

It has already been clarified that the purpose of the present study was to ascertain the stress and quality of life (QoL) among cardiovascular-disorder (CVD) patients. Three types of CVD patients were tapped in the present study, namely coronary heart disease (CHD), hypertension (HT) and the patients showing the symptoms of both the types of problems. They were named as combined disease group. The present chapter deals with the relevant studies on the above diseases as they affect the stress and QoL among the CVD patients. As it would be obvious from the review of related literature, no doubt many studies have been conducted in the area of CVD but most of the such studies have been conducted abroad. Besides, studies assessing the effects of combined disorders (CHD + HT) are very scarce in our context. The gender differences in stress and QoL among CVD patients are also not properly explored. The social support is said to be very much helpful in managing the stress and enhancing the quality of life (Allen 2011; Ogden, 2007). But this too, has not been generally covered in studies on CVD groups in our context. The review of related studies makes it obvious.

Sarmiento-Monroy et.al. (2012) have reported that cardiovascular disease (CVD) is the major predictor of poor prognosis in rheumatoid arthritis (RA) patients. There is an increasing interest to identify, 'nontraditional' risk for this condition. Latin Americans (LA) are considered as a minority subpopulation and ethnically different due to admixture characteristics. The search retrieved 10083 potential studies. A total of 16 articles concerning cardiovascular risk factors and measurement of any cardiovascular outcome in LA were included. The prevalence of CVD in LA patients with RA was 35.3%. Non-traditional risk factors associated to CVD in this population were HLA-DRBI shared epitope alleles, rheumatoid factor, markers of chronic inflammation, long duration of RA, steroids, familial autoimmunity, and thrombogenic factors. There is limited

data about CVD and RA in LA. So, it is proposed to evaluate cardiovascular risk factors comprehensively in the Latin American RA patient and to generate specific public health policies in order to diminish morbidity-mortality rates.

Chauhan and Aeri (2013) opine that cardiovascular diseases have a major share in the incidence of non-communicable diseases. CVD is also one of the leading causes of deaths in India. It has outgrown the boundaries of gender, location of dwelling etc. A number of studies have been conducted time and again to find out the prevalence of cardiovascular disease. This article aspires to collate all the data gathered by such studies conducted after year 2000 and provide an overview of the prevalence of CVDs in India. Studies published after 2000 in various national and international journals were reviewed to gather data on prevalence of CVD. Studies show an increased prevalence of cardiovascular disease in India as compared to other developing countries with recent trends showing incidence in younger age groups. It is seen to affect almost all sections of the society from young to old and most affluent to least affluent. Large scale and widespread incidence shows downgrading of the cardiovascular health status of Indians and emergence of CVDs as a chronic manifestation across the population. This affects the country's productivity owing to economic burden in an otherwise beneficial phase of demographic transition. The prevalence has increased as indicated by studies in the last decade. Projections for the future also estimate a similar trend. Need of the hour is to track down and closely monitor the prevalence of disease with maintenance of proper and detailed databases at hospital, community and other levels. This shall facilitate in evaluating the effect of corrective measures and health policies also.

Player et al. (2007) explored the influence of trait anger and long-term psychological stress on progression to hypertension and incident coronary heart disease (CHD) in persons with pre-hypertension. A

secondary data analysis was performed using the Atherosclerosis Risk in Communities (ARIC) study, a cohort of men and women aged 45 to 64 years at enrollment. Participants with blood pressure in the prehypertension range at the second visit conducted between 1990 and 1992, free of heart disease or stroke, and observed through the end of the ARIC study (1996-1998) were included (N=2,334). The main outcomes were progression from prehypertension to hypertension and prehypertension to CHD or CHD death. After adjusting for various covariates, high levels of trait anger, compared with low/moderate levels (odds ratio (OR) 1.53; 95% confidence interval (CI), 1.05-2.24), were associated with progression from prehypertension to hypertension. After stratifying on sex, trait anger as predictive for men only (OR 1.71; 95% CI 1.04-2.83). In survival analysis, trait anger was associated with progression to CHD for men (hazard ratio (HR) 1.92; 95% CI, 1.07-3.54). Long-term psychological stress was also associated with risk of incident (HR 1.68; 95% CI 1.18-2.40). High levels of traits anger in middle aged prehypertensive men were associated with increased risk of progressing to hypertension and incident CHD in both men and women.

Daniela Lucini, Silvano Riva, Paolo Pizzinelli, Massimo Pagani (2007) say that work stress may increase cardiovascular risk either indirectly, by inducing unhealthy life styles, or directly, by affecting the autonomic nervous system and arterial pressure. We hypothesized that, before any apparent sign of disease, work-related stress is already accompanied by alterations of RR variability profile and that a simple onsite stress management program based on cognitive restructuring and relaxation training could reduced the level of stress symptoms, revert stress-related autonomic nervous system dysregulation, and lower arterial pressure. We compared 91 while-collar workers, enrolled at a time of work downsizing (hence, in a stress condition), with 79 healthy control subjects.

