness
behaviour, depressed mood, female gender, and pharmacologic treatments with
inflammation inhibitors significantly ($P < .0001$) accounted for the variance of
poorer sleep quality. The analysis also showed that the following factors in
descending order significantly accounted ($P < .0001$) for the outcome of sleep
quality: inability to feel refreshed by sleep, difficulty in maintaining sleep,
gastrointestinal problems, too little sleep, final morning awakening time, sleep
onset latency, lying down because of daytime tiredness, and daytime physical
tiredness. The study concluded that, compared with men, women with stable
CAD shown poor coping skills in terms of experiencing poor sleep quality,
even when sleeplessness behaviour and pharmacologic treatments with
inflammation inhibitors are controlled. It is also possible that they may be more
at risk of depressed mood.

Kristofferzon ML, Löfmark R, Carlsson M (2005) conducted a study
on coping, social support and quality of life over time after myocardial
infarction at University of Gavle, Sweden using a longitudinal, descriptive and
comparative design on 74 women and 97 men. The tools used were Jalowiec
Coping Scale, a social support questionnaire, the SF-36 Health Survey (health-
related quality of life) and the Quality of Life Index-Cardiac version (quality of
life). Data were collected by completed instruments and the main findings were no statistically significant changes over time in coping assessments emerged in the study group, except for fatalistic coping, which diminished over time in men. Women used more evasive coping than men at 4 and 12 months. The perceived efficiency in coping with physical aspects of the heart disease increased. More women than men perceived available support from grandchildren and staff of the church. Health-related quality of life increased in women and men in physical functioning, role-physical, vitality, social functioning, and role-emotional scales. Moreover, an improvement in the mental health scale was evident in women and a reduction in pain in men. No statistically significant gender differences were found for quality of life at any point of time and concluded that, the findings can be used to inform caregivers that optimistic, self-reliant and confrontational coping were the most frequently used by both women and men over the first year after myocardial infarction, and that confrontational coping had been shown positive outcomes in the longer term. Nurses should tell women about the importance of seeking prompt treatment and discuss health problems with caregivers and significant others. Care planning should include family members and significant others so that they can support and encourage patients to cope with problems in daily life.

Hughes JW, Tomlinson A, Blumenthal JA et.al (2004) published an article on Social support and religiosity as coping strategies for anxiety in hospitalized cardiac patients at Kent State University, USA using descriptive research design on 228 (71% male, 29% female) hospitalized with CHD. Tools
used were Spielberger State Anxiety Inventory, coping checklist and data were collected by completed instruments and interview and found that higher levels of social support were related to lower levels of state and trait anxiety (state anxiety, r = -0.26, p < .01; trait anxiety, r = -0.30, p < .01). Religiosity was related to lower state anxiety (r = -0.27, p < .01) but only modestly related to lower trait anxiety (trait anxiety, r = -0.18, p < .01). The relationship between religiosity and trait anxiety was no longer significant after controlling for social support (p = .26) and concluded that, religiosity and social support provide a buffer against anxiety in CHD patients and that higher levels of social support may account for the relationship between religiosity and trait anxiety. These findings underscore the importance of social support and religiosity as buffers against distress, with possible implications for prognosis in a patient group where high levels of anxiety appear to confer increased risk of mortality.

**Van Rijen EH, Utens EM, Roos-Hesselink JW et.al. (2004)** conducted a study on Styles of coping and social support in a cohort of adults with congenital heart disease at Erasmus Medical Centre, Rotterdam, The Netherlands using descriptive research design on 362 patients with congenital heart disease. Tools used were Utrecht coping list, and social support list and data were collected by interview schedule and found that, styles of coping in the total subjects were comparable to those of peers in the general population, except for lower active problem solving, which can be attributed to female patients. Males with congenital heart disease showed more favourable styles of coping compared to their peers, such as higher seeking of social support, lower
passive reaction patterns, and lower expression of negative emotions. Compared to the reference group, the total cohort of patients reported to receive less social support, but also to experience less discrepancy between desired and received social support, indicating feelings of independence in these adults. Females with congenital heart disease were found to seek and receive more social support compared to their male counterparts and concluded that, few differences in styles of coping were found between the patients and their reference groups. Perceived social support in the sample of patients was favourable.

