REVIEW OF RESEARCH LITERATURE
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Cardiovascular disease (CVD) is globally considered as the leading cause of death with 80% of CVD related deaths being reported from low and middle income countries like India. The relatively early onset age of CVD in India in comparison to Western countries also implies that most productive ages of the patient’s life are lost fighting the disease. Conventional cardiovascular risk is attributed to lifestyle changes and altered metabolic activity.

Cardiovascular disease (CVD), including coronary heart disease (CHD) and stroke, is the largest cause of mortality in the world, and the majority of deaths occur in low- and middle-income countries such as India and China (Global Status Report of NCD 2010). These diseases are epidemic in urban locations of these countries and are rapidly increasing in rural areas as well (Washington: Institute of Medicine; 2010). With demographic shifts, epidemiological transition and
increasing urbanization associated with increase in CVD risk factors (smoking, sedentary lifestyle, obesity, hypertension and hypercholesterolemia), and a lack of policy directives aimed at chronic disease control, CVDs are poised to accelerate further (Gupta R, Gupta S, Joshi R, Xavier D, 2011). The World Health Organization (WHO) periodically reports on the proportion of deaths from CVD in India but trends are not reported due to lack of specific data. Prior to 1998, the Indian mortality data were obtained from predominantly rural populations where vital registration varied from 5% to 15%. Accordingly, the Registrar General of India reported that from the 1990s the proportion of mortality attributed to CVD or circulatory system diseases remained almost static at 15%-17% (Gupta R, Misra A, Pais P, Rastogi P, Gupta VP, 2006).

In India, CVD is the largest cause of mortality in all regions of the country. It has been found that top 5 causes of deaths in different populations (rural vs urban, economically backward vs developed states, men vs women, and at all-ages vs middle aged individuals).
CVD is the largest cause of mortality in each of these groups. There are large regional differences in cardiovascular mortality in India among both men and women (Mony P, 2006). The mortality is highest in south Indian states, eastern and north-eastern states and Punjab in both men and women, while mortality is the lowest in the central Indian states of Rajasthan, Uttar Pradesh and Bihar. Sub-analysis of the mortality trends shows that CHD mortality is higher in the south Indian states while stroke mortality is higher in the eastern Indian states (Mony P, 2006). There is no currently available information on trends in CVD mortality in India or different regions and states. The prospective phase of the ongoing Million Deaths Study (Jha P, Gajalakshmi V, Gupta PC, Kumar R, Mony P, Dhingra N, Peto R, 2010) from 2004-2013 shall provide robust data on regional variations and trends in CVD mortality in India.
There are no prospective cardiovascular epidemiological studies that have identified risk factors of importance in India. Multiple case-control studies exist. The largest of these case-control studies is the INTERHEART study (Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigos J, 2004). This study was performed in 27,000 cases of acute myocardial infarction and controls in 52 countries of the world and assessed multiple cardiovascular psychosocial and biological risk factors in both the groups. Of these subjects more than 2000 cases and controls were from South Asian regions (Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigos J, 2004). This study reported that standard risk factors such as smoking, abnormal lipids, hypertension, diabetes, high waist-hip ratio, sedentary lifestyle, psychosocial stress, and a lack of consumption of fruit and vegetables explained more than 90% of acute CHD events in South Asians. Similar conclusions were reached in smaller case-control studies (Gupta R, Joshi P, Mohan V, Reddy KS, Yusuf S, 2006).
The INTERSTROKE study (O'Donnell MJ, Xavier D, Liu L, Zhang H, Chin SL, Rao-Melacini P, Rangarajan S, Islam S, Pais P, 2010) reported 10 common risk factors explained more than 90% of incident hemorrhagic and thrombotic strokes. The risk factors were similar to the INTERHEART study (hypertension, smoking, dyslipidemia, diabetes, high waist-hip ratio, sedentary lifestyle, psychosocial stress, poor quality diet, and cardiac causes), but the population-attributable risks were different with greater importance of hypertension and lesser importance of diabetes and lipids.