Psychological profiles were assessed by questionnaires and autonomic nervous system regulation by spectral analysis of RR variability. We also tested a simple onsite stress management program (cognitive restructuring and relaxation training) in a subgroup of workers compared with a sham subgroup (sham program). Workers presented and elevated level of stress-related symptoms and an altered variability profile as compared with control subjects (low-frequency component of RR variability was, respectively, 65.2 ± 2 versus 55.3 ± 2 normalized units; $P < 0.001$; opposite changes were observed for the high frequency component). These alterations were largely reverted (low frequency component of RR variability from 63.6 ± 3.9 to 49.3 ± 3 normalized units; $P < 0.001$) by the stress management program, which also slightly lowered systolic arterial pressure. No changes were observed in the sham program group. This noninvasive study indicates that work stress is associated with unpleasant symptoms and with an altered autonomic profile and suggests that a stress management program could be implemented at the worksite, with possible preventive advantages for hypertension.

Nateghian (2008) conducted a study to compare stressful life events and mental health in coronary heart disease (CHD) patients and non-patients. In this research, 120 participants ($n=68$ male, $n=52$ female) were divided into two groups of patients ($n=60$) and non-patients ($n=60$). They were selected from Vali Asr Hospital of Meshginshahr (Iran) and completed the General Health Questionnaire (GHQ) and Stressful Life Events Inventory. Data was analyzed using independent t-test. The results showed significant differences between CHD patients and non-patients in mental health and stressful life events. CHD patients showed high rates of physical symptoms and anxiety of GHQ. CHD patients reported more stressful life events. Therefore, it can be inferred that psychological factors are important in coronary heart disease.

Goyal and Yusuf (2006) opine that Ischaemic heart disease and stroke are among the most common causes of death and disability in the world. The Indian subcontinent (including India, Pakistan, Bangladesh, Sri Lanka, and Nepal) has among the highest rates of cardiovascular disease (CVD) globally. Previous reports have highlighted the high CVD rates among South Asian immigrants living in Western countries, but the enormous CVD burden within the Indian subcontinent itself has been underemphasized. In this review, existing data on the prevalence of CVD and its risk factors in the Indian subcontinent are given. We also review recent evidence indicating that the burden of coronary heart disease in the Indian subcontinent is largely explained on the basis of traditional risk factors, which challenges the common thinking that South Asian ethnicity per se is a strong independent risk factor for coronary heart disease. Finally, we suggest measures to implement in policy, capacity building, and research to address the CVD epidemic in the Indian sub continent.

Bunker et.al. (2003) led 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.

According to Yudkin et.al. (2000), There is mounting evidence that inflammation plays a role in the development of coronary heart disease (CHD). Observations have been made linking the presence of infections in the vessel wall with atherosclerosis, and epidemiological data also implicate infection in remote sites in the aetiology of CHD. The proinflammatory cytokine interleukin-6 (IL-6) in several mechanisms that contribute to the development of CHD. IL-6 is a powerful inducer of the hepatic acute phase response. Elevated concentrations of acute phase reactions, such as C-reactive protein (CRP), are found in patients with acute coronary syndromes, and predict future risk in apparently healthy subjects.

Dimsdale (2008) states that, there is an enormous amount of literature on psychological stress and cardiovascular disease. This report reviews conceptual issues in defining stress and then explores the ramifications of stress in terms of the effects of acute versus long-term stressors on cardiac functioning. Example of acute stressors studied are discussed in terms of disasters (earthquakes) and in the context of experimental stress physiology studies, which offer a more detailed perspective on underlying physiology. Studies of chronic stressors are discussed in terms of job stress, marital unhappiness, and burden of caregiving. From all of these studies there are extensive data concerning stressors contributions to diverse pathophysiological changes including sudden death, myocardial infarction, myocardial ischemia and wall motion abnormalities, as well as to alterations in cardiac regulation as indexed by changes in sympathetic nervous system activity and hemostasis. (J Am Coll Cardiol 2008; 51:1237-46)

Svedberg et.al. (2013) conducted a study to investigate whether there are differences in health-related quality of life (HRQoL) between girls and boys in two different age groups, to study how much of children's variance in HRQoL can be explained by common psychosomatic health symptoms, and to examine whether the same set of psychosomatic symptoms can explain difference in HRQoL, both between girls and boys and between older and younger school children. A cross-sectional study was conducted of 253 children, 99 of ages 11-12 years (n=51 girls, n=48 boys) and 154 of ages 15-16 years (n=82 girls, n=72 boys), in Swedish schools. Boys rated themselves higher than girls on the KIDSCREEN dimensions; physical and psychological well-being, moods and emotions, self-perception, and autonomy. Main effects of age group were found for physical well-being, psychological well-being, moods and emotions dramatically lower than boys in the older age group, but the ratings of emotional status were more similar between genders at younger ages. Psychosomatic symptoms explained between 27% and 50% of the variance in the children's HRQoL. Sleeping difficulties were a common problem for both girls and boys. Depression and concentration difficulties were particularly associated with HRQoL among girls whereas stomach aches were associated with HRQoL among boys.