Kristofferzon ML, Löfmark R, Carlsson M et.al (2003) made a review on gender differences in coping and social support among myocardial infarction at Uppsala University, Sweden using computerized search was conducted on forty-one articles, published between 1990 and October 2002 using the key words 'myocardial infarction', 'coping', 'gender differences' and 'social support' and found that, two studies report that women used more coping strategies than men. Several qualitative studies found that women used a variety of coping strategies. Women minimized the impact of the disease, tended to delay in seeking treatment and did not want to bother others with their health problems. Household activities were important to them and aided their recovery. Men were more likely to involve their spouses in their recovery, and resuming work and keeping physically fit were important to them. Women tended to report that they had less social support up to 1 year after a myocardial
infarction compared with men. They received less information about the disease and rehabilitation and experienced lack of belief in their heart problems from caregivers. Further, they received less assistance with household duties from informal caregivers. Men tended to report more support from their spouses than did women and concluded that, traditional gender-role patterns may influence the recovery of patients who have experienced myocardial infarction. Caregivers may need to be more sensitive to gender-specific needs with regard to risk profiles, social roles, and the patient's own role identity. For many women, especially older ones, household duties and family responsibilities may be an opportunity and a base for cardiac rehabilitation.

**Ginzburg K, Solomon Z, Bleich A** (2002) presented an article on repressive coping style, acute stress disorder, and posttraumatic stress disorder after myocardial infarction at Tel Aviv University, Israel using experimental research design on 116 MI patients and 72 matched control subjects. Tools used were self-report questionnaires and data were collected by filled questionnaires and hospital records and found that, of repressive coping style both in the immediate and longer-term aftermath of MI: repressors endorsed less acute stress disorder and post traumatic stress disorder than nonrepressors. In addition, the contribution of repressive coping style to post traumatic stress disorder was unique and beyond the implications of severity of MI, perceived threat, and immediate acute stress disorder and concluded that, the role of repressive coping style as a stress-buffer; several mechanisms that explain this role are suggested.
Yeh ML, Gift AG, Soeken KL (1994) carried out a study on coping in spouses of patients with acute myocardial infarction at University of Maryland School of Nursing, Taiwan using descriptive survey research design on 21 female and 10 male spouses of patients with acute myocardial infarction. Tool used was the revised ways of coping scale and data were collected by filled instrument. The study findings showed that, seeking social support was the most frequently used coping strategy, whereas confrontive coping was used the least. There were significant positive relationships between the extent of usage of coping strategies and their perceived effectiveness. Men used planful problem-solving more often and found it be more effective than did women; they also found the self-controlling and accepting responsibility strategies to be more effective than did women. Older spouses reported the planful problem-solving strategy to be more effective than did younger subjects. The more family members living with a spouse, the less accepting responsibility was used as a coping strategy and concluded that, spouses of patients with acute myocardial infarction in Taiwan, the Republic of China, reported using a variety of coping strategies. Those used most often were perceived to be the most effective.
Summary of findings on coping behaviour:

♦ Four different adaptation positions were identified: put up with current health, struggle for health, ignore illness, and struggle against illness. These categories were related to two core categories: self-agency and coping with illness consequences (Brink Eva, 2009)

♦ Repressive patients reported low levels of anxiety, anger and depression at baseline, but were at increased risk for death/MI compared with nonrepressive patients (Denollet, Johan, Martens, Elisabeth et.al, 2008).

♦ African American women who used confrontive coping to a high degree were more likely to confront problems, such as weight control issues, than those who used this coping strategy to a low or medium degree (Strickland, Ora Lea, 2007).

