An Exploration of the Experience of Individuals Choosing Yoga or Exercise in a Continuing Cardiac Rehabilitation Programme.

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A Thesis submitted in partial fulfilment of the requirements of Liverpool John Moores University for the Degree of Doctor of Philosophy

2004

Acknowledgements

I would like to offer sincere thanks to Professor Sheila Glenn at John Moores University for her constant encouragement, support and guidance over the years I have pursued my doctoral studies. My thanks also goes to friends and colleagues who have supported me along the way.

I am very grateful to have had the privilege of meeting the amazing people who participated in this study and I would like to offer my gratitude to them for giving their time and commitment and for allowing me to gain insight into this experience in their life journey.

Finally, special thanks to Chloe for being such a wonderfully patient and supportive daughter and to Zaheer who has always been there and done so much to help me complete this study.

Abstract

This study explores the contribution of yoga as a patient choice within a continuing cardiac rehabilitation (CR) programme by comparing a group of individuals who chose to undertake a yoga programme as part of their continuing CR with a group who chose to follow a gymnasium based exercise programme. The study aims were to describe the characteristics of individuals who chose yoga (n=25) or exercise (n=35) CR programmes and explore over one year their process of adaptation and change together with the perceived benefits from the interventions.

The design of this study was that of an Exploratory Between Methods Triangulation. The methods utilised were self-reports using standardized instruments including Self Perception Profile (Messer & Harter 1986), Self Evaluation of Individual Quality of Life (O'Boyle et al, 1993) and Perceived Stress (Cohen, 1983). Semi-structured interviews captured accounts from a purposeful sample of participants at commencement of the intervention and at the end of one year. The questionnaire data was triangulated with the data and narrative from the interviews to compare the experiences, processes and any benefits achieved by participants in both the exercise and yoga groups.

The key findings from this study were that the majority of yoga group participants reported that they achieved mind/body benefits including enhanced self-awareness, reduction in stress and anxiety, greater calmness, positive feelings, flexibility and suppleness within the body. The exercise group participants reported benefits of enhanced physical fitness and feelings of general well being. However, this group noted a more limited number of self-changes, which tended to be less personal and related largely to the physical dimension of their experience on the exercise programme.

The findings of this study have implications for the policy and practice surrounding the future development of Cardiac Rehabilitation Programmes in relation to the nature of interventions included within such programmes and their potential to support and empower lifestyle change.

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1.0 Introduction and Review of the Literature

1.1 Thesis Outline

This thesis is concerned with assessing the contribution of a yoga programme as one patient choice within a cardiac rehabilitation programme. Therefore, the literature review, which provides the background and rationale for the study, encompasses a number of different but substantial areas of research. An overview of Coronary Heart Disease (CHD) is provided and Cardiac Rehabilitation (CR) provision is reviewed and evaluated taking into account physical and psychosocial factors associated with adaptation to and coping with CHD.

In addition some of the contemporary developments and directions in CR are evaluated together with the patient perspective on making and sustaining lifestyle changes. The review then goes on to consider the use of exercise and stress management in CR and the potential for the use of complementary therapies. This is contextualised within the growing use of such therapies in society and contemporary developments in therapeutic approaches.

Yoga, the complementary therapy under scrutiny, is then described and the relevant literature critically analysed. A discussion follows which considers the potential role of yoga within CR programmes.

Finally, the main parts of the literature review are summarised to provide a rationale for the current investigation.

1.2 Background

This part of the chapter explores the nature of, current incidence and risk factors associated with Coronary Heart Disease (CHD). The process and challenges of individual adjustment following Myocardial Infarction (MI) is considered together with provision, approaches to and effectiveness of Cardiac Rehabilitation programmes. In conclusion there is brief discussion of how CR provision might

further develop to enhance its capacity to support lifestyle changes following (MI) in light of the individual experience and process.

1.2.1 Incidence of Coronary Heart Disease

CHD in the UK accounts for 60% of the deaths from diseases of the heart and circulation, this amounts to some 135,000 deaths a year (British Heart Foundation. 2000). The death rates in the UK from CHD are amongst the highest in the world, however, since the 1970's these death rates have been falling and for adults aged 16-64 they have fallen by 42% in the last ten years. Although, mortality from CHD is falling, morbidity is increasing and in the older age groups this has risen over the last ten years (British Heart Foundation, 2000). A National Service Framework (NSF) for CHD was published by the Department of Health in 1999 to improve the quality and consistency of services for CHD and address through this prevention and treatment issues. The standards set within this framework are to be implemented to reduce CHD related death in the under 75yrs age group by the year 2010. One of these standards relates to the provision of cardiac rehabilitation together with secondary prevention lifestyle advice for all patients after a cardiac event

1.2.2 Coronary Heart Disease

Coronary heart disease is the consequence of atherosclerotic changes in the larger coronary arteries. These may start as fatty streaks in the arterial wall in youth, which progresses with ongoing deposition of lipid and fibrous tissue in succeeding years. The lesions occur as plaques commonly located at bends and bifurcations of the vessels. The plaques vary in their characteristics some being fatty and liable to rupture other are fibrous which gradually encroach upon the lumen of the artery. Rupturing or fissuring is likely to lead to platelet and fibrin deposition in the artery, which may produce a complete occlusion, leading to myocardial tissue necrosis known as myocardial infarction (MI). Where the artery lumen is occluded by 50% or more the blood supply to the muscle beyond the obstruction is limited, leading to myocardial ischaemia. When the demand increases on exercise, this results in chest pain or angina (Julian, 1995; Camm, 2002).

1.2.3 Myocardial Infarction

Myocardial infarction is the term used to describe death or necrosis of a portion of the heart muscle and is the most common term now utilised to describe the clinical condition of heart attack. The typical presentation of heart attack includes severe pain in the central chest, which radiates into one or both arms, especially the left. The pain may start abruptly or develop progressively, or be intermittent, coming and going over a number of hours. The pain is described as tight, crushing or heavy and may be accompanied by weakness, breathlessness, sweating and nausea. Whilst this is the classical and most common mode of presentation, there are great variations including some myocardial infarctions that are "silent" or asymptomatic. (Julian, 1995, Camm, 2002))

Acute treatment of MI is pain relief and other drug treatment including thrombolytic therapy for some people, anti-coagulants, beta-blockers and aspirin. Other drugs may be given for specific individual requirements and in a small number of cases temporary pacing for heart block. Care ideally is provided within a Coronary care unit where patients can be continually monitored to allow prompt correction of any complications. Commonly patients are transferred to a general ward following 24-48 hours in uncomplicated cases. Early ambulation in non-complicated cases is actively encouraged. The period prior to discharge is a crucial one in the rehabilitation of the patient and provides opportunity for further treatment, and assessment of prognosis based on the extent of myocardial damage. The initiation of secondary preventative measures relate to providing education and counselling regarding drug treatment, risk factors and lifestyle modifications necessary to prevent re- infarction. Discussion regarding individual social and psychological problems should commence in hospital and ideally be followed up and reinforced within a cardiac rehabilitation programme post discharge. (Julian, 1995, Camm, 2002)

1.2.4 Angina Pectoris

Angina pectoris is a symptom complex experienced as discomfort in the chest provoked by exercise or emotion but relieved on rest. Angina from ischaemia is due to a transiently inadequate supply of blood to the heart muscle commonly caused by

atherosclerosis. Symptoms may vary over long periods and life expectancy is determined by the extent of the coronary artery lesions. The treatment is through anti anginal drugs combined with management of the associated individual risk factors and provision of health education and other necessary support to promote lifestyle change. Reduction in blood lipids through diet and or drugs, management of hypertension. weight reduction, exercise and coping with stressors together with antianginal drug management are the main areas for individual action.

Angioplasty and coronary artery bypass surgery are methods used to treat angina should medical treatment fail to control symptoms. Angioplasty is a technique used to stretch the artery lumen through the insertion of a balloon tipped catheter into the artery where the balloon is inflated. This technique relieves angina in most patients, however, in 30% of cases the problem quickly recurs and second or third angioplasties may be required within months (Julian, 1995; Camm, 2002).

1.2.5 Coronary Artery Bypass Surgery

Coronary artery bypass grafting is carried out to provide the heart muscle, beyond an area of narrowing in the coronary artery, with an adequate new blood supply. A piece of saphenous vein from the patient's leg is most commonly used for the graft. The problems associated with this procedure, apart from the pre-operative anxiety while waiting for surgery, include postoperative discomforts and for some may include neuropsychiatric problems arising from cerebral injury such as loss of concentration, memory and depression and even stroke. In uncomplicated cases discharge may take place one week following surgery. Coronary artery bypass surgery is effective in abolishing angina in 50-60% of cases. Patients have the same cardiac rehabilitation requirements as those following MI. As with MI depression can be a major impediment to recovery and may require provision of additional support from the rehabilitation team and in some cases psychiatric help (Julian, 1995, Camm, 2002).

Different studies give different estimates for the prevalence of heart attack. The ASSIST trial (1998) suggests that about 5% of men and 1% of women aged 55-65 and about 8% of men and 3% of women aged 65-75 have had a heart attack. From these prevalence rates it is estimated that there are about 300,000 men aged under 75 living

in the UK who have had a heart attack and about 100,000 women giving a total of about 400,000. There are some 240,000 hospital admissions per year of individuals following myocardial infarction; angina is experienced by 1.1 million (9% men) living in the UK and about 1 million (4% women) giving a total of 2.1 million people: of middle-aged men and women: 0.5 million people have heart failure. The annual figures in the UK indicate that for coronary artery by-pass grafting there are some 28,000 operations and that 25000 angioplasties are undertaken, with the amount of surgery more than doubling in the last 10 years (British Heart Foundation. 2000 / 2002).

The cost of CHD to the health care system is around £1,600million per year with hospital care amounting to about 54% of the costs, drug treatment 32% and only about 1% allocated to prevention. In addition is the cost to the economy, which amounts to about £8.500million in days lost due to illness, death and informal care of people with the disease. This accounts for a £10,000million cost within the economy per year (British Heart Foundation 2000).

1.2.6 Risk Factors in CHD

The term risk factor was not intended to imply causality but was a term established to set parameters that would help to identify individuals with increased cardiovascular disease risk (Hoeg, 1997, Camm, 2002) Some risk factors associated with coronary heart disease cannot be modified such as age, sex and family history. Other modifiable risk factors are summarised as follows:

Smoking which is thought to account for 20% of deaths from CHD in men and 17% in women:

Diet, which is thought to account for the high UK rates of CHD in particular the high level of saturated fat within the diet and low consumption or lack of fruit and vegetables.

In relation to physical activity, 36% of deaths from CHD in men and 38% in women are attributed to lack of physical activity.

Further, alcohol at high levels of intake is associated with increased the risk of CHD.

With regard to psychosocial well being, a number of factors are associated with an increased risk of CHD including social support. In England 16% of men and 11% of women report a severe lack of social support, particularly men and women in unskilled manual jobs. Furthermore, lack of social networks, work stress, depression, anxiety and personality related stressors (particularly hostility) are also more often reported by the above group (Wahrborg, 1998, Wood et al, 1998, British Heart Foundation, 2000)

Overweight and obesity are also associated with high blood pressure and an increased risk of CHD. There is an association between high blood pressure and a risk of CHD. With BP levels in the UK being noted as high (41% of men and 33% of women have raised blood pressure) there is increasing prevalence with age in both sexes.

The risk of CHD is directly related to blood cholesterol levels with an estimated CHD death rate of 45% of men and 47% of women due to raised blood cholesterol.
Diabetes increases, by three times, the risk of developing CHD (Wood et al, 1998, British Heart Foundation 2000, Camm, 2002)

People with established CHD are ten times more likely to have a second Myocardial infarction (MI) than people without known CHD. Therefore, intense risk factor management is essential for these people regardless of how benign the initial manifestation appears. Gohlke & Gohlke, 1998 contend that risk factor management in these patients is far from optimal in Europe, or in the U.S.A. Less than 50% of patients with established coronary artery disease receive optimal risk factor management in either continent. Cardiac rehabilitation is utilized in only 5% of patients in the U.S.A. and to varying degrees in Europe, depending on the legislation.

1.2.7 The Process of Adjustment After Myocardial Infarction

A qualitative study by Johnson & Morse (1990) considered the process of individual adjustment following myocardial infarction and identified an important range of responses issues that might be taken into account when assessing individual needs and

planning and developing cardiac rehabilitation programmes and the choices available within them. These are summarised as follows:

- The individuals taking part in the study described surviving a life-threatening event as a profound experience because it forced them to contemplate the possibility of their own deaths.
- They described a feeling of gratefulness for having survived and feeling a new appreciation of life.
- Another type of response was profoundly negative where individuals reported a fear of dying, considered life tenuous and were pessimistic about the possibility of recovery.
- In an attempt to make sense of what had occurred, individuals tended to review their lives and looked for causal explanations for their heart attacks.
- The identification of a problem enabled the individuals to establish a sense of direction for their rehabilitation.
- There was a tendency for all individuals to believe that heart attacks were a disease of life-style. Some individuals even stated that they deserved a heart attack.
- Individuals who were unable to identify a causal explanation consequently had difficulty committing themselves to a life-style change. Although they maintained a belief that heart attacks were the result of a poor life-style, these individuals felt victimized and believed that they had done everything "right" and that the situation was therefore beyond their control.
- Women had trouble identifying the cause of their heart attacks, because they believed that men primarily experience the stressors that typically contribute to a heart attack.
- Individuals who had a positive attitude, were confident that they would recover, were grateful for a second chance, believed they knew the cause of their heart attack, possessed specific plans for reform, and perceived that these limitations were acceptable were likely to be optimistic about the future.
- Those with pessimistic attitudes harboured fears about being permanently disabled or of dying, were angry and unable to understand why they were

> smitten with a heart attack, were uncertain about the future and reluctant to commit to plans, and perceived their limitations to be insurmountable,

From the above findings Johnson & Morse (1990) contended that a heart attack undermines one's confidence and self-worth, threatens independence, and consequently jeopardizes a person's sense of self. The major mechanism for preserving a sense of self was managing role transitions. Throughout the process of adjustment the individuals were faced with several role transitions. Role changes included changes from regularly held roles to that of an incapacitated patient, to invalid, to a recuperating "heart attack victim", to a "new" everyday role.

A study by Winters (1997) that aimed to describe the experience of living with chronic heart disease confirmed a number of the findings by Johnson & Morse. Furthermore, their study identified additional personal issues confronting participants such as living with periods of certainty and uncertainty when information was lacking, as a result individuals fluctuated between feeling in control and feeling out of control. The participants in this study demonstrated a strong desire to improve their quality of life and responded to the illness by not thinking about it, keeping busy and looking for a positive aspect to their illness.

The process of adjustment that individuals may experience following MI has implications for the care they receive following the event and in particular to the type and specific content of cardiac rehabilitation programmes provided in contemporary healthcare. To date little acknowledgement of the above process is evident within the standardised approaches to CR, which tend to focus primarily on the physical aspects of rehabilitation, which are explored in the following section.

1.2.8 Cardiac Rehabilitation

The explicit goals of cardiac rehabilitation are to promote secondary prevention and to improve quality of life (WHO, 1993). The WHO report (1993) defines the aims of cardiac rehabilitation as follows:

The rehabilitation of cardiac patients is the sum of activities required to influence favourably the underlying cause of disease, as well as to ensure the patients the best possible physical, social; and mental conditions so that they may by their own efforts, preserve or resume when lost, as normal a place as possible in the life of the community. Rehabilitation cannot be regarded as an isolated form of therapy, but must be integrated with the whole treatment, of which it forms only one facet. The overall aims of cardiac rehabilitation are to improve function, relieve symptoms and enhance quality of life (Chua & Lipkin, 1993; WHO, 1993).

This holistic definition of cardiac rehabilitation (CR) acknowledges the importance of the patient's contribution to their own health and well-being and the relationship of this to their overall quality of life.

However, the main emphasis in most contemporary CR is enhancement of cardiovascular fitness. Whilst this is a variable in the treatment of the condition it is not the only modification or consideration required in the adaptation to this disease. The holistic nature of the adaptation process is acknowledged by Taylor (1983) who suggests that when an individual experiences a personally threatening event, the readjustment process focuses around three themes, a search for meaning in the experience, an attempt to regain mastery over the event in particular and over one's life more generally and an effort to enhance one's self-esteem to feel good about one's self after the personal setback.

Contemporary Cardiac rehabilitation services have been defined as, "comprehensive, long-term programmes involving medical evaluation, prescribed exercise, cardiac risk factor modification, education and counselling for patients who have suffered a myocardial infarction (MI), undergone cardiac surgery or suffer from heart failure or angina pectoris" (Wenger et al, 1995). The approach to the above provision is variable and a number of different models are in operation in the UK.

Goble & Worcester (1999) have taken previous definitions by the World Health Organisation (1993), the United States Public Health Services and the Cardiac Rehabilitation Working Group of the European Society of Cardiology and give broader definition of cardiac rehabilitation, "Cardiac rehabilitation is the co-ordinated

sum of interventions required to ensure the best physical, psychological and social conditions so that patients with chronic or post-acute cardiovascular disease may, by their own efforts, preserve or resume optimal functioning in society and, through improved health behaviours, slow or reverse progression of disease".

Cardiac Rehabilitation is advocated for people with the range of cardiac conditions including myocardial infarction (Frick& Katila, 1968; AHA, 1994; DeBusk, 1982; WHO, 1993), those who have undergone cardiac surgery; (Oldridge, 1978; Froelicher et al., 1985; Murray & Bewller 1983; Nakai, 1987; Tavazzi, 1992; WHO, 1993), those suffering from heart failure (Coats et al., 1990) or angina (Oberman et al., 1982; Lewin, 1995). The above definition reflects the wider definition of CHD.

Currently around 286 centres in the UK provide Cardiac Rehabilitation Programmes and this provision continues to grow. A study by Bethell et al. (2001) received data from 236 of these centres. The median number treated in the different programmes was 150, with a total of 32,499 patients. Of those 60% were recovering from (MI), 25% from coronary artery bypass (CABG) and 4% from percutaneous transluminal coronary angioplasty (PTCA). 24% of patients were female and 87% of patients were in the 40-74 years age group, 10% were older than 75 years. 14-23% of infarct patients, 33-56% of (CABG) and 6-10% of (PTCA) patients in the UK are enrolled in cardiac rehabilitation programmes.

1.2.9 Cardiac Rehabilitation Programmes

Cardiac Rehabilitation programmes are of varying content and typically focus on the provision of post -myocardial infarction rehabilitation but may be attended by those with the aforementioned range of conditions arising from CHD. Such programmes should help reduce the debilitating effects associated with necessary prolonged inactivity or restricted activity following an MI, and support the early improvement of the patients' self-confidence and physical fitness (Chua & Lipkin, 1993; WHO, 1993). Other aspects of the programmes are directed towards maintaining employment, as well as influencing the underlying atherosclerotic process and the prognosis of the patient with coronary artery disease.

Therefore, education of the patient is an important component of cardiac rehabilitation (Gohlke & Gohlke, 1998). However, Rehabilitation must be integrated with the whole treatment provided for the patients and should not be regarded as an isolated form of therapy (Coats et al., 1995).

The main focus of such programmes to date has been to improve cardiovascular fitness through physical training. Regular physical activity and exercise are associated with better long-term survival in persons without heart disease. This also holds true in patients with documented coronary artery disease for whom improving exercise performance is associated with better survival. An increased physical activity level and improvement of cardio-respiratory fitness are also associated with better survival. (Gohlke & Gohlke, 1998). Thompson et al (1996) found that patients who exercise post-MI achieve optimum functioning more rapidly than those who do not. This is reinforced by evidence that regular exercise reduces dependency levels in later life (American Heart Association, 1994). Exercise does not have to be intensive to bring about its benefits and it has been shown that home based programmes are as effective as supervised hospital based programmes (De Busk et al., 1985). Brisk walking for 15-20 minutes daily or at least 5 times per week is adequate exercise for most MI patients (Oldridge, 1988). Further, the educational components of programmes relate to risk factor modification, smoking cessation, compliance with medication and psychological intervention.

In addition there is an increasing amount of data linking acute emotional stress to myocardial infarction and sudden death. The individual stress-associated mechanisms leading to the increased risk for coronary disease are not entirely clear but the autonomic nervous system probably plays a major role: heart rate, blood pressure, arrhythmias, clotting factors, platelet aggregation, cholesterol levels, coronary tone and catecholamine levels are modulated by stress via the autonomic nervous system. Comprehensive rehabilitation programmes include psychosocial sessions, teaching of relaxation techniques and psychosocial counselling for the individual patient and his/her spouse or partner (Gohlke & Gohlke, 1998).

van Dixhoorn et al., (1987) demonstrated that adding relaxation training to a post MI exercise programme can improve training success and reduce ST segment

abnormalities in the patients ECG. Follow-up at 2-3 years revealed that patients who received both treatments had statistically significantly fewer cardiac events (17% Vs 37%) than those who had undergone exercise training alone. Stress management training (SMT) programmes extend relaxation training by including additional techniques. A controlled comparison between SMT and relaxation showed that at six months the SMT patients had fewer cardiac complications (10% Vs 31%) than those who had had relaxation alone.

As well as differences in content, there are differences in intensity, CR varies from 6-12 weeks in duration depending on available facilities and similarly varies in intensity with attendance being from 1-3 sessions per week. Some programmes continue indefinitely and offer the patient a weekly, or even more frequent, facility for continuing exercise and the use of other supportive facilities at the original centre.

A review of Cardiac Rehabilitation undertaken by the NHS Centre for Reviews and Disseminations, University of York (1998) summarised the following characteristics of the provision:

- Most programmes are outpatient, hospital-based, concentrating on low-risk patients who have had myocardial infarction (MI), although many also include some who have had coronary bypass surgery (CABG) or angioplasty.
- Although women account for over one third of CHD patients, they are less likely to receive cardiac rehabilitation than men; a recent survey of 244 programmes in the UK found that only 15% of those enrolled were women.
- The majority of programmes are exercise-based, usually providing group aerobic exercise sessions once a week for an average of 6 to 10 weeks.
- Patient education is provided in 70-80% of programmes, whether using informal discussion or formal lesson plans, on a one-to-one basis or in-group sessions.
- The majority of centres also provide relaxation training, either as a single session or more frequently.
- Other forms of psychological intervention are provided in 13% of centres. In a survey of 22 programmes, half dealt with perceived psychological problems

by prescribing medication, 10 offered some form of 'counselling' and four referred patients to a psychologist, only three of the 22 centres formally assessed psychological status.

- A survey of all cardiac rehabilitation programmes in the UK found that 21% involved a psychologist in some way and around a quarter used validated assessments of anxiety and depression:

In general, rehabilitation programmes tend to be highly regimented, with all patients receiving the same components as part of a fixed programme, regardless of their individual needs, yet there is still a great deal of disparity between programmes.

The needs of people recovering from an acute cardiac event vary. Some have psychological problems or misconceptions about their condition, which may make it difficult for them to return to a normal life. Some require help in modifying pre-existing risk factors such as smoking, poor diet or lack of exercise. Most are likely to benefit from lifestyle changes such as increasing physical activity (NHS Review, 1998).