Bernald, et.al. (2008) have focused on work-related stress among nurses working with critically ill patients. The aim of the study was to examine the effects of work related stress with regard to patient safety. The study uses a qualitative design based on focus group interviews with nurses who work with acute, critically ill patients in hospitals. Two regional hospitals were chosen. Inclusion criteria for the focus group panels included the following : nurses with advanced training in anesthesiology, intensive care, or operating room nursing. Twenty-three nurses were chosen and they were divided into four groups. This study shows that a

demanding work environment together with minimal control and social support from colleagues results in increased stress that can often have an effect on patients safety.

Schalock et.al. (2002) has summarized the concept of quality of life as applied to persons with intellectual disabilities are summarized, and a number of agreed-upon principles regarding its conceptualization, measurement, and application are presented. We realize that the concepts and models presented in this article will vary potentially from country to country, and even from area to area within countries. The cross-cultural understanding of the concept of quality of life is in its infancy, and we hope that discourse resulting from the material presented in this article will facilitate both cross-cultural understanding collaborative work. The article reflects current thought about the conceptualization, measurement, and application of this increasingly important and widely used concept in the field of intellectual disabilities and sets the stage for its continuing development.

Michalak et.al. (2005) aimed to perform a review of studies addressing assessment of generic and health-related QoL in patients with bipolar disorder. The review indicated that there is growing interest in QoL research in bipolar populations. Although the scientific quality of the research identified was variable, increasing numbers of studies of good design are being conducted. The majority of the studies they identified indicated that QoL is markedly impaired in patients with BD, even when they are considered to be clinically euthymic. We identified several important avenues for future research, including a need for more assessment of QoL in hypo/manic patients, more longitudinal research and the development of a disease-specific measure of QoL for patients with BD.

Bakas et.al. (2012) have conducted a systematic literature review to (a) identify the most frequently used health-related quality of life

(HRQoL) models and (b) critique those models. Of 1602 titles identified, 100 articles from 21 countries met the inclusion criteria. The most frequently used HRQoL models were Wilson and Cleary (16%), Ferrans and colleagues (4%), or World Health Organization (WHO) (5%). Ferrans and colleagues model was a revision of Wilson and Cleary's model and appeared to have the greatest potential to guide future HRQoL research and practice. Recommendations are for researchers to use one of the three common HRQoL models unless there are compelling and clearly delineated reasons for creating new models. Disease-specific models can be derived from one of the three commonly used HRQoL models. We recommend Ferrans and colleagues model because they added individual and environmental characteristics to the popular Wilson and Cleary model to better explain HRQoL. Using a common HRQoL model across studies will promote a coherent body of evidence that will more quickly advance the science in the area of HRQoL.

In a study by Heitman (2006) attempt was made to identify how social support in families can influence the health behaviours of multigenerational families already at risk for cardiovascular disease (CVD). Using a case study method, semistructured individual and family group interviews were conducted of 3 members of 10 families (N=30) with known cardiovascular risk. Each family member represented a different generation. The findings revealed examples of family social support that influenced cardiovascular health behaviour. Opportunities are identified as to when healthcare professionals can encourage positive social support and sustained changes in health behaviours in families already at risk for CVD.

According to Kaplan and Kell (1993) despite recent declines in mortality, cardiovascular diseases are the leading cause of death today. It appears that many of the major risk factors for coronary disease have been identified. Researchers are still learning about different modifiable factors

that may influence cardiovascular diseases. Socioeconomic status may provide a new focus. A variety of psychosocial measures – for example, certain aspects of occupational status – may be important mediators of SES and disease. The hypothesis that high job strain may adversely affect health status has a rational basis and is supported by evidence from a limited number of studies. There is a considerable body of evidence for a relation between socioeconomic factors and all-cause mortality. These findings have been replicated repeatedly for 80 years across measures of socioeconomic level and in geographically diverse populations. During 40 years of study there has been a consistent inverse relation between cardiovascular disease, primarily coronary heart disease, and many of the indicator of SES.