♦ Not taking symptoms seriously, asking others for advice and taking pain medication were some of the coping behaviours of myocardial infarction patients (Kentsch M, 2007).

♦ Patients who had no previous AMI were more likely to respond by taking nonprescription medications (M = 0.90 and 0.60; median = 1.0 and 0.0, respectively; P = .04) and concluded that, patients with and without a history of AMI tend to respond to their symptoms with similar coping strategies. When differences occurred, patients with and without a history of AMI differed only with respect to the type of self-medication choices they made (Fox-Wasylyshyn SM, 2007).
Compared with men, women with stable CAD shown poor coping skills in terms of experiencing poor sleep quality, even when sleeplessness behavior and pharmacologic treatments with inflammation inhibitors are controlled. It is also possible that they may be more at risk of depressed mood (Edell-Gustafsson, 2006).

Optimistic, self-reliant and confrontational coping were the most frequently used by both women and men over the first year after myocardial infarction, and confrontational coping have positive outcomes in the longer term (Kristofferzon ML, 2005).

Religiosity and social support provided a buffer against anxiety in CHD patients (Hughes JW, 2004).

Females with congenital heart disease were found to seek and receive more social support compared to their male counterparts (van Rijen EH, 2004).

Women used a variety of coping strategies women tended to delay in seeking treatment and did not want to bother others with their health problems. Household activities were important to them and aided their recovery (Kristofferzon ML, Lofmark R, 2003).

Repressive coping style was a stress-buffer (Ginzburg K, 2002).

Seeking social support was the most frequently used coping strategy, whereas confrontive coping was used the least (Yeh ML, 1994).
2.6 STUDIES ON FACTORS ASSOCIATED WITH MYOCARDIAL INFARCTION.

Arnold, Suzanne, Alexander, Karen P, Frederick A et.al, (2009) published an article on effect of age on functional and mortality outcomes after acute myocardial infarction at nineteen U.S. hospitals using prospective observational registry design on two thousand four hundred eighty-one patients with acute MI. The tools used were baseline and 1-year interviews identified subjects with functional decline, defined as a more than 5-point decline in Medical Outcomes Study 12-item Short Form Questionnaire (SF-12) Physical Component score or being "too ill" to provide a follow-up interview at 1 year. The relationship between age and functional decline was evaluated using logistic regression models adjusted for baseline SF-12 score, comorbidities, sociodemographics, and treatment characteristics. One-year mortality and a combined endpoint of death or decline were also compared across age. The main findings of the study were of 2,009 patients who survived to 1 year, 582 (29%) experienced a functional decline. In survivors, age was not associated with functional decline in unadjusted (odds ratio (OR)=0.95/decade, 95% confidence interval (CI)=0.88-1.03) or multivariable (OR=0.94, 95% CI=0.85-1.05) models. Although age was strongly associated with 1-year mortality (adjusted hazard ratio=1.42, 95% CI=1.21-1.66), there was no association between age and the combined endpoint of death or functional decline (adjusted OR=1.02, 95% CI=0.92-1.12) and concluded that, more than one in four survivors of MI experiences a significant decline in physical function by 1
year. Although age is strongly associated with mortality, it had no association with functional decline. Because older patients have the same potential for favourable functional outcomes after an MI, age alone should not preclude aggressive treatment after an MI.