Psychological difficulties are common, but services as outlined above are only provided by a minority of programmes. The management of the psychological well-being of patients who have suffered a MI is vital, as depression, low morale and distress are statistically significant predictors of morbidity among patients post-MI (Pashkow et al., 1995). Other psychological factors cannot be ignored, and range from loneliness, lack of self-awareness and control, to a need for reassurance. Billings (1996) stated that coming home from hospital could precipitate depression for cardiac patients, even if they felt optimistic when leaving hospital. This is reinforced by Pashkow et al., (1995) who identified a variety of social disturbances for individuals following MI, including:

- Social relationship difficulties
- Reduction in social activities
- Employment worries
- Marital difficulties

The effects can be related to medication, anxiety about recurrence, and depression caused by lack of self-confidence and awareness. Although 12 weeks after MI up to 30% of patients report that their quality of life has returned to previous levels. symptoms of anxiety and depression are common and have been shown to be associated with prolonged disability, re-infarction and death. A review by Lewin (1997) established that 15-25% of MI patients remain clinically anxious or depressed indefinitely and that anxiety often leads to undue illness behaviour and the unnecessary use of health resources. In addition relationship and sexual problems have been reported in 20%-58% of patients.

Psychological problems are largely unrelated to the severity of the disease or to the level of residual damage to the heart. Perceived health status, level of misconception about the heart condition, and anxiety and depression are the major predictors of return to normal activity. Many patients who have suffered MI fear and avoid activity, and up to 50% report reduced social and leisure activities four years later. Return to work rates are fairly high, however a substantial number of patients retire early or become unemployed (NHS Review, 1998). Compared to men women are less likely to return to work, utilize cardiac rehabilitation programmes less frequently and resume sexual activity after a longer period of time. These differences may be explained by the fact that many women who develop MI are in the older age group (Hamilton, 1990; McGhee & Horgan, 1992; Abbey & Stewart, 2000; Brink et al., 2002). Women in the older age group may not attend CR exercise programmes as a result of not having appreciated the benefits of vigorous physical activity when they were younger (Rankin, 1995).

Psychological interventions may include patient education, counselling and behavioural interventions. These have been shown to affect risk factors including blood pressure and cholesterol levels. They also produce clinically significant improvements in psychosocial well-being and in patient knowledge, especially concerning the benefits of activity (NHS Review, 1998).

Wiklund et al., (1984) suggests that interventions must be directed to the psychological reaction, attitudes and sick-role behaviour as well as to the cardiac condition. Following MI Individuals are likely to experience decreased self-esteem as

they confront the task of redefining self-concept, changing roles and altering lifestyle Amongst those who experience MI, rates of anxiety are high in the immediate recovery period and then fall while rates of depression rise over time (Johnson & Morse, 1990; McGlashan, 1988; Runion, 1985; Roviaro et al., 1984; Taylor & Brown, 1988).

In spite of the evidence showing psychological factors to be important many intervention programmes designed to lower the incidence of heart disease have focused on three types of health behaviour changes; smoking cessation, dietary modification and increased physical activity (Meyer & Weideman, 1989; Julian, 1995).

1.2.10 Effectiveness of Cardiac Rehabilitation

The NHS Review, (1998) highlighted various aspects of the effectiveness of cardiac rehabilitation:

- Overall, exercise as a sole intervention has a positive impact on the physical aspects of recovery at no additional risk to the patient, but effects on the psychosocial aspects of recovery are unclear. More research is required to evaluate risk stratification of patients and varying intensities of exercise.

- Increases in knowledge may not be sufficient to produce changes in behaviour or lifestyle, but in-patient education has been shown to produce clinically significant improvements in smoking behaviour, activity levels, and overall compliance with action to improve health. Education of both patients and their partners can result in improved knowledge, decreased disability, and changes in health behaviours.

- The majority of cardiac rehabilitation programmes are multifactorial in nature, combining an exercise programme with some form of patient education or counselling. The traditional emphasis, both in the literature and in practice, has

been on the provision of exercise and the potential improvements in mortality or morbidity that may result.

- When exercise is combined with a multifactorial programme including patient education and counselling, there is some evidence for improvements in cardiac risk factors, particularly reduced lipids and blood pressure. An intensive approach with specific anti-smoking advice may also help to improve smoking cessation rates.

- Reported rates of uptake of cardiac rehabilitation range from 15% to 59%. Approximately 20–25 % of patients drop out of exercise programmes within the first three months and about 40–50% at between 6 and 12 months.

Thus there is a question about the long-term effectiveness of cardiac rehabilitation programmes.

1.2.11 Further Issues in Cardiac Rehabilitation

The regimented nature of the CR programmes offered is an issue, which concerned Lewin et al., (1998). The current UK Guidelines and Audit Standards for CR suggested that programmes should be menu based with patients being assessed on entry to the programme and on this basis they should attend only the specific components of the programme that they individually require (Thompson et al., 1996). An important aspect to be considered in relation to this proposal is the issue of patient choice within the programme they require which is fundamental to their preferences, participation and individual needs.

However, few programmes practise any form of assessment and patients are expected to attend all elements of the programme whether or not they require them. Even fewer programmes utilise any form of end on assessment to determine what has been gained (Lewin et al., 1998).

Furthermore the multi-disciplinary team said to support CR programmes is often unavailable to provide real support to the programmes and there is practically no input to the programmes from doctors or psychologists. In addition there is no clinical training in CR available in the UK (Lewin et al., 1998).

1.2.12 Maintenance of Lifestyle Changes

Even where people attend CR programmes, one problem is that although many participants are able to make improvements in their health behaviours they are unable to maintain them. The behavioural improvements are often followed by a sudden or gradual return to previous health risk- related habits (Carmody et al., 1980; Ice, 1985; Miller et al., 1989; Oldridge et al., 1988).

A primary factor in lack of adherence in risk modification may be related to failure to address differences in individual level of motivation throughout the change process (Oldridge et al., 1988). He contended that in chronic disease often the best predictor of reduction of disability is the person's sense of self-responsibility. Oldridge also suggested that cardiac rehabilitation should focus on issues of self-responsibility and quality of life from the person's perspective. Wellness motivation is defined as the individual intention to initiate and sustain a programme of preventive and secondary health behaviour. An understanding of individual motivation to initiate and sustain cardiovascular health behaviour is an essential first step in developing a lasting programme of risk factor modification (Oldridge et al., 1988).

Individuals gain different benefits from cardiac rehabilitation; these may be psychological, social or physical or a combination of these. This raises the question of whether the individual perceives enhancement in their quality of life. Quality of life (Guyatt, 1994) can be defined pragmatically as the way the person feels and how they function in day-to-day activities. An important consideration arising from this is the extent to which individuals achieve their own goals within cardiac rehabilitation programmes and how this enhances their life plans and their perceived overall quality of life. Such a perspective of heart disease could be a catalyst for changing not only behaviours but for transforming individuals in more fundamental ways (Ornish, 1990; Taylor & Brown, 1988; Lewin et al., 1998).

It is challenging for chronically ill individuals to adhere to prescribed medical regimens or planned life style changes. Prevalence of non-compliance among the sick has been reported extensively in the literature. For example Tirrell & Hart (1980) found that 66% of bypass graft patients did not comply with the exercise protocol of their treatment programme.

According to Cornwell & Schmitt (1990), self-esteem, locus of control, perceived support, and severity of impairment influence individuals' perception of their conditions. Those with positive self-esteem and internal locus of control do not have negative attitudes toward their illnesses. A study by (Muhlenkamp & Sayles, 1986) confirmed the notion of the interrelatedness of self-esteem, social support and positive health practices.

Furthermore, studies have shown that social support plays an important role in compliance (Procci 1978; Like & Zyanski, 1987). Age, education and socio-economic status have also been found to be statistically significant and positively associated with compliance (Knafl & Deatrick, 1986; Fox, 1990).

The concept of self-perception of illness as it relates to compliance is based on the theories of Roy & Andrews (1991); Roy (1976); Parsons (1966), and Coombs & Snygg (1959). According to Coombs & Snygg people think and behave according to the concept they hold about themselves and their abilities. The major tenet of this theory is self-perception. Perceptions of self have a great deal of influence in determining behaviour. Coombs & Snygg postulate that each person continually attempts to achieve an adequate perception of self in order to preserve psychic integrity. According to Roy and Andrews, people who perceive themselves as ill or disabled may be experiencing a state of dis-equilibrium in the self-concept mode. They may use various strategies to maintain consistent self-organisation and to avoid the discomfort of dis-equilibrium. Non-compliant behaviour may be one method used to preserve self-consistency by the chronically ill. This may relate to individuals following their cardiac event who either do not or who inconsistently attend the CR programme. Arising from this is the issue of how best to help individuals adapt to their CHD, restore equilibrium in the self-concept, and change any previously unhealthy life patterns.

1.2.13 Further Developments in Cardiac Care and Rehabilitation

Innovations within CR include the work of Ornish et al., (1990) which has demonstrated highly significant statistical and clinical results in relation to management of CHD by lifestyle re- programming. This programme includes a number of components including stress management (based on yoga and including asanas and breathing techniques, meditation, progressive relaxation and imagery) low fat diet, cessation of smoking, group support and a moderate exercise programme. The lifestyle heart trial conducted by Ornish et al. (1990) was a prospective randomised control trial to determine whether comprehensive lifestyle changes affect coronary atherosclerosis after 1 year. 28 patients were assigned to an experimental group (low fat vegetarian diet, smoking cessation, stress management training and moderate exercise) and 20 to a usual care group.

One hundred & ninety five coronary artery lesions were analysed by quantitative coronary angiography. The average percentage diameter stenosis regressed from 40.0 (sd 16.95)% to 37.8 (16.5)% in the experimental group yet progressed from 42.7 (15.5)% to 46.1 (18.5)% in the control group (p=0.001,two-tailed). When only lesions greater than 50% stenosed were analysed, the average percentage diameter stenosis regressed from 61.1 (8.8)% to 55.8 (11.0)% in the experimental group and progressed from 61.7 (9.5)% to 64.4 (16.3)% in the control group (p=0.03, two-tailed). Overall 82% of the experimental group patients had an average change towards regression. Thus comprehensive lifestyle changes may be able to bring about regression of even severe coronary atherosclerosis after only one year, without use of lipid lowering drugs.

The amount an individual improved did not relate to age or severity of disease but to how well they kept to the lifestyle programme (Ornish et al., 1990). He argues that emotional stress, perceived isolation, lack of social support, hostility, cynicism and low self-esteem play important roles as primary determinants in atherosclerosis. But if the problem is only treated at a physical level, then the patient's improvement is less than it could be and the illness is more likely to recur, either in the same form or a different form. A major element in the success of this approach has been the

individual participation and engagement with the programme, often supported by partners.

There is a clear relationship between individual attitude to life, stress, self care, self responsibility, value system, coping mechanisms or lack of them, and social isolation (Ornish et al., 1990). He suggests that further research is necessary to evaluate the relative contribution of each aspect of the lifestyle programme and the mechanisms of change in coronary atherosclerosis.

The present study provided further information on this by considering the process of adjustment over 12 months in two groups of people with CHD choosing either yoga or exercise as part of a continuing CR programme.

1.2.14 Lifestyle Changes: An Individual Perspective

As stated previously, although mortality from CHD is falling, morbidity is increasing and in the older age groups this has risen over the last ten years (British Heart Foundation, 2000). There is therefore a continuing need to evolve the nature and scope of provision within CR programmes to meet the varying needs of patients and to achieve outcomes, which relate to their quality of life in the broadest sense. The patient perspective forms a crucial component within the evolution of this provision and the developments cited provide a clear indicator of a move in this direction. It is interesting to note that few studies in the UK have approached evaluation of CR programmes from a patient perspective. However, in the USA a number have explored the qualitative experiences of patients and some of the implications these findings have for cardiac care and rehabilitation. This section will therefore consider the patient perspective.

Major lifestyle changes are required after MI, although as reviewed previously the vast majority of patients are unsuccessful in maintaining these changes (Oldridge et al., 1988; Frenn et al., 1989; van Elderen-van Kemenade et al., 1994. Participants in CR programmes report that the programme itself affects their efforts (NHS Centre for Reviews and Dissemination, 1998) to perform the suggested self care behaviours (Frenn et al., 1989). The factors associated with this lack of success

must be acknowledged and explored in relation to the patient experience and response to MI and CR programmes.

A major issue for some patients in achieving success in lifestyle change is lowered self-esteem. Self-esteem is an evaluative feeling, referring to negative or positive, or neutral judgements that are placed on the self-concept. Cardiac disease may pose such a serious challenge to some people that it lowers their self-esteem. The cardiac patient needs to have a strong self-concept and self-esteem in order to effectively participate in improving his/her health (McGlashan, 1988). Current approaches to CR provide little support for patients with lowered self-esteem.

Further factors internal or external to the patient may impact on his/ her ability to enact lifestyle changes. A study conducted by Frenn et al., (1989) using grounded theory methodology examined factors that patients view as enabling or disabling their lifestyle changes for health promotion. Ten patients in a CR programme were interviewed who identified the following precipitants and enabling/ disabling factors in lifestyle change:

The main Precipitants to Change were identified as:

- symptoms of illness and physicians instructions
- fear it might happen again
- enjoyment of life, reasons for change based on this.

The Factors that Enable or Disable Change:

- CRP content and staff support
- Family and friends may help or hinder
- Self-perceptions, self insight
- Perceived barriers and benefits, feelings about diet, smoking cessation
- Lifestyle experience, feelings about exercise, cooking and diet change, the relationship of food to social life, maintaining a lifestyle different from the cultural norm.

The above factors provide useful information to guide the nature and focus of CR based on an understanding of individual motivation to initiate and sustain cardiovascular health behaviour which is an essential first step in developing a lasting programme of risk factor modification (Oldridge, 1988).

Some of the processes associated with individual change and its maintenance must also be considered. Fleury (1991) conducted a study whose purpose was to identify and provide an analysis of the psychosocial process used by individuals to initiate and sustain cardiovascular health behaviours over time. Data was collected from 29 individuals who were attempting to initiate and sustain programmes of cardiac risk factor modification. The data were analysed through the technique of constant comparative analysis. Empowering potential was the basic social process identified from the data, and explained individual motivation to initiate and sustain new health behaviour.

Empowering potential was a continuous process of individual growth and development, which facilitated the emergence of new and positive health patterns. Within this process individuals used a variety of strategies, which guide initiation, and maintenance of new health behaviours. The process of empowering potential had three stages:

- Appraising readiness (intention to initiate and sustain changes)
- Changing (Intentions transformed into personal; action)
- Integrating change (Changes incorporated into existing life patterns)

Two important factors, which occurred through out the process of empowering potential, were:

- Imaging (valued ways of being and action statements based on these values)
- Social support systems

The findings from this study produced a theory of individual motivation to initiate and sustain new health behaviours, which reduce risk factors in CHD. This provides further insight into ways of representing and investigating the complexities of health behaviour change for patients challenged with CHD risk factor modification.

The study by Frenn et al., (1989) using grounded theory methodology also examined factors that 10 clients viewed as enabling their life-style changes for health promotion. The study was limited to an examination of the ways in which clients in a cardiac rehabilitation programme viewed changes in diet smoking cessation and incorporation of exercise. Both health protection and health promotion stimulated lifestyle changes, as did instruction from the physician and life enjoyment. Health protection behaviours were considered to be those directed towards decreasing the likelihood of becoming ill and toward detecting illness at an early stage. Whereas, health promotion was described as sustaining or increasing the level of well-being of an individual or group. The factors which enabled or disabled lifestyle changes were individually defined, but changes in beliefs, attitudes, and plans facilitated re-patterning. In addition the specific precipitants to change, forces influencing change and methods of re-patterning lifestyle were also determined by each client (Frenn et al., 1989).

Frenn et al., revealed a sequential process of lifestyle change during data analysis, this included:

- health event
- precipitants to change (health protection, health promotion)
- forces influencing change (CR programme, family, friends, self perceptions, barriers and benefits, lifestyle experiences)
- re-patterning lifestyle (changing beliefs, attitudes, anticipating changes)
- changed behaviours

This work provided a foundation on which to, build the categories included within the semi-structured interview in the present study. The above categories from the Frenn et al., work were utilised to develop the headings under which to arrange the main topics

for the semi structured interview 1 schedule. This topic is discussed in relation to the present study in Chapter 2, Methodological considerations, in Section 2.8.2.

Further insight into the outcomes of participation in CR programmes is illustrated by, Conn et al., (1992) who conducted interviews with 197 women and men (1-2 years post MI) to examine the relationship between participation in CR and health state: days of reduced activity, anxiety, depression, self-esteem, quality of life and performance of diet, exercise, medication, stress modification and smoking reduction post MI. They found significant correlations between rehabilitation participation and exercise, medication and dietary behaviours, supporting the argument that CR can have long-term effects on self-care behaviour associated with CHD.

The strongest correlation was between CR and exercise and this is probably related to the fact that subjects received information with regard to other self-care behaviours but performed the exercise. The repeated performance of self-care behaviours may be more important than education in developing a pattern or habit of performing the behaviour (Conn et al., 1992).

An alternative explanation may be that performance of exercise behaviour affects self-efficacy (Bandura, 1986), which may affect later enactment of the behaviour. Or perhaps the time spent, and emphasis placed on the exercise component of CR programme leads participants to believe it is the most important element of the programme. As reviewed previously the majority of CR programmes centre round group exercise classes (Horgan et al., 1992). Subjects who attended more CR sessions reported increased self-esteem 1-2 years after MI. In addition CR participation correlated statistically significantly with quality of life scores although there was no indicator of whether quality of life scores were higher for that group on entry to the CR programme. Measurement, pre and post intervention would have clarified the outcomes.

There was a lack of association between CR programme participation and stress modification or smoking cessation (Conn et al., 1992). This was disappointing considering the accumulating evidence that stress may have profound physiological as well as psychological consequences and is implicated as a major risk factor together

with smoking in the cause and consequent mortality associated with CHD. Many controlled trials have reported that exercise and advice alone do not produce long-term improvements in overall psychosocial adjustment in post MI or surgery patients (Naughton et al., 1973; Plavsic et al., 1976; Mayou, 1981; Stern & Cleary, 1982; Greenland and Chu, 1988; Lipkin, 1991; Oldridge et al., 1991; Bertie et al., 1992). Patient education programmes have mostly not been geared to present information that considers individual coping styles. In general, the content of patient education programmes have been concerned with information about physiology, risk factors, and medications rather than with attitudinal or behavioural change.

1.2.15 Aspects of Cardiac Rehabilitation Programmes

Both light and heavy exercise have been shown to have beneficial effects on physical performance following MI (Goble et al., 1991). As already stated walking for 15 minutes daily would be an appropriate level of exercise (Oldridge, 1988).

Compliance with exercise training programmes is poor. Up to 50% of patients drop out of programmes before the end and less than two thirds of patients attend more than 70% of sessions whilst as few as 30% are exercising at one year (Oldridge, 1988; Carlson et al., 2001).

Self-efficacy and social support are established determinants of exercise adherence and have potential usefulness for tailoring independent exercise programmes for cardiac patients. Highly supervised traditional programmes may be a barrier for independent exercise self-efficacy in low – and moderate- risk patients (Carlson et al., 2001). If people lack self-efficacy, according to Bandura (1986), they are likely to behave ineffectually, even if they know what to do and how to do it. Low exercise self-efficacy may stem from concerns over a recent cardiac event, which may negatively effect exercise compliance, particularly in a non-monitored environment.

Carlson et al., (2001) suggested that programmes, which emphasize highly supervised exercise, might impair self-efficacy for independent exercise. Clearly CR programmes not only need to provide a range of exercise training options but also need to determine individual requirements. The level of support required, together with

recognition of exercise preferences is important intelligence to help facilitate the establishment and maintenance of exercise behaviour. Furthermore, a less regimented and structured approach may encompass the needs of a wider range of people and help improve uptake and potential for ongoing compliance.

In Ornish's (1990) Lifestyle study the stress management practices integrated stretching, relaxation, yogic breathing techniques, meditation, and guided imagery. Each technique was selected for the purpose of enhancing a patient's sense of relaxation, concentration, and awareness of internal states.

Specifically, patients were taught a series of 12 yoga poses designed to stretch and tone the body while developing internal awareness (Ornish, 1990). During the poses, participants were asked to stretch gently and slowly while focusing on their breath, movement, and corresponding sensations. Following the stretching phase, participants lay on their backs for 15 minutes of deep relaxation, using three techniques: (a) squeezing and relaxing individual muscles groups, beginning with the feet and moving toward the head; (b) without moving, mentally focusing on each body part while directing it to relax; and (c) concentrating on breathing followed by meditating on a sense of peace. Following the relaxation, patients sat in a comfortable upright position and practiced breathing techniques designed to energize the body and relax and balance mental awareness. Then patients sat for 5 minutes to focus on one object or process such as the breath, a word, a prayer, or a sense of peace. As the last technique, patients were asked to visualize their arteries dilating with increased blood flow to the heart. Patients were asked to practise the five stress management techniques for at least 1 hour per day, using an audiocassette for home practice (Ornish, 1983; 1990; Ornish et al., 1983). See Section 1.3 Yoga and Yoga Therapy.

Relaxation therapy has been incorporated into a number of CR programmes and studies in the US and Europe have reported its effectiveness for cardiac patients (Munro et al., 1988; Nelson et al., 1994; Trzcieniecka-Green & Steptoe, 1996; van Dixhoorn & Duivenvoorden, 1999).

A range of benefits from relaxation therapy from the above studies and their own work are highlighted by van Dixhoorn & Duivenvoorden (1999) as follows:

- Physical effects – reduction in BP, heart rate, myocardial ischaemia, and arrhythmias.
- Mental effects – improvement in mood, level of anxiety, feelings of well-being.
- Other effects – improvement in breathing, quality of body movement, increase in body awareness, and recognition of self-regulation needs.

In a comparative study undertaken by van Dixhoorn & Duivenvoorden (1996), patients were chosen to receive either exercise training plus relaxation therapy or exercise training only (control group). These groups were followed up 5 years after infarction and it was found that those who had received the relaxation therapy had considerably less cardiac events and re-hospitalisation than patients who had exercise training only.

van Dixhoorn & Duivenvoorden (1999) report that the Dutch Guidelines for CR acknowledge relaxation techniques as a valid treatment modality that can be taught by adequately trained members of the CR team. These Guidelines propose both primary and secondary relaxation skills. The Primary skills as in Ornish's (1990) work include the patient focusing on the 'internal state,' initiating voluntary changes in posture, muscle tension, breathing and imagery to evoke changes in the physical and or mental state, whereas, Secondary skills involve the application of primary skills to daily activities.

1.2.16 Summary

In the context of the rising morbidity associated with CHD there is a growing provision of CR programmes. All programmes emphasise physical factors such as diet, exercise and smoking cessation. Relatively few offer more holistic services.
The NHS now emphasises patient choice, preferably from a menu of options, but in practice most programmes remain inflexible and limited in individual options.

There is evidence of failure to maintain lifestyle changes after most programmes, but there is some evidence that programmes focusing on individual factors and self-

management may have greater potential to achieve longer-term changes in lifestyle and enhanced quality of life.

The focus of the present study has been to consider yoga as an option within a continuing CR programme combining gentle yoga exercise with breathing, relaxation and meditation. Thus providing an individualised self-care and management option for individuals.

The historical and contemporary development of Yoga together with its potential contributions to healthcare practice will be discussed in the next section together within the wider evolving context of Complementary and Alternative Therapies.

1.3 Yoga and yoga therapy

1.3.1 Yoga

Yoga is a classical Indian science, non-sectarian philosophy and ancient system of health and way of life, which originated from India approximately 5,000 years ago. It shares its origins with ayurveda, India's native naturopathic science. The word "yoga" comes from a Sanskrit root "yuji" that means to yoke, to bring together, to unite, to make whole (Ornish, 1990). The sage Pantanjali first systematically described yoga philosophy and practice in the 2nd Century in the classic text titled Yoga Sutras (Lasater, 1997). Most styles of yoga are based on the eight-fold path (or steps) described in the Yoga Sutras, which provide insight into its practices and philosophy and guidance with regard to how yoga can be utilised to gain inner peace (Herrick & Ainsworth, 2000).