multisite study involving 5 rural and 4 urban sites in middle-aged women reported the prevalence of cardiovascular risk factors in different regions of India (Pandey RM, Gupta R, Gupta R, Misra A, Misra P, Singh V, Agrawal A, Dey S, Rao S, Menon VU., 2011). The results focused on assessment of urban-rural differences and not on regional variations. An ICMR surveillance study evaluated the differences in self-reported prevalence of behavioral and anthropometric cardiovascular risk factors in different Indian states in rural and urban populations (Indian Council of Medical Research; 2009.). Epidemiological studies were performed in urban and rural populations in states of south India (Kerala, Tamilnadu, Andhra Pradesh), west India (Maharashtra), central India (Madhya Pradesh), east India (Mizoram) and north India (Uttarakhand). The prevalence of smoking was highest in Mizoram and overweight/obesity, hypertension and self-reported diabetes highest in the south Indian states of Kerala and Tamilnadu. The study focused on limited lifestyle and anthropometric risk factors and no data were obtained for
more important risk factors such as lipid abnormalities and hyperglycemia. The INTERHEART study reported that these biochemical risk factors explained more than 50% of cardiovascular events among South Asians(Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigos J, 2004). Risk factor prevalence (%) among men and women (15-64 years) in 8 Indian states in Indian Council of Medical Research Noncommunicable Disease Risk Factor Surveillance Study (Indian Council of Medical Research; 2009).

On the other hand, reviews of CVD risk factor epidemiological studies from India showed significant regional variations in the prevalence of the important CVD risk factors of smoking, obesity, hypertension, diabetes and lipid abnormalities. The second and third NFHS reported the prevalence of smoking and tobacco use in populations of all Indian states. There were significant state-level and regional variations in smoking (Mony P., 2010; National Family Health Survey 2005-2006 (NFHS-3), 2007). The smoking rates were
the highest in eastern Indian states and the lowest in Punjab(Subramanian SV, Nandy S, Kelly M, Gordon D, Davey Smith G., 2004). The second and third NFHS also reported on differences in prevalence of overweight and obesity among men and women in different Indian states. Prevalence of overweight and obesity was the highest in southern and northern Indian states and the lowest in central Indian states (Wang Y, Chen HJ, Shaikh S, Mathur P., 2009).

A review of epidemiological hypertension studies reported that the prevalence of hypertension was significantly higher in urban populations in India compared with rural populations(Gupta R., 2004). However, no consistent trends were observed for regional variations. In rural populations the prevalence of hypertension was higher in Rajasthan while in urban studies prevalence rates were not significantly different in different regions(Gupta R., 2004). The prevalence of hypertension was highest in metropolitan cities such as Mumbai and lower in less populated cities(Deedwania PC, Gupta R., 2012) . An important finding of the
current studies is that the prevalence of hypertension in rural populations is now approaching the rates in urban subjects.

**Urban-rural differences:**

CVD is epidemic in urban regions of low income countries such as India (Gupta R, Joshi P, Mohan V, Reddy KS, Yusuf S., 2008) [8]. Cardiovascular mortality data from India has reported large regional variations with annual mortality rates greater than 250/100 000 in southern and eastern regions of the country and less than 100/100 000 in central India (Mony P., 2010) [6]. There are large urban-rural differences in cardiovascular mortality also, with rates of less than 200/100 000 in rural areas and 450-500/100 000 in metropolitan urban locations. Only a few prospective studies of cardiovascular mortality are available in India. A small study in rural Gujarat (Trivedi DH, Sharma V, Pandya H, Arya RK, Mehta R, Bansal RK, Sharma A, Gandhi SP., 1996), and a larger study in rural Andhra Pradesh (Joshi R, Cardona M, Iyengar S, Sukumar A, Raju CR, Raju KR, Raju K, Reddy KS,
Lopez A, Neal B. , 2010), reported age-adjusted annual mortality rates of 200-250/100 000 while studies in urbanized Kerala(Soman CR, Kutty VR, Safraj S, Vijayakumar K, Rajamohanan K, Ajayan K. , 2011) and Mumbai(Pednekar MS, Gupta R, Gupta PC. ,2011) have reported very high cardiovascular mortality with age-adjusted rates approaching 500/100 000 for men and 250/100 000 for women. These rates are almost twice that of United States (Global Status Report of NCD 2010 ,)

The higher prevalence of cardiovascular risk factors in urban areas in India is in contrast to high income countries where the CVD risk factors are equal in urban and rural areas(Stuckler D. ,20088). This is due to advancing disease and epidemiological transition and it is likely that the prevalence of risk factors will change in India with socioeconomic development of rural areas. There is recent evidence that, in more developed states of India such as Kerala, the rural-urban differences in cardiometabolic risk factors have largely disappeared and the risk factors
are equal or slightly greater in rural subjects (Thankappan KR, Shah B, Mathur P, Sarma PS, Srinivas G, Mini GK, Daivadanam M, Soman B, Vasan RS., 2010). Whether a similar situation emerges in other Indian states is a matter for future studies. Recent studies in certain states have reported a high prevalence of diabetes and hypertension in some rural locations in south and west India.