**Brink, Eva, Brandstrom, Yvonne, et.al.** (2008) conducted a study on illness consequences after myocardial infarction: problems with physical functioning and return to work at Sahlgrenska University Hospital, Sweden using descriptive research design on 88 patients, less than or equal to 65 years of age, who had suffered a myocardial infarction and data were collected using self report. The tools used were health-related quality of life and physical activity (footsteps per day). To explore data and compare groups, t-tests were applied. Logistic regression analyses were performed and found that differences among individuals who were employed after myocardial infarction and those who were not. Those not in work scored lower on variables related to the physical dimension of health-related quality of life and on physical activity. Logistic regression revealed that a multivariate model including age, physical dimension of health-related quality of life and footsteps per day predicted return to work in 68% of all cases and concluded that, low physical health and low physical activity after myocardial infarction negatively affect returning to work. These findings stress the importance of clinical assessment of myocardial infarction patients' daily physical activity and physical functioning.
Ho, Michael, Marvin, Rumsfeld John Spertus et.al, (2008) published an article on influence of age on health status outcomes after acute myocardial infarction at Denver VA Medical Centre, Denver, using prospective cohort research design on 2498 patients. The tools used were Seattle Angina Questionnaire and health-related quality of life (HRQL) and found that, older patients comprised a majority: 20.1% were >=75 years of age, 41.7% were 65 to 74 years of age, 20.7% were 50 to 64 years of age, and 17.4% were <50 years of age. At 12 months, older patients had higher mortality (17.0% vs 8.7% vs 6.1% vs 3.2% for age groups >=75, 65-74, 50-64, 19-49; P < .001). Among survivors of AMI, increasing age was associated with less angina and better HRQL. By 12 months, older patients reported less angina (10.9% vs 12.7% vs 19.3% vs 23.4% for age groups >=75, 65-74, 50-64, 19-49; P < .0001) and better HRQL (scores 89.1 vs 88.1 vs 82.5 vs 80.0, respectively; P < .0001), which persisted after adjustment for baseline angina, HRQL, and other demographic, clinical, disease severity, and treatment differences and concluded that, older patients have higher mortality after AMI, those who survive experience fewer symptoms and better HRQL at 1 year than younger patients. Angina remains present in a number of patients across the spectrum of age, supporting strategies to systematically assess and treat symptoms after AMI.

McSweeney Jean C, Lefler, Leanne L, Fischer Ellen P, et.al. (2007) presented an article on women's prehospital delay associated with myocardial
infarction at University of Arkansas for Medical Sciences, Little Rock, Ark using descriptive research design on from 509 black and 500 white women using self-report data and data were collected by interview. The main findings were median delay time was nonsignificantly shorter for black than for white women (1.0 vs 1.5 hours). Equal proportions of black and white women (57% vs 54%) sought treatment within 2 hours of symptom onset. In multivariable analyses, correct attribution of symptoms to acute myocardial infarction was a significant predictor of treatment seeking within 2 hours of symptom onset for black and white women (odds ratios = 2.79 and 3.86, respectively); eligibility for public insurance was a significant predictor for black women only (odds ratio = 2.3) using multivariable logistic and linear regression analysis method. The study concluded that common comorbidities, acute myocardial infarction risk factors, and other demographics were not significantly associated with delay time. Insurance coverage and the correct attribution of symptoms to cardiac causes were substantial and modifiable predictors of delay in seeking treatment of acute myocardial infarction.

Pfiffner D, Hoffmann A (2007) conducted a study on cigarette smoking and myocardial infarction in young men and women at Harokopio University, Athens, Greece using case control study on 100 consecutive patients who had survived their first episode of MI. Data were collected by completed questionnaire. The main finding were 96% of the patients with premature MI and 55% of the controls reported current smoking habits (p<0.001). Moreover, patients had higher levels of total cholesterol, low
density lipoprotein cholesterol, triglycerides and lower levels of high density lipoprotein cholesterol (p<0.05). Multivariate logistic regression analysis showed that current smoking increased 6-fold the odds of having a MI (95% CI 1.01 to 37), after controlling for age, sex, body mass index, hypertension, diabetes, physical activity, family history of coronary heart disease and total cholesterol levels. Finally, discriminant analysis showed that pack-years of smoking was the strongest discriminator for MI among all the investigated factors (lambda-Wilks=0.85) and concluded that, cigarette smoking played the most important role for having a MI in individuals under the age of 36 years.