The eight-fold path consists of postures (asanas), breathing practices (pranayama), progressive steps in concentration, meditation and ethical behaviours and offers a highly sophisticated system of mind-body discipline (Desikichar, 1995). Through the above practices the goal of the ancient tradition of yoga is the stilling of the restless mind and the joining of the mind, body, and spirit in the search for health, self-awareness, and higher state of consciousness (Desikichar, 1995; Myers, 1997)). Although yoga developed from and within Indian philosophy and religion, the

practice of yoga does not require spiritual beliefs or religious observances (Myers. 1997).

The yogic view of health differs from the more mechanistic view of the human system often recognised in the West. In yoga, health includes peace of mind, balance within the body's energy system and proper functioning of the internal organs and physiological systems of the mind-body complex. Yoga engages the whole person and those who practise yoga actively participate in their own health through co-ordinated total body movements and breathing under the quiet meditative focus of the mind (Chandler, 2001).

There are several different schools of yoga and each has its own approach based on an emphasis on one or more of the eight limbs of the yoga path outlined by Patanjali. Therefore it is impossible to provide a clear-cut definition of yoga in terms of its precise methodology. In general the practice of all these different types has been believed to influence the physiological mechanisms of the body.

When yoga came to the West it was largely adopted as a physical exercise, and yoga postures and breathing practices have tended to be the main concentration of yoga practice, this approach is known as known as Hatha yoga (Hewitt, 1983).

One reason for the use of yoga postures is that they are anatomically correct and when properly practised utilise the full range of movement of the human body. It is argued that they promote efficient functioning of internal organs, balance the sympathetic and parasympathetic nervous systems and create an optimum state of health for each individual (French, 1993). According to Schatz (1992) the physiologic state produced by the regular practice of yoga postures and breathing is the opposite of the fight/flight stress response. In addition the gentle stretching and improved body mechanics that result from correct performance of postures decreases muscular tension and stiffness. The relaxed breathing that accompanies the postures counteracts the rapid, shallow breathing associated with the stress response. The mental attitude of calmly looking inward with concentration, minimizes the mental focus on external threats. With the stress response interrupted, a sense of balance and union between the mind and body can be restored (Schatz, 1992).

The synchronisation of the movement within yoga postures with the use and awareness of the breath promotes calmness and alertness. The breathing techniques (pranayama) focus on conscious prolongation of inhalation, breath retention, and exhalation. Inhalation is the process of receiving life energy, retention of breath holds that energy, and exhalation empties all thoughts and emotions (Iyengar, 1997).

The acute sense of body awareness, which is promoted by yoga practice, is said to prevent new or recurring illness and injury and development of healthy lifestyle habits (Herrick & Ainsworth, 2000). The changes in self-awareness and perspective, although difficult to quantify, can be among the most important outcomes of sustained yoga practice (Collins, 1998). Such increasing awareness extends individual control over what is happening within (Ornish, 1990). Yoga also plays an important part in the development of the human being. It leads to an exploration of the potential of the body, working in harmony with the mind, to bring the seeker into closer contact with the self (Sivananda School, 1993). Sivananda suggest that increasing self-mastery is achievable through the practice of yoga. This is congruent with Bandura (1986) who contends that the most effective way to inspire change is to help the person have an authentic experience. Thus, through the practice of yoga there are suggested psychological as well as physical benefits. The regular practice of yoga is also reported to promote strength, endurance, and flexibility and cultivates a sense of calmness and well-being. In addition yoga students also report an improved sense of energy to lead life fully and with enjoyment (Mehta et al., 1995).

1.3.2 Yoga Therapy

Aspects of yoga have been utilised therapeutically in India for many years and increasingly in the West. Within yoga therapy the focus largely has been on postures and breathing, together with the teaching of relaxation and sometimes meditation (Iyengar, 1997; Lasater, 1995; Schatz, 1992). Yoga therapy has tended to be short term and geared around illnesses, whereas the true practice of yoga is a life-long commitment and philosophical orientation. For example, Goyeche & Ikemi (1977) proposed that while it may be possible to isolate various practices such as postures or meditation or breathing techniques and apply them to patients with good results, strictly speaking such therapy is not yoga therapy. Yoga is basically a way of life,

which has evolved as a liberating system whose medical benefits, may almost be considered to be side effects. The practices of various techniques emerging from yoga, therefore, do not necessarily constitute the wider definition of yoga as a lifestyle.

Yoga therapy is recognised by a growing number of medical practitioners, patients, and insurance companies as an effective treatment of physical and psychological conditions ranging from hypertension and emotional distress to back pain, asthma and diabetes (Feuerstein, 2002).

In Yoga therapy the basic principles and aims of yoga are retained, however the yoga is adapted to a particular set of people- those with health problems. Every yoga therapy session should include a balanced set of practices that calm and vitalise the whole system, as well as acting on the diseased parts of the system (Monro, 1995). The increased awareness of self at both physiological and psychological levels helps the individual to recognise maladaptive responses to life events or disease symptoms. For example in acute asthmatic attacks the individual may be taught to utilise breathing and relaxation techniques, which reduce anxiety and enhance ventilatory capacity. Awareness is the first step in healing and yoga techniques are designed to increase physical, emotional and spiritual awareness. Thus yoga is a system of powerful tools for achieving union and healing with parts of ourselves, others and a higher force (Ornish, 1990).

The combination of yoga with modern medical knowledge can be particularly effective in treating, stress related chronic ailments for which medical treatments may be relatively ineffective. The approach, however, whilst drawing on the contribution that medicine offers within the recognition and treatment of disease, need not emulate the medical model. Yoga therapy has much to offer within its different view of health and therefore its distinctiveness in approach is the essence of its additional contribution. In simple terms, asanas act primarily through the physical level, while relaxation, rational analysis, emotion culturing and meditation work through the mental and spiritual levels (Nagarathna, Nagendra and Monro, 1990).

Pranayama helps to harmonise and link the physical and mental levels by controlling energy flows. Yoga therapy is seen as working simultaneously on all these levels and takes into consideration lifestyle and attitudes, along with asanas, pranayama and meditation at every yoga therapy session (Nagarathna et al., 1990).

The breadth and depth of the yoga tradition distinguishes yoga from most other forms of complementary medicine. Traditionally yoga therapy was used within the framework of ayurvedic medicine but today it relies primarily on Western medicine for diagnosis. Within yoga therapy, Monro (1995) stated that there is a system of diagnosis (largely intuitive) which notes breathing patterns, physical and psychological tensions, energy distributions, mental attitudes. The word diagnosis utilised in this context may be contentious as the approach described suggests the use of observation leading to an overall impression of various aspects of the individual being observed, in particular when it is suggested to be guided by intuition. The whole concept of diagnosis originates from biomedicine and is the identification of disease through the examination of symptoms (Collins English Dictionary, 1995). What the yoga therapist is observing may be somewhat more subtle and the whole process is being undertaken from a different view of health, disease and therapeutics. However, this may be a potential rather than actual approach within the above context. Please refer to the discussion on philosophy of Complementary Therapies in Section 1.4.6. Although yoga emphasises the holistic approach to the individual in health and illness, in yoga therapy the emphasis has been almost entirely on symptom management and physiological measurement. Consequently, the research to date largely reflects this and the experience of individuals participating in yoga to help manage the challenge of illness has been little researched.

1.3.3 Yoga Research

According to Feuerstein (1998) the earliest medical studies on yoga were conducted at the Yoga Institute in Santa Cruz, Bombay, founded in 1918. In the West the Yoga research and Education Centre in California is currently creating a database of medical and scientific studies of Yoga.

Some of the physiological and psychological changes that occur while using yoga mimic the activity of the parasympathetic nervous system. These changes which coincide with a general decrease in the stimulation of the sympathetic nervous system, include decreased oxygen consumption, lowered blood pressure and decreased heart and respiratory rates (Luskin, et al., 1998). A number of studies have supported this view. Increased cardiac output, predominance of parasympathetic activity, thermo-regulatory efficiency have been scientifically investigated (Udupa, 1975; Selvamurthy, 1983; Shannahoff-Khalsa, 1993). A study conducted by Telles et al., (1993) considered the effect of yoga training in physical education teachers. A group of 40 physical education teachers followed a 3-month yoga training programme. A statistically significant improvement occurred in general health, body weight, blood pressure reduction and improved lung function. Results also indicated decreased autonomic arousal, greater psychological relaxation, heart rate and respiratory rate reductions, improved steadiness and an optimal balance in autonomic functions.

A study by Naghendra and Nagarathna (1986), which followed asthmatic individuals for up to 54-months after they participated in yoga training, found that they demonstrated both statistically and clinically significant improvement in most of their parameters and reduction in need for and use of their medication.

Various techniques encompassed by yoga may be of benefit in preventing and treating CHD. Alone, or in combination certain yoga techniques have been shown to reduce blood pressure in hypertensive patients (Benson, 1975,1977; Datey et al., 1969; Datey & Bhagat, 1975)), decrease premature ventricular contractions and other arrhythmia's (Lown et al., 1976) reduce serum cholesterol, and reduce the frequency of unstable angina (Udupa et al., 1971 and 1972).

As a bio-behavioural techniques yoga along with meditation and progressive relaxation elicit the relaxation response within the body, which may reduce cardiovascular risk factors such as, blood pressure and plasma cholesterol levels (Benson, 1977; Tupule & Tupule, 1980). In a study conducted by Bera, et al., (1998) recovery from induced physiological stress in Shavasana, a yogic relaxation posture and two other postures (resting in a chair and resting supine) was compared. Twenty-one males and six females (21-30years) were allowed to rest in one of the above

postures after completing scheduled treadmill running. The recovery was assessed in terms of heart rate (HR) and blood pressure (BP). HR and BP were measured every two minutes after the treadmill running until they returned to the initial level. The results revealed that the effects of stress was reversed in a statistically significant shorter time in Shavasana compared to the other resting postures.

There is accumulating evidence that certain cardiac conditions respond to the use of yoga as a therapy including: enhanced cardiac recovery (Tupule & Tupule, 1980; Maralidhara & Ranganathan, 1982; Saraswati, 1984; Yogendra, 1993; Ornish, 1990) management of hypertension (Datey & Bhagat, 1975; Patel & North, 1975) and CHD (Ornish et al., 1990, Latha & Kaliappan, 1991).

In a study by Patel & North (1975), thirty-four hypertensive patients were assigned at random either to six weeks' treatment using yoga methods with bio-feedback or to placebo therapy (general relaxation). Both groups showed a reduction in blood pressure (from 168/100 to 141/84 mmHg in the treated group and from 169/101 to 160/96 mmHg in the control group). The difference was significant. The control group was then trained in yoga relaxation, and their blood pressure fell to that of the other group (now used as controls).

It is proposed that yoga, meditation and breathing techniques not only contribute to the prevention of CHD but are associated with improving the survival in those with existing cases of CHD (Pandya et al., 1999, Ornish, 1990) Schmidt et al., (1997) found that cardiovascular risk factors and hormones were substantially reduced during a comprehensive, residential, 3 month yoga training and vegetarian nutrition study.

Tupule & Tupule (1980) utilised yoga postures and yoga breathing as part of a rehabilitation programme, post–myocardial infarction, to promote relaxation. Compared to a control group the yoga group experienced better symptom control and over 5 years the reduction in mortality in the trial group was reported as statistically significantly less compared to the control group. These are interesting results which merit further exploration and replication elsewhere through further research. An additional feature of this research measuring improvement in physical fitness through yoga was that practice of yoga was found to contribute to relief of angina and other

symptoms. Thus, yoga can be seen to offer another approach to becoming physically fit as an alternative to traditional modes of exercise. The cost effectiveness of yoga as a self-care strategy practised at home following the initial programme may be of contemporary interest. Clearly cost effectiveness is an issue, particularly within the Indian culture, however, it is an issue of importance within the Western world where resourcing of health care is becoming increasingly difficult to sustain. In addition the concept of self care is a major focus within modern health promotion strategy and relates also to the ongoing secondary prevention of the risks associated with CHD.

This self-care concept links then to the ability of such a programme to change/ influence the reaction of the individual to stress through promotion of ability to relax using breathing and postures. The relaxation skills achieved also contribute to the individual's self-caring activities where they will practise the yoga postures, breathing and relaxation together. Further, the above study also focuses therapeutic attention on the somewhat neglected aspect of yoga, which is promotion of self-awareness.

As a self-regulation strategy yoga is concerned with the awareness of control of somatic and autonomic processes of the mind body complex. This provides an avenue for research on body awareness and its implications. Body awareness is an important aspect of self-esteem. The concept held regarding the body and the awareness of and attentiveness to bodily processes are likely to influence the way individuals regard themselves. (Rani & Rao, 1994) The existence of body awareness as a general tendency and the individual differences in such awareness have already been well documented (Buss, 1980; Bishop, 1987).

Rani & Rao (1994) investigated whether the practice of Hatha yoga enhances the awareness of the normal non-emotive bodily processes. A yoga trained group on completion of a 3-month training programme, and a control group of subjects who had enrolled to undertake the yoga training programme but had just been admitted to the programme, were administered a Body Awareness Questionnaire. Analysis showed the yoga-trained group had a significantly better body awareness than the control group. The conclusions emerging from this study were that the practice of Hatha yoga enhances body awareness. It is interesting to note that the two groups participating in this study were independent but had self-selected to participate in the

yoga training programme. This provided an opportunity to study groups pursuing their own choice, which is essential in the pursuit of meaningful outcomes from yoga training. However, only the control group was tested before training. It would have been interesting to test the hypothesis, about increased body awareness after yoga training, by administering the questionnaire before and after training to both groups.

Yoga and other self-regulation strategies such as Tai Chi are concerned with the awareness and control of somatic and autonomic processes of the mind-body complex. It is also a widely held belief that the systematic achievement of a higher awareness of both body and mind through yoga may lead to some control over them (Neurnberger, 1981; Saraswati, 1990; Yogendra, 1993). There is more esoteric evidence to support this belief. A number of Yogis have been buried alive in airtight underground pits using a combination of pranayama and meditation. The body functions have been studied during these burials and a decrease in oxygen consumption to below 50% of the resting rate of consumption has been demonstrated (Ananad et al., 1961). Control subjects under similar conditions did not display any of these responses; on the contrary they showed an increase in oxygen requirements, heart rate and respiration. This type of ability certainly suggests more than a belief but rather the actual ability of the yogic adept to achieve various controls over body and mind.

1.3.5 Yoga in Stress Prevention and Management

Yoga is said to be associated with reduction in psychological stress mechanisms through the focus on breathing, self-regulation, practice of conscious relaxation of muscles and internal awareness (Berger and Owen, 1992; Saraswati, 1990; Yogendra, 1993). Through the practice of the asanas (postures) an awareness of stress in the body is made possible and by the use of the mind discovery of the problem is made possible (Latha & Kaliappan, 1987; Saraswati, 1990; Yogendra, 1993).

According to Ornish (1978) the purpose of all the different yoga techniques is simply: 1) to aid the individual in becoming increasingly more aware of body and mind; how health is disturbed and; 2) to gain progressively more control over body and mind in

order to remove the tensions and other disturbances while preventing them in the future. As a person gains this control they should begin to experience an internal sense of health and well-being: a sense of being whole, complete and at peace. Changes then can be made in life by conscious decision on the basis of will and self-analysis. The inability to cope with stress, and the sense of helplessness and hopelessness that many people experience can be counteracted by recognising the options and applying the power of choice.

In Ornish's program the lifestyle change intervention appeared to have a strong and consistent positive effect on reducing the psychosocial risk factors of anger and hostility. The Lifestyle change group had a statistically significant reduction in Spielberg trait anger compared with no change in the control group at 1 year, this effect was maintained in the 4 year follow up. Those who did more stress management practice (components of which were yoga practices) had more regression of the disease in the coronary arteries than those who did less. Stress management practice was also statistically significantly correlated with decreases in low-density lipo-protein cholesterol and hostility (Billings, et al., 1996). For further discussion of this intervention see Section 1.2.15.

Yoga techniques require commitment and discipline to attain this heightened state of awareness, but once the individual experiences the benefits of internal peace and sense of health achieved through practise, the need for and the importance of sustained personal practice is reinforced.

The potential psychological benefits of yoga have been considered in a few preliminary studies. For example Yoga breathing techniques have been used in the treatment of neurotic illness relieving symptoms and enhancing ability to cope (Sharma et al., 1991). The effects of pranayama were studied in forty-one patients who had anxiety neurosis and compared with a control group of thirty patients with anxiety neurosis who receive a placebo. Pranayama was found to be superior to placebo treatment indicated by a statistically significantly greater reduction in the Hamilton anxiety scale, heart and respiratory rate, blood pressure, skin conductance and frontalis muscle electromyography, at three weeks and subjective disturbance score at 12 weeks. Improvement with placebo therapy was most marked at 3 weeks

and short lasting, while that observed in the pranayama group was more consistent and steadily progressive.

Goyeche & Ikemi (1977) also indicated that yoga practice had proven most effective in a range of psychosomatic and psychiatric disorders although little of the specific details of the studies are given. Sahasi et al., (1989) assigned patients with anxiety to a yoga therapy group, compared to a control group who received nothing they demonstrated a statistically significant reduction in anxiety. The Locus of Control scale showed statistically significantly increased inner control and the Knox Cube Imitation test scores showed statistically significantly increased attention/concentration. Schell et al., (1994) found that women in a yoga group demonstrated statistically significantly higher life satisfaction, lower levels of excitability, aggressiveness, emotional lability and somatic complaints than a control group. These results indicate achievement of a calm and stable state of mind and less marked stress proneness through yoga practice. However, the study had many confounding variables, which indicates that caution is required in this interpretation.

There are a large number of studies claiming benefits from yoga therapy. However, some suffer from a lack of detail in describing procedures, where no information or lack of detailed description of measures utilised is provided. In the case of research based on small samples or short duration studies, there tend to be exaggerated claims for efficacy on the basis of very preliminary work.

Although many of these studies in yoga are preliminary and some lack scientific rigour, they suggest that the techniques of yoga can facilitate positive aspects of the mind/body interaction (Ornish, 1978). These suggested benefits merit further research. Despite a number of assertions within the literature, there are no studies, which have systematically researched the psychosocial benefits of yoga therapy. In addition to the documented research studies there is a need for more research, including illness specific studies and longitudinal studies utilising mixed methodologies designed to capture the holistic benefits of yoga.

Because yoga can be practised gently and with minimal impact it may be of value to all age groups but particularly for the elderly and those who are not so physically able

or for those who are un-used to or do not enjoy conventional exercise. It may also appeal to those who do not find the gymnasium approach to exercise enjoyable or relevant.

1.3.6 Recognition of Yoga as a Complementary Therapy

The House of Lords Science and Technology Subcommittee (2000) identified yoga within the Group 2 classification of Complementary and Alternative therapies, See Table: 1, thus providing it with recognition as a complementary therapy within the UK. This is an important milestone and such recognition carries with it the implicit public acknowledgement that yoga is a therapy, which may be utilised as an adjunct to conventional medical approaches. It may also be considered that this provides yoga with the legitimacy it needs to further develop, to be used more widely in a variety of healthcare settings and potentially to attract funding to support ongoing development of its evidence base.

1.3.7 Summary

There is preliminary evidence to suggest the value of yoga as a complementary therapy emerging from the holistic benefits, which may be achieved through its practice. The potential for self-mastery, which may be achieved, also suggests that the practice of yoga might possibly contribute to the empowerment of self and lifestyle changes following cardiac events. Within the present study yoga is offered as one of the choices for patients undertaking a continuing cardiac rehabilitation programme. For the purposes of this study therefore, the yoga intervention may be defined as follows:

A programme of gentle and progressive activities designed to support all levels of ability and health and to promote exploration of the body and mind. Further discussion regarding this takes place in Section 1.4 and the specific activities included within the yoga intervention may be found detailed in Section 2.9.11.

The recognition of Yoga as a Group 2, complementary therapy (House of Lords Report Science and Technology Subcommittee, 2000) is also an important stage in its

evolution within society and for its potential use in healthcare. Contemporaneously, yoga and other complementary therapies are becoming increasingly utilised and accepted by the general public and the orthodox medical establishment. Public demand for complementary therapies is on the increase and "integrated healthcare" incorporating orthodox and complementary approaches is an important potential within future provision.

The philosophy underlying such therapies is different from the reductionist scientific underpinnings of biomedicine and it can be argued that a different view of and approach to therapeutic practice, which reflects the "holistic paradigm", is fundamental to the delivery of such therapies. Furthermore, a wider perspective with regard to research methodology is required when evaluating the use and contribution of such therapies. The next section offers a brief discussion of some of the contemporary perspectives relating to developments in Complementary and Alternative Medicine (CAM) including approaches to practice and research, which address the issues previously outlined.

1.4 Complementary Medicine

1.4.1 Definitions and Perspectives

Complementary and Alternative Medicine (CAM) is a title used to refer to a diverse group of health related therapies which are not considered to be part of mainstream medical care (House of Lords Science and Technology, Sixth Report, 2000) The most useful contemporary definitions reflect very different perspectives and scope. Ernst & White (2000) contend that complementary medicine is diagnosis, and/or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy or by diversifying the conceptual frameworks of medicine. This is only a partial definition and alludes to complementary approaches but does not provide a breadth of perspective beyond that of biomedicine. A wider and more eclectic perspective would view CAM as a broad domain of healing resources encompassing all health systems, modalities and practices and their accompanying theories and beliefs, which are distinctive from the conventional health systems of a culture at any given time. Micozzi (1996) provided a

holistic client-centred view and suggested that the key attributes of complementary therapies include the concepts of vitalism, or vital force, in the promotion of self-healing, with an emphasis on wellness and the empowerment of the client. Other factors include the concept of taking responsibility for ones own health, the partnership between therapist and client and the encouragement of self-help, which might include adjustment of the environment and the revision of lifestyle.

The previous two views provide a much more holistic view which is reflective of a different paradigm, such contrasting views illustrate that CAM may be viewed from within and outside of both the biomedical and holistic paradigms, that the views and beliefs differ in scale and potential and fundamentally in relation to beliefs and values. For these therapies to become truly complementary there requires to be considerable shift and alignment of philosophical beliefs and values within contemporary healthcare together with a greater understanding in relation to the range and diversity of therapies.

The term complementary emerged in the 1980's and by 1985 had appeared in an article in the Lancet (Fulder & Munro, 1985) The word complementary suggests that therapies can only be used as an adjunct to orthodox medicine which some clearly are, however, some may be used by patients as the treatment of choice (Trevelyan & Booth, 1994). Therefore, the current term being used in the UK is Complementary and Alternative Medicine (CAM).

As a consequence of the diversity within (CAM) and lack of agreement within the CAM community, no single definition has been adopted. One way of classifying the many different CAM therapies is by 'emphasis', structural, biochemical, energetic and mind-spirit, and by their methods of care and treatment (Turner, 1998).

In the present study the definition used will reflect the emphasis of the complementary therapy, which in this case is yoga. Yoga may be defined as a mind-body therapy, which engages the whole person. The definition of mind-body therapy in this case relates to the fact that the exercise or gentle yoga posture work is coupled with an internally directed focus so that the participant experiences a temporary self-contemplative mental state. This internal focus provides a mindful component, which

is not found in conventional exercise and enhances the mental and physical value of yoga (La Forge, 1997). Regular practise of such techniques has a cumulative effect supportive of the individual ' self ' and lifestyle.