Srivastava (2013) examined the self-efficacy and coping among the hypertension patients. The purpose of the study was to know the views of high blood pressure patients about their awareness of how they cope with the situation of hypertension. The study was carried out in Bhopal and Lalitpur District with hypertension patients aged between 26 and 75 years. Findings revealed that patients suffering from hypertension have different areas of self-efficacy and coping behaviour. The correlation between various areas of self-efficacy and coping behaviour of patients suffering from hypertension was not found statistically significant.

Bano, Bharadwaj and Singh (2012) conducted a study to measure the QoL among two types of psychosomatic patients viz. Hypertensive and CHD patients. Both the groups consisted of 50 cases each and a control (N=50) group was also used for comparison. The age of participants ranged from 30 to 70 years. They were administered PGI. QoL scale by Maudgil et.al. (1998). The analysis of data revealed that the group of psychosomatic patients covered in the study scored considerably low QoL as compared to their control counterpart group. The CHD group scored

the lowest in comparison to other groups. The findings suggest that psychosomatic patients need special care and affection from their relations and care givers.

Iqbal and Ahmad (2000) aimed at studying stress in cardiovascular disorders. The sample comprised 200 subjects, falling into four main groups. (1) : Coronary heart disease (CHD), (2) Hypertension (HT), (3) Combined disease (those who are suffering from CHD and HT simultaneously), and (4) Disease free group. Stress was measured through Life Experience Survey Scale developed by Sarason, Johnson and Siegel. All three disease groups scored significantly higher than disease free group; combined disease and HT groups scored significantly higher than CHD group, but no significant difference was found between HT and combined disease group on stress.

Akanksha (2011) studied depression, death anxiety and quality of life among psychosomatic patients. The psychosomatic patients scored higher on depression, death anxiety but lower on quality of life scale. They differed significantly from normal participants on all three scales, suggesting that psychological factors and psychosomatic problems are strongly associated.

WHO has predicted that from years 2000 to 2020 disability-adjusted life years lost (DALYs) from CHD in India shall double in both men and women from 7.7 and 5.5 million, respectively. It has also been reported that cerebrovascular diseases will account for more DALYs than CHD. These data do not report on regional variations within a large country such as India and more region-specific data are needed.

In the last 50 years there have been multiple cardiovascular epidemiological studies in India that have defined prevalence of CHD and stroke and identified the burden of disease. (Gupta et.al. 1996). The increase in CHD is largely an urban phenomon and only recently a rapid

rise in rural population has been reported. Studies in the middle of the last century reported a low prevalence of 1%-2% in urban locations and 0.5%-1% in rural locations with very little urban-rural difference. In the intervening years the CHD prevalence in urban locations with greater incidence in rural regions (O'Donnel et.al. 2010).

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 et.al. 2004). This study was performed in 27000 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 region. 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 et.al. 2008).

The INTERSTROKE study 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 (O'Donnel et.al. 2010).

Reviews of epidemiological studies suggest that all the major cardiovascular risk factors are increasing in India. Tobacco production and consumption has increased significantly. Smoking is increasing among

young subjects (20-35 years), according to second and third National Family Health surveys (NFHS). In urban population, smoking is increasing among the low educational status subjects. The prevalence of hypertension has increased in both urban and rural subjects and presently is 25-40% in urban adults and 10-15% among rural adults (Gupta, 2004). Lipids levels are increasing and serial studies from a north Indian city reported increasing mean levels of total, low density lipoprotein and non-high density lipoproteins (HDL), cholesterol and triglycerides, and decreasing HDL cholesterol (Gupta et.al. 2008).

According to Gupta et.al. (2012) Cardiovascular disease (CVD) is an important cause of mortality and morbidity in India. Mortality statistics and morbidity surveys indicate substantial regional variations in CVD prevalence and mortality rates. Data from the Registrar General of India reported greater age adjusted cardiovascular mortality in southern and eastern states of the country. Coronary heart disease (CHD) mortality is greater in south India while stroke is more common in the eastern Indian states. CHD prevalence is higher in urban India populations while stroke mortality is similar in urban and rural regions. Case-control studies in India have identified that the common major risk factors accounts for more than 90% of incident myocardial infarctions and stroke.

Clarke & Black (2005) state that residual physical and cognitive impairments following a stroke can pose a significant threat to a survivor's quality of life. Yet, there is not always a direct one to one correlation between functional disability and subjective quality of life. This research investigated the complexity of factors that influence quality of life after stroke, using qualitative interviews. Results indicate that a stroke has a significant impact on the quality of life of survivors, but some individuals find ways to adopt to their functional disabilities and report a high quality of life.

Carels (2004) opine that congestive heart failure significantly compromises quality of life by contributing to severe physical role, and social functioning impairment as well as increased psychological distress. Previous research examining quality of life in CHD patients has typically been conducted using global self-report instruments that may exceed a patients ability to accurately recall their experiences. This investigations examines the impact of disease severity, functional status, and level of depression on daily quality of life (i.e., mean level and variability). These findings suggest that depressive symptoms my have a greater impact on quality of life in CHF patients than severity of cardia dysfunction on or functional.