Banks AD, Dracup K (2006) carried out a study on factors associated with prolonged prehospital delay of African Americans with acute myocardial infarction at School of Nursing, University of San Francisco, USA using descriptive research design on sixty-one African Americans with acute myocardial infarction. Data were collected by structured interview schedule and found that, Median delay was 4.25 hours and did not differ significantly between women and men (4.42 vs 3.50 hours). Most patients (69%) experienced their initial signs and symptoms at home, often witnessed by family members or friends (70%). Delay was longer for insured patients than for uninsured patients (4.45 vs 0.50 hours). Single, widowed, or divorced patients had longer delay times than did married patients (5.33 vs 2.50 hours), and patients with diabetes delayed longer than did those without diabetes (7.29 vs 3.50 hours). Perceived racism did not differ significantly between patients
who delayed seeking treatment and those who did not. Independent t tests and chi(2) tests were used to determine factors associated with prolonged delays and concluded that, median delay times were substantially longer than the recommended time of less than 1 hour, reducing the benefit from reperfusion therapies. Education and counselling of patients and their families should be a major strategy in optimizing patients' outcomes and decreasing the time to definitive treatment.

**Fukuoka Yoshimi, Dracup Kathleen, Hirayama Haruo** (2004) conducted study on illness attribution among Japanese patients with acute myocardial infarction at 5 hospitals in urban areas in Japan using a cross-sectional study design on convenience sample of 155 patients admitted with acute myocardial infarction using semi-structured interview. Known risk factors were assessed by medical record review and patient interview and found that Twenty-two different primary causes for acute myocardial infarction were identified. Patients most commonly cited smoking, stress, and diet as risk factors. Except for smoking, Japanese patients did not identify their cardiac risk factors as a cause of their acute myocardial infarction. Controlling for sociodemographic characteristics, patients with a recorded history of coronary heart disease were significantly less likely to attribute their cardiac risk factors to their acute myocardial infarction (P < .05) and concluded that, effective education and counselling of patients after an acute myocardial infarction must be coupled with their view of what factors put them at risk for future acute myocardial infarctions.
Ryan Catherine J, Zerwic Julie Johnson (2004) conducted study on knowledge of symptom clusters among adults at risk for acute myocardial infarction at Chicago using descriptive research design on 63 subjects of acute myocardial infarction survivors. A Q sort instrument was used to collect data and By-person factor analysis was used and found that Four factors were identified that described different presentations of acute myocardial infarction symptoms. Respondents loaded on the following factors: Factor 1 (traditional symptoms), Factor 2 (symptoms possibly related to gastrointestinal disorders), Factor 3 (nonspecific symptoms), and Factor 4 (a variation on traditional symptoms). This four-factor solution accounted for 36% of the total variance and concluded that, the Q methodology showed that people with known coronary artery disease and their significant others had varied expectations of acute myocardial infarction symptoms. New and various strategies need to be developed to help patients accurately identify acute myocardial infarction symptoms.

Rosenfeld, Anne G. (2004) presented an article on treatment-seeking delay among women with acute myocardial infarction at Portland using A cross-sectional, descriptive design on 52 women hospitalized for acute myocardial infarction using nonprobability sampling method and the tools used were standardized instrument and data were collected by decision making and semi-structured interviews. Narrative analysis was used to examine the stories from the qualitative data and to identify decision trajectory types. Discriminant
analysis was used to predict trajectory type membership and found the median delay time was 4.25 hours. Most of the women used one of two trajectory types: knowing (defined as those women who knew almost immediately that they would seek help, n = 25) and managing (those women who managed an alternative hypothesis or minimized their symptoms, n = 23). Discriminant analysis correctly classified 71% ([χ²][4] = 11.2; n = 48; p = .02) of the cases into trajectory types on the basis of four predictor variables: social support, personal control, heart disease threat, and neuroticism. The study concluded that, Women's behaviours during the period between onset of acute myocardial infarction symptoms and treatment seeking can be categorized into a small number of patterns termed decision trajectories. A profile of socio-cultural and intrapersonal factors with potential for predicting behaviour in relation to future coronary events was developed.