Those practising yoga actively participate in their own health through co-ordinated total body movements and breathing under the quiet meditative focus of the mind. Within this study where yoga has been utilised as a complementary therapy the basic principles and aims of yoga are retained, however, the yoga has been adapted to the needs of a particular set of people, those with coronary heart disease. See Section 2.9.11 for details of the Yoga Programme.

1.4.2 Users of Complementary and Alternative Medicine

The use of Complementary medicine is a substantial and growing part of health care behaviour. Since the 1970's there has been a dramatic proliferation of complementary medicines in the UK and other European countries with an increasing number of practitioners and growing usage by consumers (Cant & Sharma, 1996; Eisenberg et al., 1998; Ernst & White, 2000).

An estimated 22 million visits were made to practitioners of one of, what are considered, the main established therapies (Acupuncture, Chiropractic, Herbal Medicine, Homoeopathy, Osteopathy) in 1998, 90% of this provision was purchased privately. However, there are no reliable population based estimates of practitioner use available in the UK. A pilot study by Thomas et al., (2001) suggested that the use of CAM in England increased in the five years between 1993 and 1998 and that 8.5% of the adult population had seen a practitioner of one of the main therapies in 1993 and 1998.

The BBC undertook a UK survey of the use of CAM (Ernst & White, 2000) and based on 1204 interviews this survey estimated adult CAM use at 20% of adults per annum for all therapies and all types of use. Most survey data on CAM use have found that the predominant users are well-educated, affluent, and middle-aged females (McLennan et al., 1996; Eisenberg et al., 1998; Brown, 1998). Geographical location, and hence availability of choice of therapy, are also important discriminators

of patients of orthodox approaches and CAM. However, once such factors are taken into account there is little difference between users of CAM and those of orthodox medicine (Furnham & Vincent, 1995).

A postal-survey of CAM use in England (Thomas et al., 2001) asked respondents. (n=2668), whether they had visited a practitioner of one of the following therapies in the last twelve months: acupuncture, chiropractic, homeopathy, medical herbalism, hypnotherapy, osteopathy, aromatherapy and reflexology. Results showed that 13.8% of respondents had either visited a CAM therapist or purchased an over the counter remedy. The NHS had paid for an estimated 10% of the visits to practitioners.

1.4.3 Reasons for Use of CAM

The move towards CAM reflects a change in attitude to health and illness. People choose what seems to be the appropriate source of advice and treatment for their particular condition. This implies that it is their particular complaint as much as their health related belief system that determines treatment choice, and hence, many people may be simultaneously or sequentially patients of both complementary and orthodox medicine (Furnham & Bhagrath, 1993; Blais, 1997; Eisenberg, 1998). Those who choose CAM may have mixed motives for their choice and according to Vincent and Furnham (1996) people 'shop for health', (p.3) in some instances selecting CAM as just another product or service. Other are looking for a cure without side effects, or a 'last hope' if all else has failed, some may be disappointed with orthodox approaches or treatment (Furnham & Lovett, 2001). Many people are interested in self care and Furnham & Lovett (2001) suggest, therefore, that people want an emphasis on 'wellness', not 'illness'. Furthermore, there is a growing belief in the holistic message, together with a need for healthcare that takes this more fully into account within diagnosis and treatment.

In the USA a postal survey was conducted which was designed specifically to find out why patients use CAM (Astin, 1998). The survey asked respondents' (n =1035) about their need for control over their own health; their philosophical orientation toward religion, spirituality, mind and body; their belief in the efficacy of conventional medicine, their general health and demographic details. Multiple

regression analysis was used to identify predictors of alternative health care use. The most statistically significant predictor was higher educational status, followed by overall health status.

Chronic health problems such as anxiety, back problems, urinary tract problems and chronics pain were each also significant predictors of CAM use. Three other significant predictors of CAM use were: being culturally creative, having a holistic philosophical approach to life; and having had a transformational experience. Astin (1998) suggests that dissatisfaction with conventional healthcare is not the major factor leading to the use of CAM but that most users access these therapies because they are more congruent with their beliefs, values and philosophical orientation to health and life.

1.4.4 Satisfaction With CAM

In surveys of users of CAM, 80% were satisfied with the treatment they received (Consumer Association, 1986). These surveys identified that satisfaction with complementary therapies encompassed a wide range of common illness and disease especially when conventional practitioners have failed to provide satisfactory treatment. If features of CAM do have a potential to improve management and quality of life for patients with these conditions, then investigating this role certainly ought to be worthwhile. The effects and experience of particular therapies, which account for patient satisfaction, may include some of the following factors cited by patients.

- availability of longer consultation times facilitating greater patient participation,
- opportunity to have continuity with the same practitioner
- individualised approaches facilitating enhanced personal care and attention,
- greater involvement and personal choice,
- ability to choose a suitable therapy and particular practitioner,
- opportunity to receive touch and the enhanced therapeutic relationship this brings
- hope when all else has failed.

- support in dealing with ill defined symptoms
- support in making sense of illness
- support in addressing existential and spiritual concerns

(Zollman &Vickers, 1999)

Luff & Thomas (2000) examined satisfaction with complementary therapy among patients receiving treatment funded within the National Health Service. Semi-structured interviews (n=49) were used in 8 sites across England providing complementary therapy services within primary care. Results demonstrated that complementary therapies are experienced as ameliorating and curing conditions, including chronic problems. Patients also perceived complementary practitioners as being caring and valued the development of a therapeutic relationship within which they are encouraged to take an active part in looking after their health. Positive experiences of complementary therapy use were contrasted with either a failure in orthodox medicine or a dislike of orthodox treatments available to them. There were very few negative aspects reported in relation to CAM. Patient satisfaction was consistent across settings and type of therapy received.

Consumer interest in CAM according to Corless et al., (2000) increases as traditional medical interventions fail to control, reverse or resolve the underlying disease and or symptoms of disease or side effects of treatment.

The growing importance of CAM is set to continue according to James (1998) in particular to help the mainstream therapies work better. With the current policy emphasis on patients as partners in care, able to make decisions about the treatment they receive, it is no longer tenable to ignore the clearly stated demand for CAM healthcare (Coulter, 1999).

1.4.5 Socio-Cultural Perspectives of CAM

Peters (1998) in his exploration of how the increasing use of CAM can be seen as a signpost for important changes in our health beliefs, suggests that from a socio-cultural perspective CAM can be viewed in relation to recent aspects of culture, that

is, modernism and post-modernism. Modernism can be described as a set of beliefs that scientific understanding will increase our technical control of the world. Such control often takes the form of dramatic intervention, such as transplant surgery or large scale engineering projects, which is thought to lead human progress in terms of increasing happiness and well being. Conventional medicine, which emphasises the link between medical intervention, technology, and biological understanding, therefore, is a modernist enterprise. Peters, contends that despite the value of biomedical perspectives it cannot incorporate a number of late 20th century aspirations and concerns about such issues as the purpose of life, the body as a whole, the question of responsibility for illness, personal agency in promoting health and the meaning of disease.

The post-modern argument postulated by Peters (1998) is one wherein the world cannot be understood in terms of a single framework. Such understanding comes from examining and juxtaposing multiple perspectives and from accepting a disjointed plurality of values and beliefs. Post-modernism, therefore, is deeply suspicious of the assumption that progress is implicit in technological advance. Peters suggests, that CAM may be described as post-modernist, incorporating traditional and indigenous perspectives alongside those of the sciences. It also offers new ways of representing health and of addressing those concerns, which seem to have been left outside of biomedicine.

1.4.6 Government Recognition of CAM

Early in 1999 the House of Lords Science and Technology Committee in response to the growing use of CAM therapies set out to formulate an operational definition of CAM and also to consider the wide ranging issues of: professional regulation and risk, research, education, information and NHS provision. As no precise definition of CAM was applicable, three groups of therapies were proposed: Group 1 includes what might be considered the principle disciplines with individual diagnostic approaches and substantial weight in the CAM sector, Osteopathy and Chiropractic being already regulated by Acts of Parliament. Group 2 includes therapies such as yoga which are most often used to complement conventional medicine and do not purport to embrace diagnostic skills, and Group 3 which includes those disciplines such as Traditional

Chinese Medicine which offer diagnosis and treatment and favour a philosophical approach which is indifferent to the scientific principles of conventional medicine and through which various and disparate frameworks of disease causation and its management are proposed. (Mills, 2001) Please refer to Table 1.0 for the Categories of CAM.

The Sub-committee noted the weak evidence base of CAM and suggested two main reasons for this; one is that in most of these areas little research is done. The second is that the few studies that have been completed, whether their findings are positive or negative, are given disproportionate weight. Those therapies in Group 2 which aim to operate as an adjunct to conventional medicine, and make claims in the area of relaxation and stress management are in less need of proof of treatment-specific effects but should control their claims according to the evidence available to them. (House of Lords Science and Technology Sub-committee Report, 2000).

Table1.0 Category of CAM Disciplines

Group 1. Professionally Organised Therapies

- Acupuncture
- Chiropractic
- Herbal Medicine
- Homeopathy
- Osteopathy

Group 2. Complementary Therapies

- Alexander Technique
- Bach and other Flower Remedies
- Bodywork Therapies including Massage
- Counselling Stress Therapy
- Hypnotherapy
- Meditation
- Reflexology
- Shiatsu
- Healing
- Maharishi Ayurvedic Medicine
- Nutritional Medicine
- Yoga

Group 3. Alternative Disciplines

3a. Long established and traditional systems of healthcare

- Anthroposophical Medicine
- Ayurvedic Medicine
- Chinese Herbal Medicine
- Eastern Medicine
- Naturopathy
- Traditional Chinese Medicine

3b. Other Alternative Disciplines

- Crystal Therapy
- Dowsing
- Iridology
- Kinesiology
- Radionics

(House of Lords Science and Technology Sub-Committee Report, 2000)

1.4.7 Research in CAM

Claims about the potential benefits of complementary therapies must be viewed with caution due to the absence of a substantial research base (Stevenson, 1998). This concern was echoed by The House of Lords, Science and Technology Sub-committee (2000) who identified that very little high quality CAM research exists. Reasons for this included: lack of training in the principles and methods of research, inadequate research funding and a poor research infrastructure within the CAM sector. Another contributing factor may be methodological issues; with many CAM practitioners believing that conventional research methods are not suitable tools with which to investigate CAM. The reason for this stems from the contrasting philosophies and methods of CAM and conventional medicine. Within the many disciplines of CAM the definition of health, the healing process and the nature of therapeutic intervention may differ markedly from the approaches and practice of conventional medicine. A spectrum exists between reductionism and holism and different practices in both conventional medicine and CAM span the spectrum (The House of Lords Report, Science and Technology Sub-committee, 2000).

There are common themes within the philosophies of CAM, identified by Aakster (1986) and Launso (1994) who believe that these therapies differ from orthodox medicine in a number of ways primarily relating to health, disease, diagnosis, therapy and client. These themes are further developed by Launso (1994) whose epistemology includes the following perspectives as outlined:

In the subject-oriented paradigm of many CAM therapies the human being is recognized as both subject and object, that is, the object of societal contexts and at the same time an active producer/creator of new cognitive constructions and actions. The subject is also recognized as having a Self, an internal source of power.

- The task of the CAM therapist, therefore, in contrast to conventional health professionals, is that of a facilitator who endeavours to mobilize the subject's internal source of power, which is perceived as the essence in every healing process.
- Illness/ health problems are context dependent problems perceived as

signals of imbalances in self-regulation and the absence of the power or resources to manage one's own life. Each subject is perceived as a unique construction, even though the manifest symptoms may be found in other subjects.

- Consequently, the approach to therapy is oriented towards the "whole" person and not primarily towards the symptoms.
- Illness/health problems provide the potential for learning and growth at an individual level, as well at a collective level. This learning and development should help empower people to overcome material and non-material barriers that are considered to produce illness/health problems.
- CAM is presumed therefore to have an indirect effect on stimulating and supporting a human being's own self-healing processes.
- The potential and limitations of CAM must be considered and evaluated with regard to its success in mobilizing these self-healing processes.
- On the basis of this epistemology, the subject-oriented paradigm must produce a knowledge system other than the mechanistic objectifying paradigm of conventional medicine. The knowledge system recommended by Launso is a phenomenological and action-oriented system, in which human beings consciously adapt and integrate internalisation (Launso, 1994).

The central argument therefore from those CAM practitioners who hold a perspective such as that of Launso is that CAM is not an extension of biomedicine, but philosophically and essentially different. Although it works in part toward the same end it provides clients with an individual approach and therapeutic which is actually or potentially fundamentally different from biomedicine. Researching in this area requires utilisation of philosophically aligned approaches where appropriate, which may include more conventional ones where those are relevant to the research question. According to Canter and Nanke (1993) the history of science shows that the approach of transferring methodology from one field to another is rarely productive, and genuine progress is more likely when attention is first centred on the questions

which need to be asked; only then can an appropriate methodology usefully be identified.

Thus for those interested in the nature and development of CAM as unique therapies offering a different approach and in some cases very different outcomes there are certain immediate and obvious problems in only using conventional research techniques for evaluation. Canter & Nanke (1993) argue that CAM includes a wide diversity of disciplines sharing some basic common features such as concern with treating the whole person, as well as unique conceptualisations of human disease and distress, and associated interventions. Thus an important part of comparative research must be the appraisal of the conceptualisations and procedures of each discipline, both in their own terms and in relation to each other, in order to provide a meaningful context within which comparative outcome studies can be designed and interpreted.

The experience in United Kingdom, to date, has been that existing research methodologies have been adapted and do not have to be discarded wholesale. However, this may reflect the dominant epistemology and ontology of researchers in all studies and thus the research questions, which have been posed, are answerable through conventional approaches. Questions reflect the main emphasis of contemporary healthcare research, which is to attribute levels of effectiveness through measurement mainly of quantifiable outcomes. Such outcomes may also be related to the concept of standard packages of treatment, which are the only ones of interest to purchasers of healthcare.

Conventional research has developed a set of powerful techniques for generating reliable knowledge and these have been used with considerable success in a variety of different settings. Vickers et al., (1997) argues that in retrospect, the call for new methodologies appears to have been a reaction against the perceived dominance of the randomised controlled trial.

In addition, he recommends: that a variety of different research designs need to be used to answer the variety of questions important in CAM: that research designs do not have to be reinvented: that appropriate methodologies can normally be found in one or another of the diverse branches of medical research. He also notes that research

has been conducted in CAM using conventional research techniques and he believes that this refutes the suggestion that such techniques are inappropriate for CAM. However, perhaps the issue is not so much whether they are appropriate, but whether other methods should also be used.

Canter and Nanke (1993) suggest that the defining of a research question is essential to researching CAM. They highlight the subtleties of such types of questions by posing a focused question about the effects of particular components of the therapeutic package such as: What aspects of treatment are necessary, sufficient or facilitative of therapeutic change? For this they suggest that this type of question is appropriate, as treatment may not always work for the theoretical reasons that therapists believe. In addition comparison of differential outcomes following treatment does not by itself answer the question of what were the 'active ingredients' of treatment.

Although the clinical trial is the appropriate tool for evaluating therapy where it represents the only variable of note, most complementary therapy is multifactorial therefore alternative strategies are necessary. (Canter & Nanke, 1993) There is also a growing recognition that patients' preferences may have an effect, either by influencing the outcome of the treatment (a positive attitude to treatment may result in a better health outcome) or by 'dissatisfied' patients dropping out of treatment regimes (Fitter & Thomas, 1997).

According to Vickers et al., (1997) the RCT is an excellent tool to determine whether a certain therapy can have specific effects on a certain condition, however, it does not answer all relevant questions in health care. Particularly those concerned with individual responses which seek to determine what works for which people in which circumstances. He also proposes that the solution to the methodological debate within CAM research is the use of a range of different research designs suited to answer a number of different types of research questions. Consequently, this will provide different types of knowledge about the spectrum of use and individual experiences and benefits from CAM.

1.4.8 Future CAM Research

The House of Lords subcommittee (2000) made recommendations that the NHS Research & Development directorate and Medical Research Council should pump prime this area with dedicated research funding in order to create a few centres of excellence for conducting CAM research integrated with research into conventional healthcare. Whilst this recommendation is welcomed and will help build the evidence base of CAM, the body appointed to oversee this initiative will be at the forefront of development of research methods. Hopefully, it will not adopt the more limited methodological perspective of some areas of conventional medicine but one which is eclectic and appropriate to the diversity of approaches and practice within CAM; the associated diversity of emerging research questions and the different types of knowledge which will be gained by answering such questions. The recognition that different types of knowledge are essential to understanding the nature and use of CAM is implicit within the methodological debate. Further discussion of methodological issues continues in Chapter 3.

1.5 Rationale for the Present Study

The previous chapters evaluated aspects of the evidence base surrounding CHD and CR programmes. This highlighted the developmental potential within CR programmes and the opportunity to extend choice within these programmes to cater for a diverse range of patients with varying needs. Such developments would be in accordance with the wide range of perceived needs of participants in relation to adapting to lifestyle changes. The yoga intervention in the current study has the potential to be offered more widely within CR and at least two centres in the UK have included yoga within their continuing CR programme, although there has been no research to date or evaluation of its contribution.

Yoga is noted for its usefulness in stress prevention and management, blood pressure control and as a tool to be used in enhancement of self-awareness. Whilst the evidence base is limited, due to the little research in this field and lack of financial support for CAM research, there is sufficient evidence to suggest health benefits through practising yoga. Yoga offers a synthesis of strategies which help develop, body

awareness, breath control and physical ability. This includes varying intensity of bodywork depending on individual ability and choice. Additionally meditation techniques provide the opportunity for "being still" and "with the self" which when practised on a regular basis has a cumulative effect.

In a time of transition through illness, when lifestyle changes are essential to prolong life and maximize health potential, it would seem appropriate that a wide range of strategies are developed to meet the varying needs of the diverse group of individuals who face this challenge. In particular those strategies which support individual self realisation and development within this process should be useful to help make and sustain the range of changes that will minimise the risk factors associated with CHD. At present there seem to be few approaches in CR programmes, which include a focus on the self and developing the self. A major focus of many programmes is exercise, usually gymnasium based. The present study therefore was conducted to explore the individual benefits, or otherwise, of a Yoga Intervention offered within a Continuing CR programme as compared with those of individuals following the standard gymnasium based exercise programme.

The next chapter will go on to consider the research design, research aims and questions, which emerge from the rationale provided above.

2.0 Methodology

2.1 Chapter Outline

This chapter begins with an overview of Research Design for the present study together with the study aims and research questions. The sections that follow offer a critical analysis of the methodological considerations underpinning the study and provide a description of the research methods utilised, together with a justification for the methods chosen. Furthermore, the methodological choices are analysed as individual and integrated constructs. The methods of data collection are outlined and a supporting discussion of reasons for the use of each of these within the present study is provided. In addition the measures taken to enhance the trustworthiness of the data are discussed.

2.2 Research Design

The approach utilised within this study was that of an Exploratory Mixed Method Triangulated design. The methods utilised were self-reports in the form of quantitative questionnaires together with qualitative semi-structured interviews. The questionnaire data was triangulated with the data from the interviews to compare the experiences, attitudes, behaviours and perceived benefits achieved by participants in both the exercise and yoga groups.

Quantitative data were generated using standardized instruments, while semi structured interviews were used to determine individual participants' experiences. Separate sets of semi-structured interviews plus repeated questionnaires were used to explore the impact of the intervention on the participants at the end of a 12-month period. Diagram 1 illustrates the method utilised within the present study.
The rationale for the design, as it addresses the research questions, will be further considered within the following section. The quantitative and qualitative methods are contrasted, in relation to their contribution within the research design, along with details of the variables to be measured and themes to be explored.

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2.2.1 The Study

The main focus of this study was an exploration and description of the individual's experience of either exercise or yoga. The ethos underpinning the study acknowledged the holistic nature of individuals, the differences in beliefs, values, motives, and the importance of personal choices within a complementary therapies framework. Given the paucity of qualitative studies of yoga as a therapy in cardiac rehabilitation, an exploratory study was indicated to investigate aspects of the individual process and emerging experiences of yoga and exercise. What is important is to have more understanding about what is effective for which individuals and how and under what circumstances.

The comparative aspect of the study was included to provide information about the dual experience and outcomes of those attending the standard exercise programme and to determine whether aspects of the experience and outcomes achieved by individuals within the yoga and exercise programmes are different and if so, in what way.

Thus the research design involved comparisons between individuals choosing to attend the yoga programme or exercise programme. These were both programmes with guidelines included in a flexible framework utilised at the discretion of the programme leader and in accordance with individual needs. It was possible that there would be differences at the outset between these two groups.

Therefore, quantitative and qualitative measures of individual characteristics were taken at the start of the programme. The longer-term aspects of the process experiences and outcomes were assessed again using quantitative and qualitative measures after a period of 12 months. The longitudinal approach is essential to capture the individual process and changes between time 1 and time 2.

2.2.2 Study Aims

- To describe the characteristics of individuals who choose yoga or exercise continuing rehabilitation programmes

- To explore over time the process of adaptation and change together with benefits perceived by individuals with CHD who undertake the continuing yoga or exercise rehabilitation programmes.

2.2.3 Research Questions

1. What benefits do individuals experience as part of a yoga therapy programme in comparison to an exercise programme.

2. What reasons do people give for choosing the yoga / exercise programmes?

3. Which intervention (yoga or exercise) is more effective in promoting self-awareness?

4. Are there measurable differences in stress levels before and after yoga and exercise CR programmes?

5. Are there measurable differences in quality of life before and after yoga and exercise CR programmes?

6. Are there measurable differences in self-esteem before and after yoga and exercise CR programmes?

7. Are there measurable differences in search for meaning of the cardiac event before and after yoga and exercise CR programmes?

8. What are the characteristics of people who choose exercise and yoga and do they differ?

9. What is being promoted within each of the programmes (yoga and exercise)?

10. What is the evidence emerging from the experience of participants who have participated in the yoga and exercise interventions, which might inform the future development of CR programmes?

11. Based on the findings emerging from this study what are the policy implications for the development of CR programmes?

2.3 Methodological Considerations

2.3.1 The Context of the Study

The context of the present study places it within the cross-disciplinary fields of Cardiac Rehabilitation provision and growing CAM provision. There is a requirement to extend client choices within CR provision to meet the widest range of individual needs, thus there is the opportunity to include complementary therapies such as yoga. Within the CR programme in which the yoga intervention was included there was a great interest and willingness to expand and develop client choice in a variety of way. This particular CR programme was an area of "good practice" and innovation attracting numerous clients, visitors and research projects. Therefore it was an ideal setting to provide the yoga programme and carry out the present study.

The Yoga intervention is a mind-body fitness programme, which has the potential to offer therapeutic effects different from those offered by traditional body fitness programmes. This approach to mind-body fitness uses a combination of muscular activity and an internally directed "mindful" focus on awareness of the self, breath, and energy (Chin, 1995; La Forge, 1997). This internal focus is in contrast to the body centred aerobic and muscular fitness exercise, where there is little or no mind component (La Forge, 1997) such as in the cardiac rehabilitation exercise programme.

Thus the yoga intervention was designed to meet the clients' need for exercise together with development of self-awareness as a foundation to promote change. maintenance of individual lifestyle, and other personal adjustments in adapting to CHD.