**Trends in risk factors:**

An important focus of studies done is the changing trends in cardiovascular risk factors. Reviews show that all major risk factors are increasing in India (Gupta R., 2009). In the last 40 years, the prevalence of hypertension and hypercholesterolemia has doubled while that of diabetes has trebled. However, there are almost no studies that have evaluated risk factors using a prospective cohort design. The Jaipur Heart Watch studies in India evaluated multiple cardiovascular risk factors in urban middle-class subjects using a multiple cross-sectional study design over a 20-year period from 1991 to 2010 (Gupta R, Guptha S, Gupta VP, Agrawal A,
Gaur K, Deedwania PC. , 2011). Over this period in these urban subjects, the prevalence of smoking declined, hypertension did not change significantly (due to increased awareness and treatment), while all other risk factors such as obesity, truncal obesity, hypercholesterolemia, diabetes and metabolic syndrome increased significantly(Gupta R, Guptha S, Gupta VP, Agrawal A, Gaur K, Deedwania PC. , 2011).

TYPE A BEHAVIOUR & CVD

The relation of behavior (Type A or Type B) to the morbidity and mortality of coronary heart disease (CHD) is still debated. We studied the survival of 257 male patients with CHD from the initial, 8.5-year phase of the Western Collaborative Group Study to see whether behavior type — as assessed by a structured interview before the CHD event — was related to subsequent CHD mortality.

Behavior type was not related to mortality in 26 patients who died within 24 hours of the coronary event. However, of the 231 patients who survived for 24 hours, the mortality rate associated with CHD among 160 Type
A patients studied during an average 12.7 years was 19.1 per 1000 person-years. This was unexpectedly lower than the corresponding rate of 31.7 among 71 Type B patients who were followed for an average of 11.5 years (P = 0.04). In a proportional-hazards survival analysis, which controlled for variable follow-up time, the type of initial coronary event, and traditional risk variables, the relative CHD-associated mortality rate among Type A as compared with Type B patients was 0.58 (P = 0.03; 95 percent confidence interval, 0.35 to 0.96).

The lower mortality among Type A subjects occurred in both younger and older subgroups but was more pronounced in patients whose initial diagnosis was symptomatic myocardial infarction rather than silent myocardial infarction or angina pectoris. This apparent advantage associated with Type A behavior is surprising and needs confirmation, but the results do indicate that patients with CHD and a Type A behavior pattern are not at increased risk for subsequent CHD mortality. Robert B. Case, M.D., Stanley S. Heller, M.D., Nan B. Case,
Ph.D., Arthur J. Moss, M.D. (1985) conducted study to ascertain the influence of personality factors on the course of coronary artery disease, we measured Type A behavior in 516 patients within two weeks after an acute myocardial infarction, using the Jenkins Activity Survey questionnaire. Over a follow-up period of one to three years, there was no relation between the Type A score and total mortality, cardiac mortality, time to death for nonsurvivors, left ventricular ejection fraction, or duration of the stay in the coronary care unit. These negative findings were not changed by restricting the analyses to men below 61 years of age or by comparing extreme score categories. The contributions of behavioral, demographic, and cardiac physiologic factors to postinfarction mortality were also evaluated by multivariate survivorship analyses. The physiologic factors were the only ones that contributed a significant and independent mortality risk; the Type A score did not enter the survivorship model (relative risk, 0.8; 95 percent confidence interval, 0.5 to 1.5). Thus, we found no relation between Type A behavior and the long-term outcome of acute myocardial infarction.
"Stress" and coronary heart disease: psychosocial risk factors:

There is intense public interest in possible links between "stress" and coronary heart disease (CHD). Until recently, organisations such as the National Heart Foundation of Australia have only been able to make judgements based on limited data in this area.