Janzon E, Hedblad B, Berglund G (2004) published an article on tobacco and myocardial infarction in middle-aged women at Malmo University Hospital, Sweden using descriptive research design on 10619 women. Data were collected by filled questionnaire and interview and found that, of the 3738 smokers, one-third had at least one major biological risk factor besides smoking; 228 women had MI during follow-up. Smoking and hypertension showed a synergistic effect on incidence of MI. The adjusted relative risks (RR) were 12.2 (95% CI: 7.5-19.8) for smokers with hypertension, 5.3 (CI:3.3-8.1) for smokers with normal blood pressure and 2.4 (CI:1.4-4.3) for never-
smokers with hypertension (reference: normotensive never-smokers). The corresponding RRs for diabetic smokers and diabetic never-smokers were 19.0 (CI: 10.2-35.4) and 8.8 (CI: 4.4-17.4), respectively (reference: nondiabetic never-smokers). In terms of attributable risks, hypertension, hypercholesterolaemia and diabetes accounted for 12.9, 11.5 and 7.2%, respectively, of MI in female smokers. Low socio-economic level and being unmarried accounted for 19.6 and 1.6%, respectively. The study concluded that, although smoking is a major risk factor for MI, the risk varies widely between women with similar tobacco consumption. The results illustrated the need of a global risk factor assessment in female smokers and suggested that female smokers should be targets both for intensified risk factor management and programmes to stop smoking.

Zerwic JJ, Ryan CJ, DeVon HA et.al. (2003) presented an article on treatment seeking for acute myocardial infarction symptoms to find the differences in delay across sex and race at University of Illinois at Chicago, School of Nursing, USA using descriptive research design on 212 African American and non-Hispanic White patients hospitalized after acute myocardial infarction using convenient sampling method and the tools used was structured questionnaire and data were collected by interview. The major findings were Women did not delay significantly longer than men (2.0 vs. 2.5 median hours). African Americans delayed significantly longer than non-Hispanic Whites (3.25 hours vs. 2.0 median hours). Race did not contribute unique variance to delay time in a simultaneous multiple regression analysis; however, race was a
significant predictor variable in whether or not participants sought treatment within the first hour after the onset of symptoms. The variance in delay time for African American and Non-Hispanic White men and women that could be explained by the predictor variables ranged from 23-47% and concluded that, The reasons for delay differed in part by sex and race.

**Bankier B, Littman AB** (2002) reviewed literatures on psychiatric disorders and coronary heart disease in women at Harvard Medical School, USA using descriptive research design on articles published from 1971 to 2001 using Medline database and found that, Quoted items included depression, panic disorder, generalized anxiety disorder, mitral valve prolapse, chest pain, anorexia nervosa, menopause, alcohol abuse, cocaine use, sleep disorder, sexual dysfunction, hostility and type A behaviour, as well as other psychosocial aspects. There is accumulating evidence of significant associations between psychosocial factors, in particular psychiatric disorders and psychiatric symptoms, and the development and recurrence of CHD in women and concluded that, Future research into psychiatric disorders and psychiatric symptoms and CHD in women is strongly required, and the focus on women exclusively is underlined.

**Evangelista Lorraine S, Kagawa-Singer Marjorie, Dracup Kathleen et.al.** (2001) carried out a study on gender differences in health perceptions and meaning in persons living with heart failure at Los Angeles and San Francisco, California using descriptive research design on Thirty-two
patients (50% women). Standardized tools were used and Open-ended questions were used to obtain data and data were collected by interview and self report. The main findings were women had higher health perceptions than men did; they also demonstrated better psychosocial adjustment to illness. The qualitative data further suggest that women ascribed more positive meanings to their illness than men did and concluded that, the importance of gender differences in health perceptions related to HF. Patient teaching and counselling can be tailored to address the gender-specific concerns of men and women suffering with this condition to improve patient outcomes.