2.3.2 The Methods

The theoretical framework, upon which the present study is based, came from studies using either quantitative or qualitative methods to obtain their data. Quantitative and Qualitative research may be seen as lying at either end of a continuum of research techniques. At each end of this continuum lies a research paradigm, one known as the rationalistic and the other the naturalistic. The definition of paradigm in this context being: a worldview of a subject, which includes its underlying philosophy and assumptions inherent in that view (Kuhn, 1970; Munhall, 1982; Hasse & Myers, 1988). The assumptions within the paradigm should guide the research process by providing a philosophy within which research questions can be developed (Munhall, 1989).

The rationalistic paradigm stems from the branch of science known as positivism or empiricism, which is interested in truth and prediction, and sees reality as singularly focused (Hasse & Myers, 1988). The view of individuals is mechanistic and reductionist, the belief being that the study of individual parts of the body or psyche would lead to an understanding of the whole (Watson, 1981). Nature was described through observation, the testing of scientific hypotheses and the development of theories (Cull-Wilby & Pepin, 1987; Powers, 1987).

Thus the tradition of science has been largely quantitative. This approach has been justified by its success in measuring, analysing, replicating and applying knowledge gained from this paradigm. However, in more recent years scientists have been challenged to explain phenomena that defy measurement in numerical terms (Streubert & Carpenter, 1999). Some of these phenomena directly impact on understanding the patient experience and therefore the provision of care and therapeutics tailored to these needs. Such qualitative phenomena might include the experience of individuals with CHD, for example people waiting for coronary artery

bypass, or the way in which men make sense of the experience of chest pain and in the case of the present study comparison of individuals pursuing different choices with continuing cardiac rehabilitation programmes.

Within the naturalistic paradigm the view of science is that of a process of understanding human behaviour as a whole and a belief that reality is multiple, interrelated and determined within context (Hasse & Myers, 1988). Increasingly dissatisfaction with the results of measurement of other phenomena have led to interest in using other approaches to study human experience. This interest has led to acceptance of qualitative approaches to research (Streubert &Carpenter, 1999).

From the historical as well as the contemporary perspective of research there is a widely held belief, within the research community, in a hierarchy of evidence, with quantitative research held as the best and most acceptable approach. The strongest types of evidence ranked are thought to be provided by systematic reviews of randomised controlled trials followed by individual RCT's, then by non-randomised trials, observational studies and finally case series. In this model of evidence commonly known as Evidence Based Medicine (EBM), clinical experiments that isolate a causal and additive link between a specific intervention and a specific clinical outcome are seen as the "gold standard" (Jonas, 2001; Bandolier, 1995). EBM, however, takes a narrow view of what constitutes good evidence and it excludes important observational and qualitative information about individual response to treatment. The best evidence may not be objective, additive, and not clinical (Jonas, 2001).

The qualitative approaches to research are therefore often considered secondary to these approaches and as preliminary to or supportive of quantitative research. Imle & Atwood (1988) identified a role for qualitative methods in supporting the development of sensitive quantitative instruments. They contend that measurement is the priority and consequently qualitative research is reduced to a handmaiden role.

The ranking of evidence impacts upon the development of research and on research findings, and many researchers and academics are therefore unwilling to seriously consider research which is not of the gold standard even although there are a myriad

of topics and questions which would not be best addressed utilising a quantitative approach. The practical impacts of this may include the difficulties that researchers may experience in relation to research grant acquisition where proposals may be rejected on the basis of a non-gold standard approach to methodology. In addition qualitative work may not be taken seriously within sectors of the academic community.

However, some researchers do not accept the notion of a hierarchy of methods. Their argument is that different kinds of information about people and society are gathered most fully and economically in different ways, and that the problem under investigation properly dictates the methods of investigation (Trow, 1969; Holman, 1993; Baum, 1995; Silverman, 1997).

This Baum (1995) referred to a 'smorgasbord of methods', from which the researcher should choose, on the basis of which method is likely to produce the most comprehensive and valid answers. From this perspective there should be no argument about whether qualitative methods are better than quantitative methods. Silverman (1997) suggested: "There are no principled grounds to be either qualitative or quantitative in approach. It all depends on what you are trying to do" (p 14).

Therefore, it is inappropriate to see any particular method as the gold standard against which others are to be measured. Rather, mixed approaches to research are needed to investigate the range and complexity of the experience of consumers of healthcare and associated healthcare practice.

2.3.3 Methodological Choices

By tradition, researchers are expected to adopt an epistemological perspective, which enables organization of the research process. Once a theoretical perspective has been selected, the researcher is automatically bound by all its assumptions including its methodology (Mason, 1996). However, in contrast Reichardt & Cook (1979) believe that a researcher's paradigmatic viewpoint should be flexible and adaptive. Thus the researcher should adopt the theoretical perspective that is most appropriate for the particular study being undertaken.

Therefore, a common view is that the choice of research methods should be influenced by the demands of the research situation (Reichardt & Cook 1979). If the question concerns the experience and outcomes achieved by individuals participating in the study then a methodology that is bimodal in design, blending the qualitative and quantitative methods of research can provide complementary data sets that together can provide a more complete picture than using a single method. In addition the mixed-method approach allows findings to be corroborated or questioned by comparing the data produced by different methods, this can strengthen the comprehensiveness and the reliability and validity of the study (Chenail, 1997).

Nevertheless, there is ongoing dispute as to whether the two research methods are suitable to be used together given their philosophical differences. Some researchers believe that they should not be integrated because qualitative and quantitative research is based on two opposing and incommensurable paradigms (Dootson, 1995).
However, it could also be argued that what is required is a comprehensive, new epistemological position. Such an alternative position would hold that within a complex and differential reality we need different and various types of knowledge. Knowledge gained from qualitative and quantitative approaches should not be seen as irreconcilable pools of knowledge, but as different positions on a continuum of knowledge (Foss & Bodil, 2002).

This dichotomous way of viewing the two approaches should be replaced by a continuum of discussion and use of both qualitative and quantitative research methods. Sells et al., (1995) argue that the two approaches can build on each other offering information that neither one alone could provide. Within contemporary research, increasingly, there is the purposeful and logical development of an integrated perspective that combines elements of the thinking and action processes from both the naturalistic and experimental-type continua at each step of a research project. Such integrated studies transcend the paradigm debate and enhance scientific inquiry (Depoy & Gitlin, 1994).

Such a perspective has been adopted within the present study where an integrative approach has been utilised incorporating both quantitative and qualitative approaches to address the research questions. To facilitate the integration of these approaches and

allow convergence of data between methods triangulation has been utilised, this will be further discussed in Section 2.3.7.

Quantitative approaches have been utilised to collect objective data regarding stress, self-esteem and quality of life before and after the intervention. This allowed measurement of these factors before and after the intervention and facilitated comparison not only between both groups. For stress and self-esteem further comparison could be made with the general population and for QoL comparison with other group of ill patients. Such data is useful to provide a comparative contextual and changing perspective of the impact of the intervention on the participants in relation to previous norms and other populations.

The qualitative approaches capture the experience, thoughts, feelings, and attitudes of participants before and after the intervention. In addition the individual perspective on stress, quality of life, and self-esteem is further explored to provide a wider and more personal view of these concepts. The quantitative and quantitative data is converged within the analysis and the numerical scores are contrasted with participants' reports of their experience.

2.3.4 Quantitative Methods

Quantitative research, by definition, deals with quantities and relationships between attributes: it involves collection and analysis of highly structured data in the positivist tradition (Bowling, 2002). This positivistic tradition is based on a position, which emphasises phenomenalism, the aspect of experience as the basis of valid knowledge (Murphy et al., 1998). Seale & Barnard (1998) note the following assumptions within this tradition:

- Everything occurring in nature can be predicted according to reproducible laws.
- Reality is tested by posing hypotheses that reflect anticipated answers to questions about cause and effect relationships.

- The activity of investigating is perceived not to influence what the researcher is investigating.

The quantitative method therefore searches for quantifiable or measurable data (Duffy, 1987). Within this the researcher remains detached from the facts to prevent bias, and attempts to control the events by isolating variables and implementing controls. The method often involves reducing the subject under investigation into parts, believing that learning about the parts will reveal facts about the whole (Haase & Myers, 1988). According to Resch & Ernst (1996) quantitative research aims at hypothesis testing and typically at evaluating the efficacy, safety and cost effectiveness of diagnosis and therapy. In addition quantitative approaches give a broad, general view of the surface and seek explanation aimed at generalization (Foss & Bodil, 2002).

In the debate between nomothetic and ideographic ways of understanding Frankel (1995) contends, "virtually every field of intellectual endeavour has struggled with the tension between the general and the unique". He comments that "no matter how statistically powerful a nomothetic [quantitative] finding, it can never definitively predict the experience and action of the individual person [qualitative research]" (p.116).

The weaknesses of quantitative research designs lie mainly in their failure to ascertain individual underlying meanings and explanations (Chenaii, 1997). The argument used is that quantitative methods measure human behaviour "from outside", without accessing the meanings that individuals give to their behaviour (Jones, 1997). However, this will only be a weakness if the approach is used in isolation. The particular strengths of quantitative research design is that it allows flexibility in the treatment of data, in terms of comparative analyses, statistical analyses, and repeatability of data collection in order to verify reliability.

2.3.5 Qualitative Methods

The proponents of qualitative research claim that it offers a post-modern and post-positivist view more in keeping with prevailing social attitudes and changing health

beliefs. It is also claimed that such research methods are able to capture the voices of many and provide what Geertz (1973) called a "thick description" of everyday life. However, Denzin & Lincoln (1994) suggested that "objective reality can never be captured", and to assume that even with binocular vision one can "have" all the information, or even "know" what is true is a dangerous positivistic position (p. 2).

The various characteristics of the qualitative paradigm are highlighted by Reichardt & Cook (1979) who suggested that it is grounded, exploratory, expansionist, descriptive, inductive, process-oriented and ungeneralizable. Therefore, in context qualitative methods describe and interpret what is actually happening from the perspective of the individual (Duffy, 1987). The researcher is concerned with the dynamic nature of reality and attempts to achieve a holistic view of what is occurring, including subjective data. The researcher is flexible utilising whatever techniques represent a picture of what is actually happening (Duffy, 1987; Haase & Myers, 1988). The subjective data generated from this approach captures personal experience that is often characterised as being anecdotal, ungeneralisable, and a poor basis for making scientific decision. However, it can be a more powerful persuader than scientific publication in changing clinical practice (Atkinson, 1995; Greer, 1988; Greer, 1994).

The strengths of Qualitative methodologies lay in those areas that have been identified as potential weaknesses within the quantitative approach, for example, the use of interviews to provide a deep knowledge about a particular phenomenon, and the appropriateness to investigate cognitive and affective aspects of experience (Jones, 1997). This depth allows the researcher to achieve "Verstehen", or empathetic "understanding". The concept of Verstehen is the basis of a critique of quantitative research designs, and their empiricist emphasis (Miles & Huberman, 1994).

The qualitative method may be viewed as a vehicle for studying the empirical world from the perspective of the subject, not the researcher. This approach is anchored theoretically in phenomenology, 'the major goal being to document and interpret, as fully as possible, the whole of what is being studied from the frame of reference of the subjects involved' (Porter, 1989) (p130). Its focus is on the worldview including the values, meanings, beliefs, thoughts, feelings and general characteristics of the specific phenomena under investigation, with no attempt made to control or manipulate the

events of the individual being studied (Benoliel, 1984; Leininger, 1985). In relation to the contribution of qualitative research to healthcare, Holman (1993) contended, "True understanding in medicine cannot be achieved without adding qualitative approaches to the research arsenal" (p, 35).

2.3.6 Integrated Approaches

An "integrated" approach has become increasingly recommended for health and human service research. The intent of integration is to strengthen a study by selecting and combining designs and methods from both paradigms so that one complements the other to benefit or contribute to an understanding of the whole. Depoy & Gitlin (1994) argued that these methodological strategies would enhance the efforts of researcher in their description and conceptualisation of the multifaceted complexity of the human response to illness and various health care situations. Furthermore, McKinley (1993) described qualitative and quantitative methods as "mutually enriching partners in a common enterprise" (p. 113). In addition, within health care research resources are unlikely to be committed to projects without intention to provide an analysis of how many people are likely to benefit.

Myers & Haase (1989) propose four guidelines for integrating qualitative and quantitative approaches. The first guideline specifies that the world should be viewed as a whole, an interactive system with patterns of information exchange between subsystems or levels of reality. The second asserts that both subjective and objective data should be recognized as legitimate avenues for gaining understanding. The third rule calls for both atomistic and holistic thinking to be used in design and analysis. The final guideline is that research participants should include, not only those who are the subjects of the methodology, but also, those who administer or operate the methodology.

Thus the extent to which quantitative and qualitative paradigms can be combined is the focus of much debate among researchers; however, there is a growing movement on both sides of the research continua to at least recognize the strengths and values of the other. Experimental methodologists are beginning to recognize that naturalistic inquiry represents a legitimate and logical alternative research strategy. In contrast,

qualitative researchers are giving greater attention to standardization of analysis and procedures and to the complementary role of experimental-type designs (Depoy & Gitlin, 1994).

The research question in the present study seeks to find information that is partly numerical and partly experiential. The investigation set out to explore phenomena about which little is known at the present time. Both research methods, therefore, were considered to be appropriate although neither one alone would provide all the information required. To answer the question the combination of quantitative and qualitative methodologies was appropriate.

2.3.7 Triangulation

The increasing emphasis on combining qualitative and quantitative methods in a single study is a practice often referred to as triangulation (Goodwin & Goodwin, 1984; Tripp-Reimer, 1985; Dzurec & Abraham, 1986; Mitchell, 1986; Knafl & Breitmayer, 1989; Murphy, 1989; Packard & Polifroni, 1991).

Kimchi et al., (1991) defined methodological triangulation as: the use of two or more research methods in one study, which may occur at the level of design or data collection' (p. 365). The fundamental purpose of such an approach is to confirm results and conclusions (Kanfl & Breitmayer, 1989). In addition, Polit & Hungler (1991) contended that it provides a basis for convergence on the truth, and Denzin, (1978) suggested that methodological triangulation was developed to depict more accurately the phenomenon being investigated. The crucial factor in the concept is that triangulation attempts to overcome the deficiencies inherent in single method, single researcher studies, by the use of multiple methods which counterbalance each other, so overcoming threats to the validity of findings (Campbell & Fiske 1959; Denzin, 1978; Hammersley & Atkinson, 1983).

A further perspective is provided by Morse (1991) who contended that if methodological triangulation is being considered its use should be to improve the rigour and validity of the study, not purely as a means of demonstrating the researcher's ability to adopt more than one philosophical perspective. In addition the

epistemology of triangulation should not be seen as a mix of two different epistemological positions but rather as an epistemological position in its own right (Foss & Bodil, 2002).

Triangulation usually means that researchers use different sets of data, different types of analyses, different researchers, and/or different theoretical perspectives to study one particular phenomenon. Such different points of view are then studied to help situate the phenomenon and locate it for the researcher and reader alike. The researchers' point of view, guiding the triangulation of the phenomenon tells us as much about the philosophical "location" of the researchers themselves as it does about the phenomenon itself (Denzin, 1978).

2.3.8 Types of Triangulation

The four types of triangulation proposed by Denzin (1978) focus on either the data, the investigator, the theory or the methods. Methodological triangulation can refer to either data collection methods or research designs (Lincoln & Guba, 1985). A between methods approach has been utilised in the present study.

Two classifications are identified within methodological triangulation these are either, within-methods or between-methods (Denzin, 1978); these two approaches are described by Kimchi et al., (1991). The within-method approach is the combination of two or more similar data collection approaches in the same study to measure the same variable and the between-methods as the use of a qualitative measurement approach and a quantitative data collection approach in one study to measure the same unit. In the within-methods approach the methods used would be quantitative or qualitative but not both. Whereas, in the between methods approach researchers would utilise both qualitative and quantitative methods (Denzin, 1978; Kimichi, 1991; Mitchell, 1986). The between-methods triangulation is the most popular use of triangulation offering a greater chance of obtaining valid results through combining quantitative and qualitative approaches in the examination of one concept or variable (Jick, 1979).

2.3.9 Use of Triangulation

According to Rossman & Wilson (1985) three researcher stances may be identified relative to triangulation: purist, situationalist and pragmatist. The purists focus on the paradigm level and hold that qualitative and quantitative approaches are derived from different mutually exclusive epistemological and ontological assumptions about the nature of research and society. They assert that triangulation violates the philosophy, goals, and purposes of different methods from different paradigms. From the purist view triangulation is seen as a defensive research because it is performed to "see what happens", avoid conflicts, satisfy potential critics and compensate for anticipated shortcomings (Leininger, 1992).

Situationalists focus on research methods and maintain that both approaches have value but that each method is most appropriate for specific situations. Thus situationalists will use both methods, but usually in a parallel manner or in different phases of a research project, with little integration of the procedures or findings. The situation dictates what method will be used and when (Rossman & Wilson, 1985).

Pragmatists argue for the integration of methods in a single study. They advocate use of all available techniques to answer questions of a substantive importance and view triangulation not as an end in itself but as a vehicle that can lead to richer and more insightful analysis of complex phenomena (Rossman and Wilson, 1985). The increasing number of studies using triangulation method suggests that more researchers see triangulation as pragmatic, as is the case in the present study.

The main challenges and problems for researchers using triangulation relate to complexity. A range of issues may be identified including: the resource intensiveness of utilising quantitative and qualitative methods, requiring time, money and investigator knowledge and skill (Duffy, 1987; Mitchell, 1986). Some of the issues faced by the researcher include: how to combine numeric and textual data, how to interpret inconsistent and contradictory findings, what to do with overlapping concepts that are not differentiated, dealing with vast amounts of data, whether to weight each method as equally sensitive (Mathieson, 1988).

The present study has been developed from a pragmatic perspective in relation to the methods utilised. Those selected have been identified as appropriate to address the research questions. The between methods approach to triangulation has been chosen as the most appropriate approach. It has the advantages of incorporating the qualitative and quantitative techniques and this is considered to outweigh any of the disadvantages of triangulation. Those disadvantages reported in the literature were considered either as not relevant to the present study or as surmountable within the research process. In relation to the issues of time, resources, and expertise to undertake the qualitative and quantitative methods, these have been available within the time frame. The expertise has been acquired during the study, through related study, supervision and ongoing academic and research skill development.

Aligning the themes in the research questions with the Structured Self reports and the themes from the semi-structured interviews has assisted the combining of numeric and textual data. Considerations of the analytical challenges are discussed within Chapter 3, Data Analysis and the Discussion Chapter 4.

2.4 Trustworthiness

It is essential that researchers are able to demonstrate that the conclusions they have drawn from their research are authentic and trustworthy (Lincoln & Guba, 1985; Denzin & Lincoln, 1998). Trustworthiness is the term used by qualitative researchers to demonstrate rigor. According to Lincoln and Guba (1985) there are four criteria which include credibility, transferability, dependability and confirmability.

2.4.1 Credibility

Credibility includes activities that increase the probability that credible findings will be produced (Lincoln & Guba, 1985). According to Holloway & Wheeler (1996), to establish credibility in a study, researchers must ensure that those participating in research are identified and described accurately. It also is suggested that several actions improve credibility these are: prolonged involvement, persistent observation, triangulation, peer debriefing, member checks and the incorporation of Triangulation (Guba & Lincoln, 1985; Robson, 1993). The present study included a longitudinal

element which provided the opportunity for prolonged involvement, widening the scope of the study over the 2 phases of the study, facilitating further consideration and exploration of the experiences and personal constructs of participants as they change or remain the same over time.

In the present study between methods triangulation has been utilised. This is the most popular use of triangulation offering a greater chance of obtaining valid results through combining quantitative and qualitative approaches in the examination of personal concepts or variables (Jick, 1979). The approach is fully discussed in Section 3.7.2. In addition this approach has facilitated the construction of "thick descriptions" of the participants (Miles & Huberman, 1994), which enhances the credibility of the study.

2.4.2 Transferability

Transferability or fittingness refers to how study findings can be generalised or transferred from a representative sample of a population to other groups or settings (Robson, 1993; Lincoln & Guba, 1985) This criterion relates more to sampling and design and the researcher's responsibility to provide sufficient descriptive data in the research report for it to be evaluated in relation to other contexts rather than to the soundness of the data (Lincoln & Guba, 1985). Furthermore, thick description facilitates thorough description of the research setting and the transactions and processes of the inquiry (Polit, Beck & Hungler, 2001).

Quantitative research (Robson, 1993) is undertaken within certain rules concerning statistical inference. However, for qualitative research this is inappropriate because the process of sampling is quite different. This difference may be described in terms of purpose, as in quantitative research; the importance is to find out the distribution of phenomena in a population. In qualitative research the purpose is to try and understand phenomenon, which may not be distributed evenly in a population (Field & Morse, 1985). The conclusions drawn from qualitative research may have theoretical validity if they can be used to develop a theoretical framework emerging from the study (Miles & Huberman, 1994, Denzin & Lincoln, 1998).

Fittingness may be demonstrated if the findings of the study are congruent with the existing theory or if these findings can be replicated in other similar studies.
Further, whether the findings fit in or are transferable rests with the potential users of the findings not only the researcher (Lincoln & Guba, 1985; Streubert & Carpenter, 1999).

In the present study triangulation was utilised to provide sufficient descriptive data to explore the distribution of the phenomena in the population. The processes and conduct of the study have been clearly articulated to facilitate replication of the study within another setting or for another client group.

2.4.3 Dependability

Dependability is analogous to reliability and refers to the dependability of the results (Streubert & Carpenter, 1999) there can be no dependability unless credibility is established (Lincoln & Guba, 1985) demonstration of the former is sufficient to establish the latter. Therefore dependability is concerned with the stability of the data over time (Guba & Lincoln, 1989). Clarity within the research questions and the theoretical paradigm that underpins the study is also a characteristic of dependable studies (Miles &Huberman, 1984).

Within the present study the research question have been clearly articulated in detail. The location of the researcher within the theoretical paradigm has been discussed in relation to methodological choices within the research design. The longitudinal approach to the study helps answer the research questions and through this demonstrates stability of the research methods to generate appropriate data within the 2 phases of the study. Utilisation of triangulation provides a longitudinal comparative convergence within 2 different sets of data from the two groups of study participants.

2.4.4 Confirmability

The fourth alternative for achieving trustworthiness in a qualitative research study concerns the notion of confirmability. This criterion relates to the objectivity or neutrality of the data. Guba & Lincoln (1989) point out that confirmability means that

the data are linked to their sources for the reader to establish that the conclusions and interpretations arise directly from them.

The present study has been designed to be objective and neutral in relation to its conduct and to be free from unacknowledged biases (Miles & Huberman, 1994). Use of Triangulation has helped demonstrate confirmability within the present study. The approaches used to minimise potential for bias are discussed in relation to the methods and conduct of the study. The data displays are sufficiently detailed for assessment by the reader to enable agreement with analysis and interpretation of results. Detailed records of the two phases of the study or an "audit trail" have been kept to enable peer review of data collection and analysis, should it be required.

2.5 Sampling Strategy

A Purposive sample was obtained from each of the two groups, which make up the study. The participants in each group had self selected either the yoga or exercise option. In relation to Purposeful sampling Lincoln & Guba (1985) and Patton (1990) contend that what the term purposeful denotes is a commitment to observing and interviewing people who have had experience with the culture or phenomena of interest. The researcher focuses on developing rich or dense descriptions of the culture or phenomenon which accentuates specific information, rather than using a sampling technique that support generalizability of the findings (Streubert & Carpenter, 1999).