Bjerkeset et.al. (2005) conducted a study with an aim to examine the impact of the first myocardial infarction (MI) and the relative influence of pre-existing odds : A total of 23, 693 participants 35-79 years of aget at baseline, attended two population-based prospective studies in 1984-1986 and in 1995-1997. Results : Five hundred twelve participants suffered their first MI in the last 5 years before follow-up. Women showed on increased risk for both anxiety and depression in the first 2 years post MI, followed by a significant symptoms reduction. In contrast, the risk for depression in men increased after 2 years post MI. Anxiety and depression, low educational level, obesity, daily smoking and physical inactivity pre-Mi significantly predict a poor psychiatric outcome at follow-up.

According to Lalonde et.al. (2001) hypertension is associated with lower health quality of life (HRQoL). They evaluated the HRQoL of cardiac patients with and without dyslipidemia and hypertension. In a cross-sectional study, 284 cardiac patients rate their HRQoL using SF-36 Health Survey (SF-36) and three performance based measures (Rating scale, Time Trade-off and Sandard Gamble) were compared to those

without dyslipidemia reported better than HRQoL on all preference based measures and most SF-36 scales particularly on the physical health scales. It was concluded that cardiac patients with hypertension reported lower physical health than those without hypertension while cardiac patients with dyslipidemia reported better physical health than those without dyslipidemia.

In a study by Abdel-Khalek and Ahmed (2004) on Kuwait undergraduate students (N=215) completed the 60 individual items of the somatic symptoms inventory. It was concluded that the following somatic symptoms can predict depression in a non-clinical sample : tension, heart pains, sleep disorder, anorexia, weight gain, migraine and sexual disorder respectively.

Yo et.al. (2004) have stated that health failure (HF) has a profound impact on patients health-related quality of life (HRQoL). Little is known about factors relating to HRQoL, in elderly Chinese HF patients. The objective of this cross-sectional correlational study was to identify the demographic, psychosocial and clinical factors associated with HRQoL in this group of patient. The finding suggest that improving HRQoL of HF patients entails improving their psychological status, functional states and health perception.

Treat-Jacobson et.al. (2002) evaluated the effects of peripheral artery disease (PAD) on health related – quality of life (HR- QoL) from the patient's perspective establish a foundation for systematic PAD-specific HR QoL assessment in this population. Open-ended interviews were conducted with 38 patients (24 men, 14 women), 44-83 years old, to report patients experience of PAD and its perceived effects on HRQoL. We can safely say about 1 in 3 patients admitted to hospital for CAD shows some degree of depression and that this is true for patients after

myocardial infarction heart failure and after catherization or coronay artery by pass surgery.

Nothwehr and Perkins (2002) examined the relationship between co-morbidity and health behaviour related to hypertension. Ss comprised 3, 617 adults (mean age 60.0-67.09 years) diagnosed with hypertension, hypertension and type 2 diabetes, or hypertension along with type 2 diabetes and a previous mycoardial infarction (MT). Results show that Ss with hypertension along with type 2 diabetes and previous MI were more likely to be older and less educated and less likely to be employed. No significant differences were observed concerning sodium intake and percent who quit smoking due to a health problem.

Strik et.al. (2001) investigated possible correlates of post myocardial infarction (MI) depression on a prior basis. Based on the literature, 3 clinically easily attainable variable were selected as possible correlates for post MI depression. These were prescription of benzodiazepines during acute hospitalization, cardiac complications during acute hospitalization, history of depression, and not being able to stop smoking within 6 mo after MI. A consecutive cohort of 173 Ist MI patients was screened with the 90-item symptoms check list depression scale and DSM-III-R criteria for major depression. Of this cohort 35 depressed patients were compared with 35 non-depressed post MI patients, matched for gender, age and severity of MI. In univariate analyses, complications during hospitalization, prescription of benzodiazepines, history of depression and not being able to stop smoking were clinical correlates for post MI depression. Multivariate analysedes showed that none of variables were independent of the others in predicting depression.

Sheps and Sheffield (2001) reported that upto one fifth of patients with cardiovascular disease, including those who have experienced a myocardial infarction, may have concomitant major

depression. Studies have suggested that the relative risk of major depression with cardiovascular disease ranges from 1.5-4.5. Further information is required to establish a dose response relationship between depression and coronary artery disease (CAD), however, such a relationship has been shown between anxiety and CAD. A decrease in heart rate variability may mediate the deteriorious effect of depression on post-myocardial infarction prognosis. Other factors such as mental stress and altered platelet function may also predispose depressed patients to a heightened risk of cardiac events.