In 1988 the National Heart Foundation of Australia published a report, "Stress and cardiovascular disease", which concluded that, although acute catastrophic events might trigger acute myocardial infarction or sudden death, there was insufficient existing evidence from prospective studies that any form of "stress" consistently predicted the subsequent development of CHD. The report concluded that psychosocial risk factors had effects on conventional risk factors, but no independent effect. Since then, a considerable number of prospective cohort studies have examined the links between various forms of stress and the development and prognosis of CHD; there has also been a multitude of reviews, both narrative and systematic. However, these reviews have
used different methods and at times have come to
different conclusions. Because systematic reviews
attempt to find, appraise and summarize the findings of
all studies in a systematic and transparent way, these
reviews should be the more reliable. Unfortunately, the
reported systematic reviews have varied in their quality
and come to different conclusions.

An Expert Working Group considered all the major
suggested psychosocial risk factors ("stressors") to
identify evidence of independent associations with CHD.
Although the term "stress" is in general use, it is so
imprecise that, in agreement with other review groups,
the Expert Working Group examined separately those
variables that are commonly regarded as components of
stress. These include:

- depression, anxiety, panic disorder;
- social isolation and lack of quality social support;
- acute and chronic life events;
- psychosocial work characteristics; and
- Type A behaviour, hostility.
An Expert Working Group of the National Heart Foundation of Australia undertook a review of systematic reviews of the evidence relating to major psychosocial risk factors to assess whether there are independent associations between any of the factors and the development and progression of coronary heart disease (CHD), or the occurrence of acute cardiac events. The expert group concluded that (i) there is strong and consistent evidence of an independent causal association between depression, social isolation and lack of quality social support and the causes and prognosis of CHD; and (ii) there is no strong or consistent evidence for a causal association between chronic life events, work-related stressors (job control, demands and strain), Type A behaviour patterns, hostility, anxiety disorders or panic disorders and CHD. The increased risk contributed by these psychosocial factors is of similar order to the more conventional CHD risk factors such as smoking, dyslipidaemia and hypertension. The identified psychosocial risk factors should be taken into account during individual CHD risk assessment and
management, and have implications for public health policy and research.

There was strong and consistent evidence across all the reviews that depression is an independent risk factor for clinical CHD and its prognosis. The association exists for men and women, subjects living in different countries, and various age groups. Furthermore, the CHD risk is directly related to the severity of depression: a 1–2-fold increase in CHD for minor depression and 3–5-fold increase for major depression. The strength of the association is of similar magnitude to that of standard risk factors such as smoking or hypercholesterolaemia.

There is strong and consistent evidence across all the reviews that social isolation and lack of quality social support are independent risk factors for CHD onset and prognosis: the risks are increased 2–3-fold and 3–5-fold, respectively. The association exists for both men and women, subjects living in different countries, and various age groups. An association was found in studies that examined some aspect of the size and nature of a
person's social network and in studies that examined the type of support received.

Acute life event "stressors" can trigger CHD events, although it is very difficult to study and quantify the magnitude of effects. Acute "stressors" include significant common events such as bereavement as well as catastrophic events such as earthquakes or terrorist attacks. Although the deleterious physiological effects of acute "stressors" as CHD triggers are well documented, the role of chronic "stressors" in CHD onset and prognosis remains unclear. Work-related "stressors" risk factors refer specifically to the characteristics of the work environment as distinct from the life-event "stressors" referred to above. The studies included in one review4 under psychosocial work characteristics were heterogeneous, with a wide variety of factors being examined individually and collectively. When the results for job control, demands and strain were recalculated, there was not a preponderance of positive over negative studies. The Expert Working Group found no consistency
between this review and the other two reviews of work-related "stressors".

Type A behaviour pattern refers to a number of personality trait characteristics, including rushed, ambitious and competitive behaviour, impatience, hostility, and intolerance. Early positive studies have now been displaced by a large number of studies concluding that Type A behaviour pattern has no effect.

One review of prospective studies concluded that there was consistent positive evidence of association between hostility and CHD. Two other reviews reported an almost equal number of positive and negative prospective studies in healthy populations. The most recent review concluded that there was no evidence of association.