This sampling strategy was selected as one appropriate to sample individuals pursuing their preferred choice of programme in accordance with their own beliefs and values and reflects the philosophy underpinning a naturalistic inquiry enabling observation of naturally occurring life choices. In such an approach the researcher does not influence or manipulate such choices but observes and records them as they occur within the particular context.

The sample size in qualitative research should be determined on the basis of informational needs. A guiding principle in sampling is data saturation or sampling to the point at which no new information is obtained and redundancy is achieved.

Redundancy can be achieved with a fairly small number of cases, if the information from each is of sufficient depth (Polit, Beck & Hungler, 2001).

Morse (1991) provides a further perspective stating that the sampling plan can be evaluated in terms of its adequacy and appropriateness. In this context adequacy refers to the sufficiency and quality of the data the sample yielded. For a sample to be considered adequate it should provide data without any "thin" spots. When data saturation has been achieved with a sample, informational adequacy has been achieved, and the resulting description or theory is richly textured and complete (Morse, 1991).

In the present study sufficient data of good quality was collected from the group participants and informational adequacy was achieved in respect of the research questions. The descriptions provided by participants capture their feelings, experiences and achievements providing appropriate perspectives for exploration, discussion, and comparison across the two groups.

2.6 Self-Report Methods

Both structured quantitative and semi-structured qualitative self-report methods were employed within the present study. The self-report approach consists of a range of techniques that vary in the degree of structure imposed. At one extreme are loosely structured methods that do not involve a formal written set of questions. At the other extreme are tightly structured methods involving the use of formal documents such as questionnaires.

Questionnaires are economical in that they can supply a considerable amount of research data and supply standard answers from all respondents posed with exactly the same question. In addition the use of pre-coded answers may be helpful to the respondents (Denscombe, 1998). Other advantages of questionnaires relate to, ease of administration, low cost and low time consumption. They offer complete anonymity that may be important in obtaining information about sensitive characteristics. The absence of an interviewer ensures there will be no bias reflecting the respondent's reaction to the interviewer rather than to the questions themselves (Polit, Beck &

Hungler, 2001).

According to Dencombe (1998) some of the disadvantages associated with the use of questionnaires include: poor response rate: respondent frustration with pre-coded answers which may preclude them from answering: pre-coded answers may bias findings toward the researchers rather than the respondents way of seeing things: use of postal questionnaires provides little opportunity for the researcher to check the truthfulness of the respondents answers.

Within the present study the response rate was very good and the majority of questionnaires were returned personally to the researcher, a few were returned by post and only a small number were not returned.

2.7 Validity and Reliability

The validity and reliability of the structured quantitative instruments utilised in the present study are discussed in relation to the respective instruments in Sections 2.7.3. 2.7.5 and 2.7.7

2.7.1 Structured Quantitative Instruments

Within the literature relating to CHD the individual challenges in relation to living with this disease are clearly stated. Some key measures are stress levels, feelings of competence, and quality of life. The standardised Questionnaires selected to assess these were as follows:

2.7.2 Perceived Stress Scale

The Perceived Stress Scale (PSS-14) was designed by Cohen et al., (1983) to measure the degree to which situations in an individual's life are appraised as stressful. The 14 items refer to subjective appraisals of events occurring within a one-month time frame. The scale can be self-administered and full instructions are printed on the form. It can also be presented as an interview, including telephone interview. It takes five to ten minutes to complete.

Items are scored from 0 to 4, with items 4, 5, 6, 7, 9, 10 and 13 scored in the reverse direction (0=4, 1=3, 2=2, 3=1, 4=0) and summed with the other negatively worded items. Scores can range from 0 to 56 (PSS-14). High scores indicate more perceived stress. The mean scores, standard deviations and score ranges for the PSS-14, PSS-10 and PSS-4 in a stratified random sample of 2,387 people interviewed by telephone (Cohen & Williamson, 1988) mean score 19.62, SD (7.49). The authors suggest no specific categories or cut-offs. See Appendix 1 for the Perceived Stress Scale.

2.7.3 Validity and Reliability of the Perceived Stress Scale

The internal consistency, as assessed by Cronbach's alpha, was 0.84, in the sample tested by Cohen et al., (1983) and 0.75 for the PSS-14. Since perceived stress is affected both by daily hassles and by the availability of coping resources, test-retest reliability should only be high over short time interval. Over two days test-retest reliability as assessed in college students was 0.85, while over six weeks it was 0.55.

Evidence of concurrent validity is found in studies of college students where there were modest correlations (0.17 to 0.39) with 'number of life events' and slightly greater correlations (0.24 to 0.49) with 'impact of life events' (Cohen et al., 1983). They also showed that the PSS-14 had predictive validity, as it was a better predictor of future physical symptomatology (range 0.52 to 0.70) than life event measures in studies of college students.

In the 1988 general population study (Cohen et al., 1983), the scale was validated using factor analysis that indicated two factors, representing positively and negatively worded items, explaining 42 per cent of the variance in the PSS-14.

2.7.4 Adult Self-Perception Profile

The aim of using this instrument was to measure individual global self worth including measurement of perceived competencies within different domains. The instrument was devised to reflect the complexity of a multi- dimensional adult self-concept. This scale allows for the examination of an individual's profile of perceived competencies across different domains including a measure of global self-worth. In

addition it includes assessment of the importance of these domains for the individual (Messer & Harter, 1986).

Interest in the self as a psychological construct, remains of considerable interest within psychology. Increasingly, concepts such as self-esteem, self-image, and perceived competence are becoming central to a variety of formulations emerging from personality theory, social learning theory, social cognition, and theories of intrinsic motivation (Messer & Harter, 1986). At the more applied level, Messer & Harter suggest that the issue of assessing as well as enhancing a person's self-esteem is critical to diagnosticians, therapists, and counsellors.

While most theorists recognize that the self-concept is multidimensional, the previously available measures according to Messer & Harter did not adequately capture this complexity. Therefore, they devised the Adult Self-Perception Profile in response to the need for a psychometrically sound instrument that adequately reflected the complexity of a multidimensional adult self-concept. This new instrument was based on Harter's theoretical conceptualisation of the self-concept (1982,1983,1984, 1985,1986a, 1986b).

In addition to enhancing theoretical understanding of the dimensions of the self, Messer & Harter designed the new scale to meet several needs at the applied level:

- At the level of the individual adult, the scale has diagnostic utility and can be included in a battery of tests employed for clinical assessment. Its face validity enhances its credibility with clients and can be helpful in enabling them to identify dimensions of their lives that are problematic.
- The scale can also be employed as a measure of change during treatment.

Messer and Harter argue that existing measures did not adequately reflect the multidimensionality of the self-concept. Many measures are uni-dimensional; a wide range of items are tapped and then summed for a total score. This method ignores specific item content and assumes that all items have equal weight or importance. In contrast, since it is unlikely that one feels equally adequate in all domains of one`s life, the Adult Self-Perception Scale allows for the examination of an individual`s

profile of perceived competencies across different domains.

In seeking to measure global self-worth Messer& Harter considered it essential to determine how much the individual likes him or herself as a person, in addition to judgments of competence of adequacy in specific domains. They felt it important to have the domain global self worth measured by an independent set of items specifically inquiring about how much the individual likes himself or herself as a person. It is not the sum or aggregate of the specific domains. By measuring global self-worth independently of competence/adequacy judgments Messer and Harter believed that this would address the relationship between overall feelings of self-worth and domain-specific self-perceptions. Earlier work (Harter, 1986) suggested that this relationship is mediated by the importance or the salience of the specific domains. Messer and Harter's framework builds upon the formulation of William James (1892) who postulated that one's overall self-esteem represented the ratio of one's successes to one's pretensions. That is, if the individual is successful in domains deemed important, the individual will possess high self-esteem. Conversely, if the individual is not successful in areas where one aspires to be competent, the result will be low self-esteem.

Their fourth goal was to assess the importance of success for each domain, in order to examine the discrepancy or congruence between individual competence judgments and the importance the individual attaches to success in each domain. They anticipated a profile of different competence scores; therefore it was plausible to assume that not all domains would be viewed as equally important. The relationship between the individual's hierarchy of competence judgments and the individual's hierarchy of importance ratings should be predictive of global self-worth. Calculating a discrepancy score, indicating the difference between individual competence judgments and individual importance ratings, captures this relationship. Smaller discrepancy scores, reflecting the congruence of individual competencies with individual standards, were predicted to be associated with higher general self-worth scores. In contrast, large discrepancy scores, resulting when a person's perceptions of competence were lower than one's ratings of the importance of the particular domain, should be associated with a lower general self-worth score.

An Importance Rating scale was therefore developed in order to assess the salience or importance of success of each of the eleven specific domains for the individual. The individual's competence score can be subtracted from the importance rating to obtain a discrepancy score (Messer & Harter, 1986).

The rationale for subtracting the competence from the importance rating can be derived directly from James (1892) who indicated that it is only successes in the domains considered very important that should have an overall influence on individual sense of self-worth or esteem.

The scale consists of 50 items. Each of the eleven subscales contains four items, plus the global self-worth scale that contains 6 items. Within each subscale half of the items are worded such that the first part of the statement reflects high competence or adequacy and the other half are worded such that the first part of the statement reflects low competence or adequacy (Messer & Harter, 1986). The actual questionnaire entitled "What I Am Like", is available in Appendix 2.

2.7.5 Validity and Reliability of the Self Perception Profile

The scale was administered to 141 parents ranging from 30-50 years of age and 215 mothers with an average age of 22years. The internal consistency reliabilities for all twelve subscales were collated. The reliabilities based on Cronbach's alpha were acceptable (Messer &Harter, 1986).

The two samples to which the scale had been administered were 2 sets of parents: Sample A of male and female parents and Sample B of female parents only. For Sample A, the Adequate Provider scale had the lowest reliability. The coefficient was high for the full-time working women (.90) and the full time working men (.83). The part-time working women (O.57) and full time home makers (.06) greatly attenuated the overall correlation. Many part-time and full time home makers apparently do not view themselves as providers and were confused as to how to answer these items. For these subgroups it may not be appropriate to interpret the Adequate Provider scale. For Sample B reliability was adequate, suggesting that the results for this particular subscale may be sample specific (Messer& Harter, 1986).

2.7.6 Schedule for the Evaluation of Individual Quality of Life (SEIQoL)

The aim of using this instrument was to measure individual QoL, using domains nominated by the individual, at the beginning of the yoga and exercise programmes and at 1 year.

The SEIQoL was devised from the technique of judgement analysis to measure patient's level of functioning in five self -nominated facets of life and the relative weight or importance attached to these areas (O'Boyle et al., 1993). This Questionnaire is administered during interview following the procedures recommended. The Interview documentation may be seen in Appendix 3.

The SEIQoL is based on a phenomenological approach to the measurement of quality of life, in which the terms of reference are determined entirely by the individual. It may therefore be used for measuring the QoL of healthy individuals and should be free from cultural bias, although this has not yet been investigated empirically. It may be used with a variety of patient groups but its applicability may be limited in illnesses that impair cognitive functioning or motivational state. Successful completion of the SEIQoL requires, inter alia, insight into the factors which determine one's QoL, the ability to think abstractly, the ability to make judgments based on information presented in diagrammatic form, and the ability to provide ratings using vertical and horizontal visual analogue scales (O'Boyle, 1993).

The first stage of assessment using SEIQoL requires each individual to nominate, in a semi-structured interview, the five domains most relevant to his/her QoL. He or she then assesses current levels of functioning by rating each domain on a 0-100 vertical scale anchored at the two extremes, by the terms 'best possible' and 'worst possible'. These anchors are designed to allow individuals to use their own criteria when assessing their QoL within each domain. Finally, the relative importance of each domain for the QoL of the individual is quantified. This is achieved through judgment analysis, a technique derived from social judgment theory that quantifies the weight that various factors contribute to an overall judgment (Browne et al., 1994).

Judgment analysis within the SEIQol requires each individual to rate 30 hypothetical QoL scenarios based on the domains they have nominated. Each QoL scenario consists of five vertical bars (representing the five domains nominated) anchored from 'best possible' to 'worst possible' at the extremes. The bar levels vary from scenario to scenario to provide the maximum number of QoL permutations to be judged. Judgments are made on a visual analogue scale anchored by 'the worst life imaginable' and 'the best life imaginable' at the two extremes. These judgments are then modelled by Policy PC software using multiple regression analysis to produce weights summing to 1.0, which represent the relative importance of each domain to the individual's overall QoL (Browne et al., 1994).

2.7.7 Validity and Reliability of the (SEIQoL)

SEIQoL has been utilised with respondents ranging in age from early twenties to early nineties and has been used to assess quality of life in hip replacement patients, (O'Boyle et al., 1992) the elderly, (Browne et al., 1994) dementia patients, (Coen et al., 1993) and sufferers of irritable bowel syndrome (McGee et al., 1998). Content and construct validity together with reliability of cue elicitation, cue levels and judgement analysis of weights have been systematically determined through its use in the above studies. In a study of quality of life of the healthy elderly (Browne et al., 1994) the mean internal reliability and internal validity scores compared favourably with the performance of the younger adult sample. Full details of the validity and reliability of this measure have been included in Appendix 3.

2.8 Semi-Structured Qualitative Interviews

2.8.1 Interviews

Semi-structured interviews were used to obtain in depth information on the individual's adaptation to CHD, and the perceived support offered by the two programmes in this process. Interviews are one of the most commonly recognized forms of qualitative research methods.

In direct contrast to the structured self-report, semi-structured or loosely structured self-report methods offer more flexibility. The researcher does not have a set of questions but has some general questions or topics and allows the participants to tell their stories in a naturalistic narrative fashion. Such semi-structured self-reports, usually obtained in interviews, tend to be conversational in nature (Polit, Beck & Hungler, 2001).

When the researcher knows the focus of interest, the semi-structured interview ensures that the researcher will obtain all information required, while at the same time permitting the participant freedom of responses and description to illustrate concepts (Morse & Field, 1996).

Mason (1996) highlights the characteristics of qualitative interviewing which include their relatively informal style, conversational in nature and their thematic, topic centred, biographical or narrative approach, where the researcher has a range of themes, topics or issues to cover. The underlying assumption being that data are generated via the interaction because the interviewees are the data sources.

Some of the weaknesses associated with self-reports relate to issues such as the question of the validity and accuracy of self-reports. The researcher cannot be certain that respondents feel or act the way they say they do. In addition, the trustworthiness of the information provided by respondents may be questionable particularly if the questions could potentially require them to admit to undesirable traits (Polit, Beck & Hungler, 2001).

In the present study repeating the interviews allows some of the original information to be confirmed, as the same questions are asked at a different point in time. The data within the present study reflects this and participants in many cases reiterate aspects of their original thoughts and perceptions at the second interview. In addition the commentaries relating to stress, self-esteem and QoL were converged with the quantitative measures at Time 1 & Time 2 and this further validates what participants have said about their experience. These findings are discussed in the Data Analysis, Chapter 3.

2.8.2 Development of Semi-Structured Interview

It can be argued that following traumatic events such as illness, people go through a process of adaptation which creates their own personal realities, impacts on their motivation to make lifestyle changes and guides the interpretation and reinterpretation of negative experiences (Bandura, 1986; Frenn, 1989; Fleury, 1991).

In the present study in order to access such realities, which include beliefs and values and personal experiences of adaptation, semi-structured interviews were used. The categories of questions included in the semi-structured interviews were developed from reviewing the literature relating to lifestyle changes in CHD and in part from the process of life-style change following a cardiac event suggested by Frenn et al., (1989).

A sequential process of lifestyle change was suggested by Frenn et al., (1989) which included:

- health event
- precipitants to change (health protection, health promotion)
- forces influencing change (CR programme, family, friends, self perceptions, barriers and benefits, lifestyle experiences)
- re-patterning lifestyle (changing beliefs, attitudes, anticipating changes)
- changed behaviours

The questions in the semi-structured interview were developed from the above sequence of events that provided a systematic and standardised framework in which to capture individual perceptions in relation to each of the events.

2.8.3 Interview Guides

The semi-structured interview guide utilised at Time 1 was constructed to facilitate individual accounts of their experience of having CHD and perceived adaptation including:

- lifestyle in advance of the cardiac event in relation to experience of stress or important life events
- the nature of the cardiac incident
- the self changes, self image and lifestyle changes made
- the support of family and friends
- the reasons for choosing either yoga or exercise
- what they liked about yoga or exercise
- what they hope to achieve through participation in their chosen intervention
- perception of overall quality of life and personal control

The semi-structured interview guide utilised at Time 2 included questions in the following categories:

- maintenance of self changes, self image and lifestyle changes
- experience of attending either the yoga or exercise programme
- perceived benefits and achievements or otherwise derived from participation,
- perception of overall quality of life and personal control

The Semi-Structured Interview Guides 1 and 2 may be seen in Appendix 4.

Within the semi-structured interviews a series of predetermined questions are used however, the interviewer may change or modify the questions, add additional, ones or change the order and use prompts to pursue issues or meanings related to the questions. Thus, topics of particular interest may be followed through. Open-ended questions facilitate exploration of issues from the participants' perspective. This type of interview is useful to help participants respond naturally but provides a useful structure to focus the interview and allow comparison between individuals and groups. Semi-structured interviews are used for exploration rather than prediction and the findings are only applicable to the immediate population (Robson, 1993; Holloway & Wheeler, 1998; Seale & Burnard, 1998).

2.9 Method

2.9.1 Introduction

In this section the method employed in each of the 2 parts of the study is discussed. This includes details of the study site, ethical approval, sampling, ethical considerations, yoga and exercise interventions, trustworthiness and data analysis.

2.9.2. Study Site

The study was conducted in a cardiac rehabilitation centre sited in an NHS Community Trust hospital. The client group attended the CR programme as outpatients referred either by the hospital, the cardiac rehabilitation nurses who conducted ward visits, to patients post-myocardial infarction, or by GP or self referral. The CR programme consisted of one weekly session of 3 hours for 6 weeks, followed by an optional continuing programme for "graduates" of the 6-week CR programme. The six-week rolling CR programme included a graded exercise session each week with blood pressure and pulse monitoring before and after the session. This was followed by a session on each of the following 6 topics: Healthy Heart, Diet, Sexual Guidance, Stress, Drug, and Exercise management. Each week a relaxation session was provided in the last half-hour.

On completion of the 6 week programme a continuing programme offered a range of options to choose from including: gymnasium based exercise programme (12 weeks) supported by CR staff, a heart support group (social and interest activities), a "Look after Yourself", programme, Yoga and Meditation programmes. In addition, massage based complementary therapies were available on an individual basis. The exercise and yoga interventions in the continuing programme provided the context for the present study.

2.9.3 Access to Rehabilitation Centre

The Clinical Manager and staff of the centre enthusiastically welcomed and supported the research proposal. A fully qualified yoga teacher agreed to provide the yoga sessions and in collaboration with the yoga teacher the plans for the yoga intervention to be included in the continuing rehabilitation were developed. See section 2.9.11.

2.9.4 Ethical Approval

The NHS Community Trust ethical committee and University Ethics Committee reviewed and approved the research proposal. Ethical considerations are discussed in Section 2.9.8.

2.9.5 Sample

A Purposive sample was obtained from each of the two groups, which make up the study. The participants in each group had self selected either the yoga or exercise option.

2.9.6 Sample Recruitment

The different proportions of men and women reflected the number opting for the two programmes. The two groups consisted of individuals who had coronary heart disease; participants manifested various conditions with different degrees of severity. The age ranged from 48 to 84 yrs. The mean age in the exercise group was 65.7 and SD (8.56) and in the yoga group the mean was 61.7 and SD (7.02).

At the outset of the study the numbers in each group of participants was as follows: 35 participants entered the exercise group (32 men and 3 women), and 25 participants entered the yoga group (11 men and 14 women).

Participants were recruited from new entrants to the well-established rolling exercise programme and all new yoga participants were offered the opportunity to take part in the study. This sampling strategy was successful at a practical level as it facilitated

ease of recruitment, monitoring & follow-up, good response rates, and reasonable retention of sample members in both groups.

2.9.7 Recruitment Procedures

The main recruitment was via CR centre staff who informed their clients about the study and provided an information sheet to any interested individuals. This generated considerable interest and as a result the researcher recruited potential participants at the end of classes in the gymnasium and yoga sessions.

The researcher in the CR centre saw each all potential participants personally and the purpose of the study was discussed. Those who were interested had recently commenced the yoga or exercise programmes, and who following discussion were prepared to commit to the study, were enrolled as participants.

Information about the study and the contribution required, together with assurances regarding confidentiality, were all provided to potential participants at the outset. See information sheet Appendix 5. They were also given time to take this information home to read and consider it more fully and to contact the researcher with any questions. This also provided opportunity to revise or consolidate their initial decision to participate.

Once a final decision to participate was made participants were seen again by the researcher to sign the documentation in respect of being informed about confidentiality, consent and data protection. This meeting also facilitated clarification of any outstanding issues with regard to their contribution to the project.

2.9.8 Ethical Considerations

Participants recruited to the study did so according to their own choice there was no persuasion or coercion to take part. They were fully informed about consent, confidentiality and data protection. See Appendix 6.

In the present study in accordance with (Polit Beck & Hungler, 2001) definition of informed consent participants were provided with adequate information about the research study and were capable of understanding that information. The information was provided in both written and verbal formats and verbal information was repeated. Additionally, participants had opportunity to clarify any questions arising regarding the research at any time during the study.

Participants were reminded that they had the power of free choice to consent voluntarily to participate or decline participation at any point in the study. Confidentiality was promised to participants in terms of a guarantee that any information provided would be safely stored, would not be publicly reported or made accessible to parties other than those involved in the research (Polit, Beck & Hungler, 2001). In addition, participants were assured of anonymity within final reporting of the study.

2.9.9 Continuing CR Programmes

All participants in the study undertook a Cardiac Rehabilitation programme in the same centre and on completion of this 6-week programme were then offered several options of continuing programmes, which they could undertake over a longer period. The exercise programme and Yoga programme are included within the options available.

2.9.10 The Yoga Programme

The approach to Yoga within this study is in accordance with that proposed by Agnew (2001) and Jones (2002), which encompasses seven activities that are progressively utilised and developed within the yoga programme. The activities are designed to

support all levels of ability and health, promoting exploration of the body and mind that include the following:

- Activation exercises

These gentle preliminary exercises are used to relax the body and enhance circulation, reducing body tension and fatigue, focusing the mind, and thus preparing the mind and body for participation in the yoga session.

- Energy Block Release Sequences

This set of exercises using the breath, soft body technique and visualisation provides a whole body warm up and tension release. The premise behind this systematic sequence of bodywork is to work on a number of levels unblocking and releasing physical and mental tensions held within the body, mind, and emotions.

- Movement Sequences

These sequences combining body movement, breath and visualisation, are designed to achieve heightened mind and body awareness whilst focusing on a body area or mental quality or perhaps an aspect of the natural environment. These provide further opportunity for moving individual attention "within", thus promoting reflection on the self.

- Therapeutic Posture Work

Yoga asanas (postures) combined with the breath and conscious intention provide a focus for further exploration of the mind and body.

- Deep Relaxation

Progressive Relaxation of the mind and body whilst lying down in Shavasana or corpse posture.

- Concentration and Visualisation

These techniques are used within all aspects of the yoga practice including bodywork, relaxation, and meditation to achieve a focused still and creative mind.

- Meditation

Sitting, walking or movement meditations are utilised to reduce internal agitations and discomforts and to achieve heightened awareness and clarity within the self (Agnew, 2001; Jones, 2002).