Friedman et.al. (2001) investigated the association between mild hypertension as defined by both ambulatory and causal (clinic BP measurements and various measures of personality and psychological characteristics in 283 men 9 aged 30-60 yrs.) using in ambulatory BP monitor and controlling for age, race/ethnicity and body mass index. Results show no consistent difference between Ss with mild hypertension and those with normal BP on any of the psychological variables assessed, including Type A behaviour pattern, state and trait anger, anger expression, anxiety, symptoms of psychological distress, locus of control or attributional style.

According to Clarke et.al. (2000) chronic heart failures patients often experience significant functional impairments. A better understanding of the bio-psychosocial correlated of functional status may lead to interventions that improve quality of life in this population. Social isolation, mood disturbance, low socio-economic status and non-white ethnicity were evaluated as possible correlates of impaired functional status in 2, 992 vs. patients with left ventricular ejection fractions <35%. Even after controlling for age and clinical characteristics, all the psychosocial variables examined were significant predictors of risk for experiencing severe limitations in intermediate and social activities of daily

living at 1 yr. with adjusted odds ratios in the 1.5-2.0 range. The ability of psychosocial characteristics to predict future functional status also was independent of baseline functional status, co-morbid medical conditions, and deterioration in heart failure sign and symptoms over the intervening year. These results suggest that psychosocial factors influence patient functional status even in the later phase of cardiac disease.

Stephoe (2000) has reviewed the role of psychosocial factors in human hypertension in studies with 3 research strategies : (1) epidemiological studies of blood pressure, psychological characteristics and life experience in population samples (2) naturalistic studies of the convariation between blood pressure, psychological state and everyday life events and (3) experimental studies of cardiovascular and neuro-endocrine responses to behavioural stimuli-Research is summarized on hypertension and psychological traits, job characteristics and social support, emphasizing the convergent knowledge deriving from complementary research strategies. The roles of stress-induced cardiovascular responses and prejudicial life styles as mediating influences on risk of hypertension are discussed.

Lyness et.al. (2000) reviewed the literature regarding cardiovascular risk factors (CVRFs) and depression in later life. The author critically exaine 2 patho-biological models in which CVRFs contribute to depression. The theories considered were a structural models in which CVRFs lead to brain parenchymal damage via small vessel ischemic disease and a cytokine model in which atherosclerosis leads to functional alterations in neruotransmitter systems underlying depressive pathogenesis.

Kubzansky et.al. (2000), considers the nature and function of emotions, reviews epidemiological evidence for an association between 3 negative emotions (anger, anxiety, depression) and coronary heart disease (CHD), discusses the mechanisms by which emotions may be linked to CHD,

and considers this evidence in light of theoretical insights provided by mainstream psychological research. Although depression has considerably been linked to mortality following a myocardial infarction, evidence for its role in the onset of coronary disease is quite mixed. It is concluded that numerous unsolved issues leave the current understanding of the emotion-health relationship incomplete.

Winters et al. (2000) have clarified the role of anxiety in the etiology of coronary heart disease (CHD) and post myocardial infarction (MI) morbidity and mortality. Accomplishing this goal depends on anxiety. Anxiety will be viewed from a bio-behavioural control systems perspective in which the human organism is considered to be a composite of inter-related feedback-regulated control systems designed to maintain physical and emotional health. The authors contend that anxiety becomes a risk factor in the pathogenesis of CHD when the subjective affective component of the emotional response to threat is suppressed.

Smith (2001) is of the view that negative emotions have been claimed to be a cause of coronary heart disease (CHD) as well as a consequence of cardiovascular disorders. Early case studies of cardiac disorders of soldiers in battle drew attention to the possibility that strong negative emotional states could cause CHD. Subsequent reports of reactions to natural disasters supported the notion that intense negative emotions could precipitate somatic disorders such as CHD. Although the findings appear to support the notion of causal connections between negative emotions and CHD, they fail to provide conclusive proof of such for the findings is simply that negative emotions and CHD often co-exist.

Ames et al. (2001) studied the role that major and minor life events play in the quality of life in low-income hypertensives was examined. Participants were randomly recruited from primary care clinics at a public center. The study utilized a prospective design. Participants were

determined to have hypertension and were brought treated with anti-hypertensive medication prior to and throughout the duration of study. Findings suggest that stress has a significant, persistent impact on the quality of life of low-impact patients with established hypertension.

What might be the role of social support in buffering the adverse effects of various types of disease and other problems? It has been examined in different studies.

Social support in the narrow sense has been defined in various ways. It may be regarded, for example, as resources provided by others, as coping assistance, or as an exchange of resources (Taylor, 2006). Several types of social support have been investigated, such as instrumental support (e.g. assist with a problem), tangible support (e.g., donate goods), informational support (e.g. give advice), and emotional support (e.g. give reassurance), among others.