When the discordance between these reviews was examined, we found that the review that found no clear association between hostility and CHD included 2–6 times as many large studies as the other reviews, and that the other reviews had only 2–4 primary studies in
common with the most recent review. As well as including several more recent studies, this review included studies with better measures of hostility and more studies of the general population. Its inclusion of studies of Type A behaviour patterns did not account for the preponderance of "negative" studies. The Expert Working Group therefore gave greater credence to this better-quality "negative" review and considered that hostility is not a risk factor for CHD. A review of primary studies where anxiety was the specific exposure (rather than anxiety associated with depression) found an equal number of positive and null findings among both the aetiological and the prognostic studies and concluded there was no association with CHD. Other reviews came to the opposite conclusion or were equivocal.

Susanne S. Pedersen and Johan Denollet (2003) in an article on Type D personality, cardiac events, and impaired quality of life found that Psychological distress has been associated with the pathogenesis and progression of coronary heart disease (CHD) but little is known about the determinants of
distress as a coronary risk factor. Although it has become unfashionable to focus on personality factors since research on Type A behaviour yielded inconsistent findings, personality may comprise a major explanatory factor of individual differences in stress-related CHD.

There is an urgent need to adopt a personality approach in the identification of patients at risk for stress-related cardiac events. Type D is a stable personality construct that may be of special interest not only in CHD, but in other chronic cardiac conditions as well.

Orth-Gomér, Kristina (2007) conducted a review on Psychosocial and behavioral aspects of cardiovascular disease prevention in men and women. They observed that Cardiovascular disease is a serious threat to population health. The true causes are not fully known, but a number of biological and behavioral risk factors have been identified. In this review we aim at understanding psychosocial, behavioral and lifestyle factors and their role in clinical care of patients with cardiovascular disease. We describe recent scientific evidence of psychosocial and lifestyle risk and
behavioral interventions to reduce risk in cardiovascular disease. We also discuss whether intervention programs are effective against cardiovascular disease and its risk factors, and whether they are of benefit to the patients. Gender aspects and ethnic variations are highlighted. European Guidelines of CVD Prevention in Clinical Practice, behavioral factors have become recognized to be true risk factors and identified as important barriers to lifestyle change for patients with cardiovascular disease. Lifestyle changes play a pivotal role in clinical prevention of cardiovascular disease, as they are recommended as the first choice of intervention modalities before pharmacological treatment is initiated.

**Coping Skills and Cardiovascular Disease:**

Coping is any effort to manage or adapt to perceived external or internal demands. Two basic strategies of coping with the stress of illness can be distinguished: approach and avoidance. For almost 40 years these concepts have been used under different labels. Terms used for approach/avoidance include, for example, monitoring/ blunting, sensitization/repression, and
vigilance/avoidance. Mullen and Suls (1982) and Suls and Fletcher (1985) have concluded, on the basis of several meta-analyses, that avoidance coping strategies in the short term, together with approach coping strategies in the long term, can lead to more effective adjustment to stressful events. With respect to myocardial infarction some research suggests that avoidance or denial in the short term can lead to more positive adaptation Levenson JL, Mishra A, Hamer RM, Hastillo A. (1989); Levine J, Warrenburg S, Kerns R, Schwartz G, Delaney R, Fontana A, Gradman A, Smith S, Allen S, Cascione R. (1987) whereas avoidance in the long term can lead to poorer adaptation. The research results are not unequivocal, however. Although Sherbourne and coworkers (1987) found that avoidance behavior in the long term had a negative influence on adherence to medical advice, a prospective study Feifel H, Strack S, Nagy VT (1987) has suggested that avoidance behavior in the short term could also lead to negative psychosocial consequences in coronary heart disease patients. The effects of approach strategies in coronary heart patients have been investigated in only a
few studies. One study suggested that approach behavior before and after coronary heart surgery may be negatively related to well-being if the coping behavior is directed toward emotional issues, yet positively related to well-being if it is directed toward making plans and achieving goals Scheier MF, Matthews KA, Owens JF, Magovern GJ, Lefebvre RC, Abbott RA, Carver CS(1989). In another study, Holahan et al. (1995) found that active or approach coping strategies predicted fewer depressive symptoms in cardiac patients.