2.9.11 Yoga Classes

Two yoga classes were provided each week, one afternoon session and one evening session. This facilitated the widest range of attendance. Participants could attend either or both, however they generally attended one only on the same day each week. The classes were 1 hour 30 minutes in duration and were held in the relaxation room in the CR Centre. One yoga teacher provided the weekly sessions thus facilitating continuity for participants. The groups were of mixed ability in relation to age, health and general fitness.

To meet the varying needs of the group an individual approach was incorporated within the group to ensure that each person's programme was appropriate for them. Prior to commencing the yoga programme each participant provided the teacher with information regarding their health status, current problems in relation to CHD, musculo-skeletal and any other problem that needed to be taken into account during the classes. All participants were asked to bring any new problems they had to the teacher's attention prior to the classes. The approach utilised was non comparative or competitive and all participants were encouraged to only take part to a comfortable level. For those participants who could not take part in any component of the class, they were encouraged to breath, relax and visualise themselves taking part, thus no-one was left out and new strategies for participating were developed. In addition modifications to posture work were built in to accommodate individual needs, such as sitting in a chair instead of standing and then participating in part of the posture and visualising the rest.

2.9.12 The Gymnasium Exercise Programme

This included working out mainly on gymnasia equipment, such as treadmill and fixed exercise bike, use of weights and free exercise for warm up and cool down. An

individual programme was set for each individual in negotiation with the exercise physiologist and cardiac rehabilitation officers. Generally attendance was once per week, however participants could attend up to 3 times per week, as the gymnasium was open everyday. Each individual had an exercise stress test prior to commencing in the gymnasium and could have physiological parameters such as blood pressure and pulse monitored during their exercise session if they were concerned. Cardiac rehabilitation staff did not formally supervise the gym sessions but they were available if necessary. The sessions were mixed gender, however the number of women attending was minimal. After the cardiac rehabilitation programme a 12 weeks gymnasium based exercise programme was offered followed by a further 20 weeks, thereafter there was a transition to local gymnasia to maintain the exercise.

2.9.13 Procedure

The following sections detail the procedures within the present study surrounding the semi-structured interview, interviewing technique and data collection.

2.9.14 Questionnaires

The first set of questionnaires were issued directly to participants or sent out by post sent out with a letter confirming the agreed appointment date for interview that was planned to coincide with their attendance at their programme at the cardiac rehabilitation centre. On attendance at first interview further clarification on participants questions about the project was provided and thereafter-signed consent was received.

The consent of study participants was renegotiated by telephone in the second phase of the study to ensure that participants were happy to continue their contribution to the study and reinforcement of information regarding participation in the second phase was provided verbally. Participants were also reminded at this stage of their right to withdraw from the study should they so wish (Munhall, 1991).

At 12 months final questionnaires were sent out by post, telephone arrangements were made for final interview, followed by a letter of confirmation. Following completion

of their contribution to the study each participant was sent an exit letter acknowledging their contribution. See Appendix 7 for letters to participants.

2.9.15 Semi Structured Interview 1

The semi-structured interviews were undertaken in a discussion room in the CR Centre. The SEIQoL questionnaire was also administered at interview in accordance with the recommended procedures as discussed in Section 2.7.6.

2.9.16 Interviewing Procedure

Interviews were arranged to suit the participants and conducted when they were attending the CR centre to attend the relevant programme and all followed the same format. Generally, the interviews were 45 minutes duration, 30 minutes to answer questions and approximately 15 minutes to complete the Quality of life schedule.

The participants were put at ease by the interviewer prior to commencement of the interview through a short introduction and 'warm-up' conversation. The conduct and content of the interview was explained carefully, including how they would be expected to participate and how the interviewer would approach the questions. The participants had already consented to the interview and audio–recording and the audio-recording process were further clarified to answer any questions or concerns.

The interview guide was utilised to gather the same data from all participants. In the main body of the interview Robson's (1993) recommendations regarding interviewing were followed in the conduct of the questions. The questions were asked in a straightforward, clear and non-threatening way, eliminating cues that might lead the interviewee to respond in a particular way and avoiding biased questions. The researcher assumed the role of a neutral 'listener' throughout, avoiding appearing to share or welcome the participants' views. In the concluding phase of the interview a few straightforward questions were included followed by closure including thank-you and goodbye.

2.9.17 Semi-Structured Interview 2

Following 10 months inclusion in the study participants were contacted again by telephone, their on-going consent to participate was established, and arrangements made for the final interview. The above Interview protocol was devised for conducting the interviews in order to standardise the approach of the researcher and independent interviewer (See Appendix 4 for Semi-Structured Interview Guide 2). 60% of the interviews and transcript preparation were undertaken by an independent rater in order to minimise bias and assess reliability.

The independent rater was trained in interviewing by attending training sessions that provided information regarding the nature and purpose of the study and methods of data collection and transcription, consent, confidentiality and data protection. As part of this preparation the independent rater also accompanied the researcher on 4 interviews, with the consent of participants. The interviewer then observed two interviews conducted by the independent rater. The independent rater was fully supported by the researcher during their participation in the study

2.9.18 Audio-Recording

The interviews were recorded with the permission of the participants. After the first few minutes of recording participants settled into the interview and forgot the tape recorder was present. The audiotapes of the interview were used later to prepare interview transcripts.

2.10 Summary

The development of the methods utilised within this study has been directed by the aims and objectives of the study, which were to capture the process, experience, and feelings of individual making lifestyle changes following cardiac incidence. In addition, the individual rating of perceived stress, self-perception, and perceived QoL were gathered together with preceding data, longitudinally, at two time intervals to reflect individual changes over one year.

Participants were recruited to the study from the Yoga and Exercise groups, which they have chosen as their preferred choice continuing CR intervention. Thus. participants were self-selecting the intervention within this study, which truly reflects the nature of the choices offered within this CR programme. Following the decision regarding the chosen intervention, participants in each group were asked if they would like to participate in the study. The methods utilised were undertaken with mindfulness of the relevant ethical and methodological considerations necessary to safeguard the interests of the participants, the researcher, and the academic rigour of the present study.

3.0 Data Analysis

3.1 Chapter Outline

The chapter opens with a discussion of approaches utilised to analyse the qualitative and quantitative data and to manage the data. The qualitative analysis of data at Time 1 is included within the early sections of this chapter. The comments provided by the study participants are presented as they have been provided by participants. This is followed by presentation and consideration of emerging themes, experiences and perspectives from the qualitative data which have been tabulated numerically to provide a perspective on the range and proportion of responses within and between each of the groups. The statistical analysis of quantitative data from the standard measures at Time 1 is then presented. This half of the chapter culminates in a summary of the qualitative and quantitative results at Time 1.

In the second half of the chapter the same approach is utilised to present the data where analysis of qualitative data is followed by statistical analysis of quantitative data at Time 2. The concluding sections of the chapter include the combined analysis of qualitative and quantitative data at Time 2. The final section addresses attrition from the study.

3.1.1 Qualitative Data Analysis

Content analysis was utilised to analyse the transcripts at phase one and phase two. This approach to analysis is by topic (Polit, Beck & Hungler 2001). In this case each interview was already in a series of segments based on the interview schedule framework of questions, which provided broad primary categories, and facilitated the first stage in comprehension. When conducting content analysis each interview was read in entirety then each interview segment that consisted of a few sentences, a paragraph or more. Categories were used to identify the emerging content in the interview segments and category labels were established to provide descriptive names for each group of data. The broad categories, which emerged, were collated into matrices of data that could be analysed using descriptive statistics.

In relation to qualitative data analysis Polit, Beck & Hungler (2001) identify four cognitive processes integral to this process: comprehending, synthesizing (decontexualizing), theorizing, and recontextualizing. They highlight the sequential nature of these processes and suggest that the researcher must progressively move through each phase in order to move to the next.

In the present study the first stage of comprehension within analysis of data included utilisation of intraparticipant microanalysis and data categorisation, which included line-by-line analysis of the interview transcripts. Polit, Beck & Hungler (2001) identify this as the first central process in data analysis which helps the researcher to uncover underlying meanings in the text and metaphorical references, bringing both the central and peripheral referents to the researcher's attention. In addition the researcher is able to identify stories that are a part of the topic, identify patterns of experience and predict their outcome. Polit, Beck & Hungler, suggest that when little new is learned, then saturation is reached and comprehending is completed.

To achieve synthesis of data, the data in each category in the transcripts from each group were brought together. This facilitated development of composite descriptions of the range and variation of experience and benefits reported by the participants. See Results, Sections 3.2 to 3.3.3.

Synthesizing is described by Polit, Beck & Hungler (2001), as the 'sifting' part of the analysis, and begins when the investigator is 'getting a feel' for the setting. During this stage the investigator can describe the norms eloquently and has some notion about the range and variation of behaviours. In addition, composite descriptions of how people act, or have the ability to relate, or respond together with specific stories can be provided as examples to illustrate the generalization. Correspondingly, in the present study descriptions of the experience, feelings, group trends and tendencies for the participants were generated in relation to each of the categories.

Within the discussion chapter comprehensive explanation and linkage of the analysis with relevant and alternative theories is provided. This stage is described by Polit, Beck & Hungler (2001), as Theorizing, which is considered as the sorting phase of the analysis. Briefly, it is the systematic selection and 'fitting' of alternative models to the

data or the process of constructing alternative explanations and holding these against the data until the best fit that explains the data most simply is obtained.

The theory emerging from findings of the present study is considered, within the discussion chapter, in relation to its wider applicability and potential relationship to other cardiac rehabilitation settings and other healthcare user groups. The above process is known as recontextualizing where the real power of qualitative research is recognised. According to Polit, Beck& Hungler (2001), Recontextualization is the development of the emerging theory so that the theory is applicable to other settings and to other populations. In qualitative research the theory is the most important product. In addition, it is the theoretical elegance that makes qualitative inquiry generalizable and gives it power in the process of recontextualisation.

3.1.2 Data Management

In relation to the operational management of data, Huber man & Miles (1994) suggest a range of "tactics" for generating meaning or data transformation. These move from descriptive through explanatory tactics. At one end of the continuum are things such as noting patterns of themes, the "counting" of phenomena occurring from the data, and contrasting the data sets. At the opposite end are the moves toward generating, noting and questioning the relations between variables, and finding conceptual and theoretical coherence in the data. Consequently the data was managed in the following ways:

Transcripts were read a number of times until there was immersion in and familiarity with the data. The themes, which had been used as a framework for the semi-structured interviews, served to provide useful categories in which to rate emerging topics, themes, and patterns relevant to the research questions.

An initial matrix of data was established utilising Excel 2000, which provided the first level of analysis. This provided an overview of the data and general responses of participants. The data within the matrix provided opportunity for a numerical description of some of the participant responses, highlighting general trends and tendencies or differences in responses across the two groups.

The next stage of analysis included further reduction of transcript data. This was approached using content analysis. Narratives were read repeatedly and topics themes and patterns in each were highlighted as well as important quotes. Transcripts were checked and double checked to ensure that greatest accuracy of interpretation was achieved.

When this was complete the next step included amalgamation of data from each group within the categories to consider relationships, connections, disagreements, conflicts or contradictions.

Following this synthesis of data, provisional explanations of relationship in the data were provided. Tables, summaries and participant comments were used to illustrate or verify the interpretation of data.

3.1.3 Quantitative Data Analysis

The data from each of the questionnaires were input into computer data files using the Social Sciences Statistical Package (SPSS) Version 10. Preliminary analysis was carried out using descriptive statistics to determine frequencies and score distribution on continuous variables in terms of normality or otherwise. The statistical technique employed to consider the relationship among variables in the Self-perception data was the Pearson product-moment correlation. In this case it was used to explore the association or otherwise between pairs of variables.

Further statistical techniques were utilised to assess differences between the two groups. The independent samples t-test was used to compare the mean scores of the two different groups. Two-way, between groups, analysis of variance (repeated measures) was used to look at the individual and joint effect of two independent variables on one dependent variable. This tests the main effect for each independent variable and also explores the possibility of an interaction effect. Levine's test was carried out to compare the two groups on equal/unequal variances. The appropriate t test was then used. Two-tailed tests were used throughout (Pallant, 2001).

3.2 Results

The issues surrounding the changing sample size as a result of attrition or incomplete participation are outlined in this section.

3.2.1 Sample Size and Numbers in Data Sets

Some participants in the yoga and exercise groups attended for interview but failed to return questionnaires despite reminders. Others returned the questionnaires but did not attend for interview. This explains the changes in the numbers within the data sets in parts of the analysis. This discussed further in Section 3.3.4

3.3 Demographic Data: Yoga and Exercise groups

The demographic data will be presented and considered within the following section

3.3.1 Yoga Group

The 25 participants who commenced in the yoga group had a mean age of 62years (Range = 50-78 years). 11 participants were male and 14 were female. 16 were retired. An overview of the cardiac conditions of participants reveals that: 10 had suffered myocardial infarction, 2 atrial fibrillation, 2 dilated cardiomyopathy, 1 mitral stenosis and 1 congestive cardiac failure (CCF). 2 female participants died near the beginning of the study, 1 as a result of CCF and 1 as a result of dilated cardiomyopathy. A summary of cardiac conditions is provided in Table 3.2.

3.3.2 Exercise Group

In the exercise group there were 35 participants at commencement of the study with a mean age of 66 years (Range = 48-84 years). 32 participants were male and 3 were female. 27 were retired and 23 had suffered myocardial infarction. The groups demonstrate many similarities with the exception of the gender difference. These together with further demographic characteristics are displayed in Table 3.1.

Table 3.1: Demographic Characteristics of Groups at Commencement of Study

Demographic Characteristics	Yoga Group (n= 25)	Exercise group (n= 35)
Mean Age	62	66
Age Range	50-78	48-84
Male	11 (44%)	32 (91%)
Female	14 (56%)	3 (9%)
Employed	5 (20%)	3 (9%)
Unemployed	4 (16%)	4 (11%)
Retired	16 (64%)	27 (77%)
Married	16 (64%)	28 (80%)
Single	3 (12%)	2 (6%)
Divorced/separated	4 (16%)	2 (6%)
Widowed	2 (8%)	3 (1%)

3.3.3 Cardiac Condition of Study Participants

The range of cardiac conditions experienced by participants in the yoga and in the exercise group are presented in the following Table 3.2

Table 3.2: Cardiac Condition of Participants in Yoga and Exercise Groups

Group			Frequency	%
Yoga	n=25	Hypertension	3	12
		MI	10	40
		Pre-surgery	1	4
		Post-surgery	4	16
		Other	6	24
		Angina	1	4
		Total	25	100
Exercise	n=35	Hypertension	1	3
		MI	23	66
		Pre-surgery	1	3
		Post-surgery	7	20
		Angina	3	8
		Total	35	100

3.3.4 Drop Out Participants Stage 1

Participants from both groups dropped out for different reasons at various stages of the present study. Attrition from the study is further discussed at stage 2 Section 3.3.4. where an analysis and summary of this aspect of the study is provided.

Yoga Group

25 participants commenced the yoga programme. During the first stage of the study 2 female participants, unfortunately, died. One female participant attended for a short time then had to leave the yoga programme as a consequence of family health problems.

Exercise Group

Three participants in the exercise group did not wish to continue in the study

Two experienced ill health and one underwent surgery.

3.4 Stress Experience: Yoga and Exercise Groups Interview 1

The individual comments gathered from interviewing individual participants highlight the specific nature of their stress together with in some cases their personal awareness or otherwise of stress in their life.

3.4.1 Stress Experience: Yoga Group Comments

I worked in Social Services, so I was very stressed out. I used to be very tense, I haven't got a temper as such, but I used to fly off the handle a little bit. I noticed it most with the driving, I drove a lot and I used to get aggressive in the car, but I learnt to really slow down and I noticed this with stress. I used to be very tense at the back of my neck. I used to fly off the handle at silly little things really when I think about it - like traffic or being held up in a queue in the supermarket, (Yoga 1-4)

I didn't recognise stress in life. In hindsight, there was pressure around in the department at work – a colleague was off sick, so I was taking their work on. It crept up on me really. I'm a fairly laid back person in my private life. It was hard to believe I was suffering from stress. (Yoga 1-5)

I was a very stressed publisher, I did a lot of driving and calling and writing and I ran the company. I didn't think about relaxing. People said I was laid back, but I wasn't

on the inside, it was all a facade. I was very surprised at having a heart attack. (Yoga 1-57)

It is really the stress factor you consider last when looking at those things. I was quite surprised when I started to read into stress- exactly what it is. Yes, I probably had stressful incidents. I was probably stressed out for many years because of my attitudes in work for instance. I mean I suffered from a lot of frustration and problems. Yes, I was stressed for a long time (Yoga1-8)

I brought up two children, I'd lost my husband, very suddenly and I was left with a teenage daughter. I had to put her through University, so I've had to work very hard, I suppose, I got stressed, but didn't sort of register as such. I think my high blood pressure was caused by stress because I had just lost my sister under very tragic circumstances, and it didn't hit me at first, it was very brief, but it seemed to hit me about four or five months afterwards, it just hit me. I had these awful panic attacks and pains in my chest. (Yoga 1-58)

I used to lose my temper a lot. I think that was the nightshifts, cos you never got proper sleep. You know people would say silly things, and I couldn't just shake it off, you'd have to say something, and you'd end up in a row with them, you know. That was because you were under pressure. (Yoga 1- 50)

3.4.2 Stress Experience: Exercise Group Comments

Life was pretty hectic; I over worked long hours, working evenings, very often working weekends and that. There was stress in the office. I suppose, looking back I maybe was a bit stressed, (Exe 1-16)

I was a heavy goods vehicle driver, about four or five years ago we were took over by another firm, and they diversified into other fields, and the first one I got was a really stressful one. If you didn't do it you were out. (Exe 1-37)

If you asked my wife she would say frenetic. I was a building society manager and I worked harder and harder until I snapped.
(Exe 1-41)

I didn't find life stressful until I lost my wife and then I lost my daughter, and then I had the heart attack, so it must have been working up to it. (Exe 1-39)

I was a civil engineer .The job became stressful with all the changes and you know I think promotions bring more stress. So yes, it has been stressful for a number of years, and that was why I retired early. (Exe 1-31)

3.4.3 Summary of Comments: Stress Experience in the Yoga and Exercise Groups

The stress experience in both yoga and exercise groups was most commonly linked to the demands and pressures of work with only a few participants relating stress to particular life events such as bereavement and relationship challenges.

3.4.4 Stress Experience: Yoga and Exercise Group Data Interview 1

A large proportion of participants in each group specifically reported that they experienced stress in their lives the as presented in Table 3.3. The proportion of stress reported to be caused by life events is demonstrated in Table 3.4.

Table 3.3: Numbers of Participants Experiencing Stress

Stress	Yes	No	Not Stated
Yoga 1 (n=22)	20 (91%)	1 (5%)	1 (5%)
Exercise 1 (n=29)	24 (83%)	5 (17%)	0

Table 3.4: Life Events Impacting on Stress

Life Events	Yes	No	Not Stated
Yoga 1 (n=22)	6 (27%)	14 (64%)	2 (9%)
Exercise 1 (n=29)	6 (21%)	22 (76%)	0

The majority of participants in each group did not attribute the stress they experienced, which they felt contributed to their CHD, to important specific life events. A small number of participants reported stressful life events such as bereavement in the family. Some participants identified work, family, life style as stressful and others noted that they had not previously realised that they were experiencing stress in their lives but that the cardiac event had resulted in them becoming aware of this.

3.5 Support Provided to Yoga and Exercise Participants

The majority of support provided to both yoga and exercise group participants was from their families. This was either provided by individual members such as wives and husbands or relatives from the wider family group. Only one participant made a comment in relation to the importance of their family as outlined below.

A few participants identified support from friends as being important. This is summarised in the following Table 3.5.

3.5.1 Yoga Group Comments

It makes you think and reassess priorities I think. My family is still the most important, but other things.... I don't care if there's dust in the corner.
(Yoga 1-22)

Table 3.5: Support Provided to Yoga and Exercise Participants

Support	Spouse	Spouse/Family	Family	Family/Friends	Friends	Self	Not stated
Yoga 1 (n=22)	8 (36%)	1 (5%)	5 (23%)	4 (18%)	1 (5%)	3 (14%)	0
Exercise 1 (n=29)	10 (34%)	6 (21%)	9 (31%)	2 (7%)	0	1 (3%)	1 (3%)

3.6 Individual Experience of the Cardiac Event

The participants in both the Yoga and Exercise groups described the experience of their cardiac event in different ways. Some experiences were described as positive.

some as negative and others were described as both positive and negative. The following comments highlight these differing perspectives.

3.6.1 Positive Yoga Group Comments

In some ways it was quite a good thing really because it changed my life – and the change has been for the better. (Yoga 1-6)

I would put it at the positive end. It's not a nice thing and at first despair, you feel at the bottom of the pit. But since then I've felt really optimistic about things, quite pleased (if that doesn't sound crazy) about doing these little things. (Yoga 1-8)

A much more positive attitude to the fact that you can influence your own well-being to try and get some of the serenity (Yoga1-22)

I suppose its been really positive. If you didn't get a warning you'd just go on the same, and you'd just go, so I have slowed down a lot. (Yoga1-50)

3.6.2 Positive Exercise Group Comments

A very positive experience. I wasn't sure before the op but now I know it's done me a lot of good. It's made me less apprehensive about having another op. I don't think there are any negative effects. (Exe1-9)
I think its positive, because if I hadn't had my HA I'd still be wolfing all the cholesterol. It gives you a little bit of apprehension, going abroad I'd worry. The apprehension is only in relation to something like that. (Exe 1-12)

In a way its been quite beneficial cause its given me the push to arrange things like insurance and will etc. But its made me enjoy life more. I didn't have a bad life before either. (Exe 1-26)

3.6.3 Combination Comments Yoga Group

Its positive, just take every day as it comes and you look at life and think well why hassle to do this, why not take life as it comes.
But the negative is I think in the back corners of my mind that it could happen again. I just pooh pooh that and say I wake up every day and its another bonus point. (Yoga1-2)

Positively, I am more health conscious. The negative is that we haven't dared go on holiday yet. (Yoga 1-49)

3.6.4 Combination Comments Exercise Group

It was mainly a negative experience. But positively I get more time to think; I do quite a lot of writing, painting. Coming here to the Cardiac rehabilitation centre has been wonderful. Its great having somewhere to go, cause I live on my own, although I do have good friends (Exe 1-57)

Some of those who identified it as being a negative experience stated:

Negative I could have done without it. (Exe 1-20)

Well bad, I think. (Exe 1-3)

Shattered really. I said oh I can't go to the Lakes; I can't climb up the hills, and look out. Because, to me it's a wonderful feeling when you're up there and you look out and you seem to swell out, you seem to grow.
(Exe 1-34)

The experience as such was a surprise and was negative as I didn't like it or want it. (Exe 1-15)

3.10.2 Experience of the Cardiac Event

The majority of participants in both the yoga and exercise groups identified the experience of their cardiac event as being a positive experience. The following Tables 3.6 and 3.7 provide a summary of the differing experience of participants in the yoga and exercise groups.

Table 3.6: Yoga Group Experience of Cardiac Event

Yoga (n=22)	Experience
Cardiac event was a positive experience	15 (68%)
Cardiac event was a negative experience	2 (9%)
Cardiac event was neither an all positive or all negative experience	3 (14%)
Not Stated	2 (9%)

The majority of Yoga group participants reported that their cardiac event was a positive experience.