**Summary of findings on factors associated with myocardial infarction**

♦ Patients who survived to 1 year experienced a functional decline. In survivors, age was not associated with functional decline (*Arnold, Suzanne, Alexander, Karen P, Frederick A et.al, 2009*).

♦ Age, physical dimension of health-related quality of life and footsteps per day predicted return to work in myocardial infarction patients (*Brink, Eva, Brandstrom, Yvonne, et.al, 2008*).

♦ Older patients had higher mortality after AMI, those who survive experienced fewer symptoms and better HRQL at 1 year than younger patients (*Ho, Michael, Marvin, Rumsfeld John Spertus et.al, 2008*).

♦ Common comorbidities of acute myocardial infarction risk factors, and other demographics were not significantly associated with delay time (*McSweeney, 2007*).
♦ Cigarette smoking was the primary risk factors in young men and women with myocardial infarction (Pfiffner D, 2007).

♦ Education and counselling were the two main strategies essential to overcome prehospital delay and decreasing the time to definitive treatment (Banks AD, 2006)

♦ New and various strategies in the form of awareness were essential to identify myocardial infarction among high risk adults (Fukuoka Yoshimi, 2004).

♦ Treatment-seeking delay among women were associated with social support, personal control, heart disease threat, and neuroticism (Rosenfeld, Anne G, 2004)

♦ Tobacco consumption was the major risk factor for myocardial infarction in middle aged women (Janzon E, 2004).

♦ Women did not delay significantly longer than men and race did not contribute to delay time in myocardial infarction patients (Zerwic JJ, 2003).

♦ There was a significant associations between psychosocial factors, in particular psychiatric disorders and psychiatric symptoms, and the development and recurrence of CHD in women (Bankier B, Littman AB, 2002)

♦ Women had higher health perceptions than men did and they also demonstrated better psychosocial adjustment to illness (Evangelista Lorraine S, 2001).
PART B

2.7. MODIFIED THEORETICAL FRAME WORK BASED ON

BETTY NEUMAN’S MODEL (1995)

Theoretical frame work used for the present study was based on Betty Neumans’s system theory (1995).

Neuman’s basic philosophy was to help each other to live. The support extended by each other, helps to from a wholistic system. Nursing is considered a system because nursing practice contains interaction. The system responds to stressors from the internal and external environments.

Neuman’s model focuses on stress and stress reduction and is primarily concerned with effects of stress on health. Present study 6 also focused on the level of stress and the sources of stressors that had contributed MI in study subjects.

Basic core Structures:

Neuman considers the client to be an open system interacting with the environment. The person has a core consisting of basic structure. The basic structures encompass the factors or energy resources necessary for client survival. The factors include physiologic, psychological, socio-cultural, developmental and spiritual variables, clinical profiles such as primary
symptoms of MI, secondary effects of MI, duration of illness etc (physiologic), death anxiety, family burden, social support and quality of life (psychological), reaction of family members, spouse, relatives, friends, colleagues and employers towards client after his MI illness (socio-cultural), history of MI in the family as predisposing factor (developmental) and religiosity factors such as belief in god, kind of after death, visits to holy places, shrines etc (spiritual) as energy sources necessary for client survival. Surrounding the basic core structure are concentric circles, which includes the lines of resistance and the line of defence (normal line of defence and flexible line of defence).
Figure 2.1: A Schematic representation of a Modified Theoretical Framework of the present study Based on Betty Neuman’s System Model (1995)
Lines of resistance:

These are the series of lines surrounding the basic core structure. They represent the internal factors of a person that help to defend against stressors. Eg. Personality make up, coping styles they attempt to stabilize the person and encourage a return to the normal line of defence. Researcher in this study assessed coping behaviour that client used, whether they were highly effective, moderately effective or ineffective to defend against stressors.