Madisetty Bhagyalakshmi, Banda Venkata Ramana, Hema Suresh, Jaya Mohan Raj (2012) conducted study to assess the level of stress and coping strategies among the CAD patients. The study was done with 100 patients with CAD in Cardiology Department at a tertiary care hospital. A total number of 100 patients with CAD were selected using convenient sampling technique. Stress and coping was assessed by using intervention tool. Out of 100 patients females were 51 (51%) and males were 49 (49%). In this study the first objective was to assess the level of stress among patients with CAD. It showed that 57 (57%) of patients had less stress, 43
(43%) of patients had moderate stress and none of the patients had increased level of stress. The findings of the study were correlated with the study conducted by Chockalingam A et al. (2003) as the patients with acute MI report a higher subjective mental stress during 2 to 4 weeks preceding the acute coronary event. The second objective of this study was to assess the level of coping strategies used by the patients with CAD. It shows that 91 (91%) of the patients in the moderate coping strategy, 5% were adequate coping and 4% were inadequate coping strategies. The findings of the study were correlated with the study conducted by Cowan Marie J (2001) as the risk of cardiovascular death was significantly reduced 86% by psychosocial therapy, cognitive behavioral therapy aimed at self-management and coping strategies for depression anxiety and anger and cardiovascular health education. The third objective of this study was to correlate the level of stress and coping strategies among CAD. Our study shows that there was a statistically significant positive moderate correlation between level of stress and level of coping ability \( (P = 0.05) \). The findings of this study were
correlated with the study of Yu DS et al. (2004) showed that there is high level of psychological distress poor perceived emotional informational support with CAD were identified as the significant correlates of psychological distress, and to have a positive health perception and social support are the treatment goals. The fourth objective of this study was to associate the level of stress and coping strategies with their demographic variables. It shows that there was a statistically significant association of stress with sex, occupation and family income of the patient with CAD. There was no significant association with age, education, family system and residence. The study revealed that there was a statistical significant association of coping strategies with sex and residence, but no statistical significant association with age, education, occupation, family system and family income. The findings of the study were correlated with the study conducted by Brunett et al. (2004) which showed that the patients who had moderate income, low social support, prolonged period following a diagnosis of CAD had moderate stress. This study showed that 43 (43%) of patients had
moderate stress and 91 (91%) of patients had moderate coping strategies. So there is necessity to improve the knowledge regarding prevention of CAD, stress management techniques and counseling sessions to the patients with CAD.

Parisa Pourang, Mohammad Ali Besharat (2011) investigated the relationship between coping styles and psychological adaptation with recovery process was investigated in a sample of Coronary Heart Disease (CHD) patients. 150 patients were included in this study at intake and forty five patients (27 men, 18 women) participated in follow-up study. All participants were asked to complete Tehran Coping Styles Scale (TCSS) and Mental Health Inventory (MHI). Recovery Process Questionnaire (RPQ) was completed through patient's medical file and clinical examinations by cardiologists. Perceived recovery revealed a significant positive association with negative emotional-focused coping style. It can be concluded that perceived recovery of CHD patients is positively influenced by negative emotional-focused coping style.
Re´ Se van Elderen, Stan Maes and Elise Dusseldrop (1999) in a longitudinal study evaluated the effects of two types of coping strategies, approach and avoid ance, on anxiety, depression, and well-being in patients with coronary heart disease. Measurements were made at three timepoints: 1 month, 3 months, and 12 months after the cardiac event. Both cross-sectional and longitudinal relations were explored. At all three measurement points significant negative cross-sectional relations were found between approach and well-being, and significant positive cross-sectional relations were found between approach, on the one hand, and anxiety and depression, on the other. At the first measurement point, avoidance showed a positive association with well-being, and a negative association with anxiety. Longitudinal analyses, however, revealed a negative relationship between approach at the first measurement points and anxiety and depression at later measurement points. Likewise, there was a positive association between approach at the first two measurement points and well-being at later measurement points. The results of this study demonstrate the importance of facing and
working through the trauma of the coronary event. Although unfavorable in the short term, working through the trauma can attenuate long-term emotional distress. These results suggest that assessment of the psychological consequences of coronary heart disease and development of interventions should not be based only on cross-sectional data, but should take into account longitudinal relations between coping and psychosocial outcome measures.