- ❖ Instrumental support- Money, Labour, time, practical help.
- ❖ Information support- Advice, information, suggestion
- ❖ Appraisal support- Affirmation, social comparison
- ❖ Emotional support- Affection, Concern, Listening, venting emotions.

Social support can assist coping and exert beneficial effects on various health outcomes (Allen, 2011; Ogden, 2007). It has also been found to be advantageous for patients during recovery from heart surgery. Coronary artery bypass surgery patients who received many visits by their spouses were, on average, released earlier from hospital than those who received only few visits. Cardiac patients and their spouses were studied over a half-year period before and after heart surgery. It was found that resourceful spouses transferred their resiliency to the patients as part of dyadic coping process. Gender differences are essential here and need to be

examined with advanced multilevel analyses within dyads (Allen, 2011; Coxne et.al. 1991; Kullk; 1989; Schroder et.al., 1997).

There is growing evidence about the causal pathways that involve social factors in the etiology of disease and in the recovery from illness, although further research is needed to understand the mechanisms that render social ties beneficial for the organisms. Among the multiple physiological pathways, an immunological and a neuroendocrine link have been investigated. A behavioural pathway, on the other hand, has been suggested by studies where social networks were stimulating health behaviours that prevented the onset of illness, slowed its progression, or influenced the recovery process (Uchino et.al., 1996).

Social support theories are typically intertwined with the concepts of stress and coping. The cognitive appraisal of stress, for examples, depends partly on the perceived availability of social resources. Moreover, the mobilization of support can be understood as a coping strategy. Thus, linking health outcomes to social relationships requires a conceptual framework that includes stress parameters and individual preferences in dealing with stress, as well as the causal pathways that lead to morbidity and mortality (Hobfall, 1998).

Schwarzer and Riekman (1991) have argued that cardiovascular health is not only determined by biological factors but also by social and psychological factors. For decades, epidemiological studies have linked mortality rates to marital status and social networks, thus indicating a beneficial effect of such social factors on longevity. Moreover, studies on cardiac patients have attributed increased survival rates to the existence of close social bonds. In the case of conjugal loss, for example, widowers are at risk of illness and death in the absence of a compensating network of support providers. Health psychology is looking for the mediating mechanisms that help explain such epidemiological associations. For this

purpose, social support is distinguished from social integration, and further differentiations are made to better understand the quality of function of interaction processes that result in favourable health outcomes.

Hemingway and Marmot (1997) distinguish between two kinds of epidemiological studies, prospective etiological investigations in healthy samples as compared to prognostic studies in patient samples. In a review, they found that 5 out of 8 prospective studies documented an effect of social integration on coronary heart disease. Moreover, they found that 9 out of 10 prognostic studies confirmed evidence for a link between social integration and coronary heart disease.

Tucker et.al. (1999) examined the relationship between social ties and mortality in 697 men and 544 women of the Terman Life-cycle study over a period of 51 years (1940-1991) at four assessment points. They found that men who were consistently married had a significantly lower mortality risk compared to those who were separated, divorced, widowed or remarried. For women, no such effect of marital status emerged. Instead, their mortality risk was lower when they had a greater number of children and more organizational memberships. However, when conducting separate analyses for two different age periods, namely those younger than 70 years versus those 70 years and older, they found a protective effect of organizational membership for the younger group of men, but not for the older. Also, as they passed the age of 70, remarried men no longer had a higher risk of dying than those who were consistently married. For women, the beneficial effects of having more children was only for those aged 70 years and older, but not for the younger ones. With respect to organizational memberships, women showed an opposite age-related change compared to men. For them, these particular social ties exerted their beneficial influence only in the later life period. In sum, these results suggest that social ties other than marriage

becomes stronger predictors of mortality as people become older, and that effects are different for men and women.

Shye et.al. (1995) conducted a longitudinal study to examine the impact of social integration on mortality in a 15-year follow up design, and found that amongst the elderly (aged 70-90), network size was more predictive of mortality than marriage. Interestingly, men in this sample seemed to gain direct protection from smaller than women. Here also, it remains unclear which internal processes mediate this protecting effect. Men might derive a stronger sense of socialities, whereas, in this age group, women's costs and investments in close ties are higher, thus, leading to a greater need for more external support. Whatever the mediating links may be, these results provide strong evidence for the notion that embeddedness in social networks and social participation means something different for older men compared to older women.

Williams et.al. (1992) examined, 1965 CVD patients after angioplasty. The presence or absence of a confident or spouse appeared to be the best predictor of time to death, after controlling for other factors such as family history of heart disease and cigarette smoking. Berkman et.al. (1992) found that myocardial infarction (MI) patients with low levels of social support were more likely to die than those with high support, even after accounting for other factors such as severity of disease. A ten-year follow-up study of MI patients found lower survival rates in unmarried patients. This positive effect of social integration seems to be stronger for men than for women (Chandra et.al. 1983). Poor social integration is associated with an increased risk for myocardial infarction. Also, women with few confidants have been found to be at greater risk for myocardial infarcts than men (Collijn; 1995).