Normal line of defence:

It depicted as a solid line outside the lines of resistance. It refers to the equilibrium stat or the adaptation state that a client has developed overtime. Eg. The person usual level of wellness. Researcher used quality of life assessment to find out the level of wellness of the subjects.

Flexible line of defence:

It is presented as a broken line outside the normal line of defence. It acts as a protective barrier to prevent stressors from breaking through the normal line of defence. It is dynamic and can change rapidly over a short time. It protects the normal line of defence and acts as a buffer for the clients systems’ usual stable state. The flexible line of defence prevents stressors from invading the system. Either single or multiple stressors may invade the flexible line of defence. The researcher considered stressors like clients having
debt/loan, low economic status, level of help received from spouse and others from family etc attacking the flexible line of defence.

**Reaction of stressors:**

If the flexible line of defence cannot protect a person from the stressor, can break through the normal line of defence, causing a reaction. The reaction depends on the client’s lines of resistance. Researcher examined the number of socio-demographic factors, the clinical profile and psychological-social variables to find out multiple stressors that had attacked the flexible line of defence causing increased adrenaline secretion resulting in increased heart beat, immature ejaculation of blood form left ventricle, inadequate blood supply to heart muscles itself leading to anoxia, congestion and infraction of myocardium with the primary symptoms of ‘chest pain’.

**Stressors:**

Stressors are any environmental force that alters the system stability. Stressors may include any tension producing stimulus that has the potential to affect a person’s normal line of defence. Stressors can occur in any number at any time and in different forms.

**Intrapersonal stressors:**

Are those stimuli that occur within the individuals, which include feelings such as anger and fear.
**Interpersonal Stressors:**

Are those stimuli that occur between individuals, which include pressures related to role expectation, such as getting children educated, married.

**Extrapersonal stressors:**

Are those stimuli that occur outside the person which include jobs or financial pressures.

Researcher in this study included subjects already who had been diagnosed with MI. MI recurrence increases in the presence of stressors. The stressors that can aggravates MI related to be identified. Intrapersonal stressors like death anxiety, interpersonal stressors like family burden and extrapersonal stressors like job related stressors (colleagues, supervisors/ employers) were assessed to find out number of stressors and different forms of stressors.

**Degree of reaction:**

It is the amount of system instability that occurs after exposure to a stressor. The degree of reaction is determined by the timing, type and strength of stressor, experiences and perception of stressor. As part of the reaction, a person’s system can adapt to the stressor. This adaptation is called reconstitution. The specific intervention used to maintain system stability is primary, secondary and tertiary prevention. In the present study the stressors
already attacked the flexible line of defence, further invaded the normal line of defence and lines of resistance and broke through the core structure. MI client requires active treatment and further follow up for reconstitution.

**Primary Prevention:**

It refers to intervention before a reaction occurs. The stressor is suspected and viewed as a possible risk to the normal line of defence. It interferes the stressors penetration into the normal line of defence. Researcher attempted to find out the stressors that would possibly become the risk to the normal line of defence.

The stressors could be identified by nurses from the clients and from his family system. The nurse focuses on obtaining a client database to determine the existing state of wellness and the actual or potential reaction to various stressors. Researcher used sociodemographic data sheet to get exhaustive data base to find out stressors of intrapersonal and extrapersonal factors.

**Secondary Prevention:**

It refers to intervention after a reaction occurs. It includes early case finding and treatment of problems. It strengthens the lines of resistance to reduce the degree of reaction. Example is the counselling a grieving client. Researcher as a part of data collection used extended counselling services and suggested problem focused coping strategies.
Tertiary Prevention:

It refers to intervention after active treatment of a reaction. It takes place when reconstitution or some degree of stabilizations has occurred. It maintains adaptation ad strengthens the lines of resistance to prevent further reactions. Example is the initiating stress management programme for a client having stress. Researcher developed “Patient Information Booklet on Stress Management and Coping for Heart Attack” (Appendix-VI and Appendix- VII). This book was given to each subject after the data collection process was over.