Yazdi, Seyedeh-Monavar; Hosseinion, Simin; Eslami, Mansoure; Fathi-Ashtiani, Ali (2008) conducted study to find the relationship between quality of life and coping strategies in coronary heart disease patients. Two hundred coronary heart disease patients at Tehran Heart Center, who had been diagnosed with the disease 3 months before, were selected and filled out The Coping Inventory for Stressful Situations (CISS) and Quality of Life-SF36. Results showed a discrepancy between quality of life indices and coping strategies. Task-oriented strategy had a positive and significant relationship with total quality of life and PF indices while it had a negative and significant relationship with MH, RE
and RP radices. Emotional-oriented strategy had a positive and significant relationship with RP and RE radices while it had a negative and significant relationship with PF, GH, PH, total psychological health and total quality of life indices. Avoidance-oriented strategy had a negative and significant relationship only with MH index. Furthermore, quality of life aspects (physical and psychological) had a positive and significant relationship with emotional-oriented strategy, but it did not have a significant relationship with task-oriented and avoidance-oriented strategies. Also, the social aspect of quality of life did not have a significant relationship with any of the strategies. Considering the effect of stress on decreasing the quality of life, we recommend a psychologist train coping strategies to coronary heart disease patients along with medical treatments in order to improve recovery, maintain health and reduce recurrence.

Mehdi Akbari, Majid Mahmood Aliloo a, Nasser Aslanabadi (2010) carried out a study to investigate the
relationship of coping styles and stress with Coronary Heart Disease (CHD), as well as evaluating inefficient coping styles in patients with this disease. In this case control study, 80 patients with coronary heart disease (40 males, 40 females) who had presented to Shahid Madani Hospital in the city of Tabriz were compared with 80 controls (40 males, 40 females) who were selected using convenience sampling, and were matched by a number of demographic factors with each other. Data were gathered using Coping Style Questionnaire (CSQ) and Holms-Rahe Life Stress Inventory, and were analyzed via Logistic Regression, Multiple Analysis of Variance (MANOVA) and t-test. Results indicate that CHD patients have higher stress rates in comparison with controls, and use emotion oriented coping styles in general. Seventy nine percent of the variance related to the development of CHD is due to stress and coping styles, among which emotion oriented coping style had the highest (51%) and stress had the lowest (11%) share. Male CHD patients mostly used the inefficient direct confrontation style and female CHD patients mostly used the inefficient self-control style. It was
concluded that there is a significant relationship between emotion oriented coping styles and CHD, and gender has an important role in this regard.

Stephen Buetow, Felicity Goodyear-Smith and Gregor Coster (2000) in a study developed a framework for conceptualizing how patients with chronic heart failure cope mentally with their illness, and then use the framework to suggest how GPs can facilitate patient self-care. The interviews were conducted during late 1999 with 62 heart failure patients under GP care in 30 practices across central Auckland, New Zealand. In the obtained results, framework described four coping strategies: avoidance, disavowal, denial and acceptance. Disavowal provided a distinct coping strategy through which patients, who basically understand the threat to their life situations, seek hope through positively reconstructing this threat. Use of this strategy was highly salient regardless of patients' age, the length of time since their recorded diagnosis or the degree of self-reported limitation of recent physical function due to heart failure. Only over age 70 were avoidance and
acceptance also highly salient among patients whose heart failure was diagnosed at least 3 years previously and had mildly limited their recent physical function.

Joel W. Hughes, Alisha Tomlinson, James A. Blumenthal, Jonathan Davidson, Michael H. Sketch Jr., Lana L. Watkins (2004) in a study examined whether social support and religiosity are individually or jointly associated with lower anxiety in cardiac patients. Anxiety, perceived social support, and religiosity were assessed in 228 (71% male, 29% female) hospitalized CHD patients aged 62 ± 11 years. It was found that higher levels of social support were related to lower levels of state and trait anxiety (state anxiety, \( r = -0.26, p < 0.01 \); trait anxiety, \( r = -0.30, p < 0.01 \)). Religiosity was related to lower state anxiety (\( r = -0.27, p < 0.01 \)) but only modestly related to lower trait anxiety (trait anxiety, \( r = -0.18, p < 0.01 \)). The relationship between religiosity and trait anxiety was no longer significant after controlling for social support (\( p = 0.26 \)). These findings suggested 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.

The above review of researches lead to formulate research problem of this study.