Several major studies have not found a link between social integration and survival rates of patients who had experienced MI. Ruberman, Weinblatt, Goldberg, and Chaudhary Ruberman et.al; (1984) studied male survivors of an acute MI and found that cardiac patients who were socially isolated were more than twice as likely to die over a three-year period than those who were socially integrated. A Swedish study of cardiac patients revealed that those who were socially isolated had a three times higher, ten-year mortality rate than those who were socially integrated (Orth-Gomer et.al. 1988). Diagnosis of coronary artery disease and subsequent death was linked to marital status (Williams et.al. 1992). Those who were single or without a confidant were more than three times as likely to die within five years compared with those who had a close confidant or who were married. Another study of 40820 patients investigate the effect of marital status on patient outcome (Gordon et.al. 1987). Here, unmarried surgical patients had a higher risk of dying in hospital than those who were married, even after controlling for other factors such as severity of illness. The risk was even higher for patients who had never been married compared to patients who were widowed, separated or divorced.

Berkman et.al. (1992) conducted a study on MI patients, it was found that mortality rates within a six-month period were related to the social support reported by these patients. The authors identified the number of persons providing major sources of emotional support, distinguishing between patients with one, two, and more than two such sources. There was a consistent pattern of death rates, the highest of which was associated with social isolation, and the lowest of which pertained to two or more sources of emotional support, independent of age, gender, comorbidity, and severity of myocardial infaction.

Bouling (1987) states that the loss of a spouse may signal the loss of one's social network, initiating an array of events with severe health consequences. Can the death of a spouse be so detrimental that it results in the premature death of the survivor? For decades, studies have addressed this question and found, on average, that the mortality risk for widows/widowers is increased compared to those who do not experience this loss (Ferraro, 1989; Stroebe et.al. 2000). The risk seems to be greatest for men during the first six months of bereavement. There may be several reasons for this gender difference: Men typically have a smaller social network than women, so their loss has a more profound effect on their social ties.

According to Pregelsson et.al. (1997) traumatic grief has been shown to be a risk factor for mental and physical morbidity. When widowers feel socially isolated during the grieving process, they may develop depression and loneliness, which in turn may lead to more severe consequences. For example, the surviving spouse may be at substantial risk of committing suicide in the weeks and months following conjugal loss. Suicidal following death of a spouse may be five times as likely in widowers compared to widows (Weidner, 2000). In other cases, their immune system or cardiovascular reactivity may be affected in the long run, resulting in illness and eventually in death. The mechanism of pathogenesis needs to be further explored. Not only death from all causes is higher in widowers, but also specific causes of death, such as suicide. Widowed individuals show impaired psychological and social functioning, including depression, and some studies report a significant decline in physical health, mainly for men.

Kulik and Mahler (1989) studied men who underwent coronary artery bypass graft surgery (CABG). Those who received many hospital visits by their spouses were, on average, released earlier than those who received few visits. In a longitudinal study, the same authors

also found that emotional support from their spouses had positive effects on patients after surgery (1993). King, Reis, Porter, and Norsen (1993) found that perceived availability of support was associated with emotional and functional outcomes up to a year following coronary artery surgery. In particular, esteem support (that one is respected and valued by others) appeared to be related to improved health outcomes over the follow-up period. Thus, some types of social support are better than others when matched to the situation at hand. Emotional and esteem support, more so if extended from women to men may be beneficial because it instills optimistic self-beliefs and equips the patients with more hardiness to cope with problems.

It has also been reported that marital status and recurrent cardiac events were linked in a study by Case et.al. (1992) who identified a higher risk of cardiac deaths and nonfatal infarctions among those who lived alone. Close network members of cardiac patients make a difference in how patients adjust to is related to patients depending on their interaction with each other (Badenman, 1997). Marital satisfaction related to patients well-being and perceived availability of information support is a good predictor of recovery. Negative marital interaction predicted poor adjustment, and spousal disclosure predicted patients life satisfaction (Waltz, 1986; Helgeson, 1993).

The review related to social support makes it quite obvious that it exerts very much positive effects on health of those who are suffering from different types of diseases and problems. The social network and sympathetic support received from the networks enhances optimism and happiness and at the same time decreases depression and anxiety. It moderates the effects of diseases and stressors and this function of social support is called stress-buffering effect. In our context such comprehensive studies have generally not been conducted. Does social support really

minimizes the problems of CVD patients? It needs to be examined. It is due to this state of our knowledge about the role of social support in CVD, this variable has also been tapped to evaluate its role in maintaining good health and quality of life.