Table 3.7: Exercise Group Experience of Cardiac Event

Exercise (n=29)	Experience
Cardiac event was a positive experience	14 (48%)
Cardiac event was a negative experience	5 (17%)
Cardiac event was Neither all positive or all negative experience	8 (28%)
Not Stated	2 (7%)

Less than half of the exercise participants reported their cardiac event as a positive experience and a few reported the experience as being both positive and negative.

3.7 Change to lifestyle

Participants in each group identified lifestyle changes they had made, some of which relate to the cardiac event and some to the CR programme and their chosen interventions. One group identified a wider range of interesting changes. These changes are outlined in participants comments and the tables within the following sections.

3.7.1 Self-Changes Yoga Group

In the yoga group both male and female participants identified a range of self-changes. These related to being more aware of the self, more aware and thoughtful about life, self, identification of personal aspirations, enhancement of physical capability changing attitudes to work and lifestyle behaviours. Examples of these for both groups are outlined in the comments provided:

3.7.2 Yoga Group Comments

I think that I am taking more notice of me, giving myself time and believing in myself a bit more. I've always thought I wasn't capable of doing some things, but now I think I can. I like myself a bit better, I think. I want to enjoy the rest of my life a lot better, to be able to cope a lot better, which I think I have.
(Yoga1-4)

Changes in terms of diet, attitude, exercise and all these things you read up about. You get wrapped up in doing these things for their own sake not just because you've had a heart attack. You get ambitious to be those things – to actually be fitter, leaner and harder and twice as involved in things as you were before. (Yoga 1-8)

After my second heart attack I was referred to the Cardiac rehabilitation programme that made a big impact on me and I did the Six-week course, then put my name down for yoga. (Yoga 1-6)

But attitude to diet and working life are the biggest changes. I'm laid back in my home life. There's still pressure in job, but I don't worry about it.
(Yoga1-5)

I was very immersed in business – I'm not like that anymore. I left work. I'm very peaceful – happy and content with my life (Yoga 1-7)

I don't rush around as much. I take things more calmly I'm more relaxed now.
(Yoga 1-59)

3.7.3 Exercise Group Comments

In contrast the exercise group reported a more limited number of self-changes. Their main changes were the lifestyle changes relating to diet and exercise, although a few individuals identified some more personal changes.

If I did the same as before the HA, it would happen again, so I knew I had to change something's. I don't know if it was a build up – I can change some things like my diet and drinking and more exercise, I can't change my stress.
(Exe 1-43)

I've come to enjoy life more, even the smaller things, I appreciate things more now, like a view or a landscape or a holiday. Before it happened I was very tired a lot. I've changed my diet, I don't drink as much and I do more swimming (Exe 1-43)

I firmly believe that having a heart attack did me a favour, because prior to that you abuse yourself, with your eating and the way you eat, you eat everything, the wrong things. You don't exercise enough, you just sit down and stop and that's the end of it and, if you have this information rammed into you at an earlier age, or if you took notice of it shall we say, then the heart attack rate would be so reduced. (Exe 1-55)

3.7.4 Range of Lifestyle Changes Made

Participants in both groups identified lifestyle changes they had made. The exercise group highlighted diet and exercise as their main changes. The yoga group identified a wider range of changes that they had made with the main changes being the incorporation of Dietary modification, yoga and relaxation into their lifestyle. Table 3.8 provides an overview of the range of changes, specified.

Table 3.8: Overview of Changes to Lifestyle in Exercise and Yoga Groups

Changes to Lifestyle	Diet/ Exercise	Stop Smoke/Ex	Diet/Ex /Smoke	Exercise	Smoke/ Drink/ Ex			
Exercise 1 (n=29)	19 (66%)	2 (7%)	3 (10%)	3 (10%)	2 (7%)			
Changes to Lifestyle	Diet/Yoga	Yoga/ Exercise	Yoga/ Meditation	Diet/Exe/ Yoga	Yoga /Left Work	Diet/ Yoga /Relax	Yoga /Stress Reduction	Diet/Yoga/ Smoke
Yoga 1 (n=22)	6 (27%)	1 (5%)	1 (5%)	3 (14%)	3(14%)	3 (14%)	4 (18%)	1 (5%)

3.8 Self Image Following a Cardiac Event

A number of participants from both groups identified issues related to their self-image. Some of the issues relating to self-image, which were highlighted by the yoga and exercise groups, are included within the following comments:

3.8.1 Yoga Group Comments

It's not so good now with the angina, so the confidence goes. (Yoga 1-55)

I was absolutely desperate – nobody gave any form of optimism. My G.P. said not to be philosophical about length of my life –it did not appear to be it was going to be a long one. The consultant gave no hope whatsoever about any form of treatment or healing. I was scared to go out for about one month (Yoga 1-7)

3.8.2 Exercise Group Comments

I came out of hospital and I got into a state of mind where I didn't want to go out and I didn't want to do anything, I was just sitting in the chair all day doing nothing, just sitting there and thinking I'm not going to get better. (Exe 1-2)

3.8.3 Range of Responses Regarding Self-Image

Just less than half of the participants in the yoga and exercise groups provided a response to questions regarding self-image as displayed in Tables 3.9 and 3.10.

Table 3.9: Yoga Group Report on Self Image

Self Image	Poor Self Confidence	Think more About self	Cynical	Not Stated
Yoga (n=22)	12 (55%)	1 (5%)	1 (5%)	8 (36%)

In the yoga group one self-image issue related to participants' immediate response to the cardiac incident or problem, it was equally reported by male and female participants that they experienced a reduction in self-confidence.

Table 3.10: Exercise Group Summary of Comments Relating to Self Image

Exercise 1 (n=29)	Number	%
Shy to join the group	1	3
Feeling of disbelief	1	3
Not as able to cope with stress	1	3
No change	3	10
Knocked confidence	2	7
Depressed at first	1	3
Changed personal philosophy	1	3
More aware	2	7
Not stated	17	59

The exercise group provided a wider range of responses with regard to this aspect of their experience and no themes emerged.

3.9 Experience of CHD

Contrasting aspects of the experience of having a cardiac incident is provided within the following comments from participants in both exercise and yoga groups.

3.9.1 Yoga Group Comments

In some ways it was quite a good thing really because it changed my life – and the change has been for the better. (Yoga 1-6)

I had no initial warnings of it, hardly. I had a heart attack and I'm still surprised I had one. Perhaps its odd saying surprised but I still can't quite believe it. It pulls you up short like slamming the brakes on. I've had a near miss. You think what have I got to do and you go through these factors. (Yoga 1-8)

3.9.2 Exercise Group Comments

The feelings and experience of participants are best explained as follows in their own words:

I'm more aware of the fact that my diet wasn't quite what it should have been, and that perhaps I should have managed, my life a bit better you know, because although I was working long hours, I mean a lot of that was sort of- I chose to do it, but I don't suppose that's a lot different from many people. I think if you're in a job nowadays you realise that if you sort of put your hand up and say look I can't cope with all this, somebody's going to say well yeah bye, bye and let somebody else that will, so you just get on and do it. (Exe 1-16)

It changes your whole outlook, you become a calmer person because you realise how stupid you were before, the damage you were doing yourself with the worry. You also realise all the wrong things in your life, with regard to exercise and diet and drinking and smoking and everything else. I think you become a better person; I think your outlook changes because you think I was lucky, it's I'm not going to let that get me

again, so you take care. I think you are a happier person, I am, and I'm a better person for it. (Exe 1-55)

It might sound strange but I'm not entirely convinced that there are any negative aspects. I think in fact if you recover that is positive. Your family see more of the negative factors. (Exe 1-41)

I don't want to die. It's, well, I obviously, to me it's, it's a warning, if you have a heart attack, that's a warning, you're obviously doing something wrong. I used to do a lot of exercise when I was younger, but that fell by the board, and I thought I've got to get back to it, I've got to get it down, and change my life style so I don't have another one. (Exe 1-30)

I've changed my diet a little bit and I do a bit more exercise (Exe 1-26)

3.10.┐ What Participants Liked About the Exercise Programme, Reasons for Choosing Exercise and What They Hoped to Achieve.

This section summarises what the participants in the exercise programme reported regarding their choice of intervention

3.10.1 Exercise Group Comments

I hope to stay as fit as I am now and hopefully to avoid having another one. I feel everything is fine (SE Exe 1-3)

Getting fit, (NJ Exe 1-9)

To get fit so I can enjoy my life more. Before the op I couldn't do certain things, which detracted from my quality of life. I can do a lot more like going on holiday. (NJ Exe 1-9)
The gym is an actual fixed thing to do 3 times a week, milestones. The social aspect isn't with me as I'm not a sociable person. (Exe 1-13)

I mean it can be a bit boring actually, just sort of exercise, and whatever you're doing, some sort of cycle of step machine and that, and if somebody's talking to you or taking up your attention with something else the time passes more readily. (BG Exe 1-16)

Only a little fitter than I am, that's all. (Exe 1-17)

I enjoy the exercise itself. (Exe 1-37)

I feel the benefit of it. (Exe 1-37)

All this exercise has become addictive; I come away now thinking oh I want to go on again. (Exe 1-39)

Vastly improved on what it was on even 12 months ago. I would guess I'm better now than I was 20 years ago, that's partly due to retirement, which is very beneficial. (Exe 1-41)

I hope to be able to run a mile, not the greatest target, but being able to go on the golf course walk round and carry my own bag is great. (Exe 1-41)

3.10.2 Reasons for Choosing the Exercise Programme.

The exercise group identified a range of reasons for choosing the exercise programme as summarised in Table 3.11.

Table 3.11: Why Participants Chose Exercise

Exercise 1 (n=29)	Number	%
Always exercised	3	10
Enjoy exercise	4	14
Weight Loss	2	7
Health &Fitness	12	41
Reduce risk factors	5	17
Fitness/Social Support	1	3
Keep Quality of Life	1	3
Good Idea	1	3

The vast majority of the exercise group chose exercise to achieve physical fitness together with a feeling of well-being as summarised in the above table.

3.10.3 What Participants Hoped to Achieve by Exercising

In Table 3.12 what participants hope to achieve by participating in the exercise programme exercise is presented.

Table 3.12: What Participants Hoped to Achieve by Exercising

Exercise 1 (n=29)	Number	%
Health & Fitness	12	41
Heart Health	2	7
Feel Well/Better	5	17
An Aim	1	3
Run a Mile	1	3
Meet New People	1	3
Not Stated	7	24

These results are generally congruent with the reason for choosing exercise in the first place which is to achieve fitness and general well-being.

3.10.4 What Participants Liked About Exercise

The aspects of the exercise programme which the participants reported they liked are summarised in the Table 3.13

Table 3.13: What Participants Liked About Exercise

Liked about Exercise	Social Aspect	Health &Fitness	Fitness/ Social	Not Stated
Exercise 1 (n=29)	15 (52%)	4 (14%)	5 (17%)	5 (17%)

More than half of the exercise group reported that what they liked most about the exercise programme was the social aspect.

3.11 What Participants Liked About Yoga Programme, Reasons for Choosing Yoga and What They Hoped to Achieve.

The participants in the yoga group highlighted the benefits they attributed to their chosen intervention as outlined in the following selection of comments

3.11.1 Yoga Group Comments

The philosophical side of Yoga - being aware about your life, living on a day-to-day basis and just doing small tasks with pleasure and being content with them. From introductory course onward everything the teacher said rang true. . I concentrate on stretching my body every day - I remember the yoga and this helps me being aware of my body and movement. I never exercised in the past. Being aware of yoga movements with the mind has a very calming and very pleasant effect. To maintain being in touch with myself - basically I'm very happy that I'm in touch with myself and I intend to keep coming to yoga to keep in touch and stay in touch with myself. After relaxation and visualisation I give myself a message every day that everyday in every way I'm getting better and better and better and negative thoughts won't intrude on me, only positive thoughts and I'm very happy and content with my life. I repeat each of these three times and I relax and feel good. (Yoga 1-7)

I like the physical and mental side of yoga, the relaxation at the end after the exercise it's quite a funny thing, I just can't explain it it's really great. (Yoga 1-25)

An inner calm and to switch off. After I finish the yoga on a Wednesday I feel about 6 foot tall. I walk out as though I'm walking on air somehow. I can't describe it; it's just a good feeling. I'd like to feel like that all the time. It's just a good feeling. (Yoga 1- 23)

To enjoy the rest of my life a lot better, to be able to cope a lot better, which I think I have. I like the exercises and the relaxation - there's no particular favourite. Yes, I find I'm a lot more supple- I put that down to yoga. (Yoga 1-4)

The yoga makes you realise you've got yourself to think about. Before it was more other people. You realise what's in life for you. You've got your own life. It's great and when you finish the classes you feel different (Yoga 1-59)

I want to do the gentle yoga movements. I enjoy the relaxation very much and I do it every day at home except on yoga class days. I bought a yoga tape which I use. 3/4 hour - 1 hour every morning. I like the community part of the yoga (Yoga 1-6)

I need to maintain my attitude to my self and my body. It really does need more attention than I've previously given it. Yoga helps with this. It's amazing what you can do with Yoga. It's also physical. It does me good and keeps me supple. It helps my posture and I'm more aware of my body. (Yoga 1-5)

I think it was because I was looking at the range of things on offer, and I didn't really know what yoga was. Although I put my name down for the gym course I'm not particularly attracted to it, it bores me. I got intrigued about what yoga was and what it could do. I thought it would be good for stress and getting fit, so I enrolled to find out more. Setting new horizons, new targets, -that's why I've come to yoga because it's offered me a new target something that could appear to be useful. (Yoga 1-8)
Dr Ormish did the yoga as part of his programme, and so I thought yeah well that fits in nicely. It's something I've wanted to do and it's good part of the programme and it's a different kind of exercise, from the gym type exercise and I think it's got a part to play. (Yoga 1-48)

I love yoga and I don't do other exercise other than walking and gardening
It's a slow discipline. I'm beginning to focus on my breathing in the night and psychologically its great. The exercises and breathing will eventually benefit me much more, but it's slow and I've got to be patient. The social, and supportive group- and you build up new relationships, even with new people coming in. I think it's easier for

more demonstrative people and maybe shyer people are frightened off, but I think that helps these people look beyond themselves. (Yoga 1-24)

Because I know I need it. I've done Yoga for a long time, but there's something new every time you go, especially the exercises. I know I can get peace of mind from the relaxation. The Earth sequence is the most peaceful thing I've ever done it's amazing. I get peace of mind and strength from it (mentally). I'm learning new things, taking control again. I need the extra to go to the hospital - the support and the social side. Making more friends is fantastic. We have so much fun. Yoga I take more seriously (Yoga 1-46)

The yoga makes you think twice - you are entitled to give yourself time. I have a much more positive attitude to the fact that you can influence your own well being, to try and get some of the serenity. There's the exercise angle as well, but it's so gentle. It's a combination of the two things, combining the physical and the mental approach. (Yoga 1-22)

3.11.2 Reasons for Choosing the Yoga Programme

The yoga group highlighted a wide range of reasons for choosing yoga which are summarised in Table 3.14.

Table 3.14: Why Participants Chose Yoga

Yoga 1 (n= 22)	Number	%
Relaxation	2	9
Exercise/supple flexible body	2	9
Meditation/relaxation/exercise	1	5
Enhancement of coping	1	5
Coping with stress/exercise	1	5
Fitness/stress reduction	1	5
To keep in touch with self	1	5
Because of previous experience, enjoyment/ interest in yoga	12	55
Not stated	1	5

Over half the group chose Yoga because of previous experience or an interest in yoga. The rest of the group highlighted particular benefits they hoped to achieve as the reason for their choice of yoga.

3.11.3 What Participants Hoped to Achieve from Yoga

The range of benefits that participants hoped to achieve from yoga was also identified and is included in Table 3.15.

Table 3.15: What Participants Hoped to Achieve from the Yoga Programme

Yoga 1 (n=22)	Number	%
The mind/body benefits	13	59
The mind benefits	3	14
Philosophy of life/self awareness	2	9
Group support and social aspects	1	5
Not stated	3	14

The yoga group provided a range benefits related to what they hoped to achieve through yoga, with the mind-body benefits being reported as the most important.

3.11.4 What Participants Liked about Yoga

The yoga group participants also identified a range of different aspects of the yoga programme that they particularly liked. These aspects are summarised in Table 3.16.

Table 3.16: What Participants Liked About Yoga

Yoga 1 (n=22)	Number	%
Interesting	1	5
Relaxation	4	18
Mind-Body Approach	4	18
Feel Calm & Healthy	1	5
Learn about Self	1	5
Realize what is in Life for you	1	5
Peace of Mind	1	5
Lifts the Spirits	1	5
Mental Bit	1	5
Group Part	1	5
Enjoy Yoga	1	5
Amazing	1	5
Read Dean Ornish	1	5
Not Stated	3	14

The relaxation and the mind body approach essential to yoga were highlighted as the most liked aspects of the programme.

3.12 Quality of Life

The following comments regarding perceived quality of life illustrate some of the participant responses to this question. These comments tended to be rather brief and do not provide a wide perspective on this topic. However, many of the comments regarding other issues provide a synthesis of feelings and experience that incorporate a further and wider view on quality of life issues.

3.12.1 Exercise Group Comments: Quality of Life

This hasn't altered my quality of life; in fact, it's altered it for the better if anything, I'm a better person for it, I'm a fitter person for it, I'm a more sensible person for it. (Exe 1-55)

It's good at the moment (Exe 1-37)

QOL Excellent (Exe 1-11)

My quality of life is quite OK (Exe 1-43)

3.12.2 Yoga Group Comments: Quality of Life

That was the hardest thing - to realise I probably won't reach 80 years of age. I don't know how many years I can go on, but I'm not bothered anymore because the quality of day-to-day life is fine - I'm very happy (Yoga 1- 7)

I'd like to think it was as good as it's ever been. (Yoga 1-49)

Average, I don't have many holidays, but I don't really have any money problems. (Yoga 1-53)

3.12.3 Exercise Group Quality of Life

The exercise group provided a range of ratings with regard to their perceived quality of life, although the number who responded was disappointing (n =12). The most common response was that their quality of life was excellent, a number were more ambivalent providing contrasting responses, a few suggested that their quality of life had not altered. An overview of responses regarding rating of quality of life is provided in Table 3.17.

Table 3.17: Exercise Group Quality of Life

Exercise 1 (n=29)	Number	%
Good	7	24
Normal	1	3
Excellent	6	21
Improved	1	3
Not so good	2	7
Fairly good	3	10
OK	1	3
Not altered	3	10
Not stated	5	17

3.12.4 Yoga Group Quality of Life

The participants in the yoga group provided ratings of their perceived quality of life as summarised in Table 3.18

Table 3.18: Yoga Group Quality of Life

Yoga 1 (n=22)	Number	%
Fairly Good	4	18
Average	3	14
Good	4	18
Very good	9	41
Not stated	2	9

In the yoga group, those who responded to this question (n=13) highlighted that their quality of life was good to very good.

3.13 Quantitative Results Time 1

3.13.1 Pre-study Comparison (Time 1)

Levine's test was carried out to compare the two groups on equal/unequal variances. The appropriate independent t test was then used. Two-tailed tests were used throughout. Bonferroni corrections to significance levels were considered as multiple comparisons between the groups were being made especially on the self-perception measures. However, the size of the group was small and this may have lead to a type (II) error where differences are wrongly regarded as statistically non-significant. Thus Bonferroni corrections were not applied and a significance level of $p = 0.05$ was used. This indicates a need for caution in interpretation of the results.

3.13.2 Stress Measures 1

The Means on the Perceived Stress Scale (PPS 14) were a mean of 16.6 and SD (7.1) for the yoga group and a mean of 15.9 and SD (8.1) for the exercise group. They were not statistically significantly different, See Table 3.51. These scores were lower than the Mean score for the standardisation sample for the PPS14 in a stratified random sample of people interviewed by telephone was 19.62 (Cohen & Williamson, 1988). At first sight this might seem surprising, as it is generally believed that stress is a factor in heart disease. However, from the qualitative data it can be seen that individuals recognised they had been stressed prior to the CHD, and realised that lifestyle changes were necessary to reduce stress. This might account for slightly lower than average stress scores.

3.13.3 Self-Perception Measures 1: Comparison of Yoga and Exercise Groups

Statistically Significant differences between the yoga and exercise groups were noted in the following 3 domains at Time 1.

- Global Self Worth Means (3.1 exercise, 2.9 yoga) t, 56= 2.0, p=0.03
- Importance of physical appearance (1.4 exercise, yoga 2.1) t, 30.8. = 2.64. p= 0.03.

- Physical appearance (2.8 exercise, 2.5 yoga) t, 55 = 2.19, p= 0.03.
- Importance of providing (3.7 exercise, 3.2 yoga) t, 55, = 3.2, p= 0.002.

The yoga group attached statistically significantly greater importance to physical appearance than the exercise group, although they rated themselves as statistically significantly lower on physical appearance. In addition the exercise group attached statistically significantly greater importance to the provider role. It is possible that this could be explained by the gender difference between the groups and this issue will be explored further in the Discussion, Chapter 4.

The exercise group had statistically significantly higher feelings of global self-worth than the yoga group, although it should be noted that global self worth scores were high in both groups. Again this may reflect gender differences.

3.13.4 The Global QoL Ratings for Yoga and Exercise Groups

Quality of Life Measures 1

Mean QoL scores were 71 and SD (15.4) for the yoga group and a mean of 71.13 and SD (17.6) for the exercise group. There was no statistically significant difference. On a scale of 0-100 this reflects a high self-rated quality of life in both groups.

Participants chose QoL domains or the five most important areas or activities in their life most relevant to the individual's quality of life during interview in the present study. At time 1 and then again at time 2, participants rated each domain, they had selected, from worst to best possible and then weighted each in terms of relative importance at Time one and two. The results derived from phase 1 of the study are summarised in table 3.19.

Table 3.19: Quality of Life Domains Time 1

Domain	%Yoga Group (n=22) Time 1	%Exercise Group(n = 29) Time 1
Health	80	80
Family	76	89
Finance	76	77
Hobbies/Interests	52	71
Faith	24	6
Job	12	3
Music	8	3
Home	20	17
Friends	28	40
Socialising	16	20
Exercise	4	17
Yoga	8	
Holidays/Breaks	16	11
Happiness/Contentment	0	6
Fitness	0	0

Participants in the yoga and exercise group identified health, family and finance as the three most important domains determining their quality of life at time 1. Faith was chosen most often by the yoga group and may reflect an interest in spirituality in this group. Friends and socialising was particularly important for the exercise group.

3.14 Summary of Qualitative and Quantitative Results at Time 1

The stress experience in both yoga and exercise groups was most commonly linked to the demands and pressures of work with only a few participants relating stress to particular life events. For both groups the mean Scores for Stress were lower than the Mean score for the standardisation sample for the PPS14 in a stratified random sample of people interviewed by telephone was (19.62) (Cohen &Williamson, 1988).

The majority of participants had the benefit of support from others. The narratives suggest it was an important factor in adaptation and change with the spouse being a central support to many participants. Other family and friends were also important this was reinforced by the QoL data where participants highlighted family/friends as being a main determinant of their perceived quality of life. There was no statistically significant difference between the QoL scores for each group and the most commonly selected quality of life domains, which included health, family and finance, were selected by each group. The choice of quality of life domains corresponded with that of other patient populations who had used the same measure.

It was of interesting to note that the yoga group identified faith as an important domain, this suggests an interest in spirituality by some members of this group and may link to individual choice with regard to the yoga intervention or perceived benefits from yoga. The more reflective aspect of yoga practice together with promotion of self-awareness within yoga could have a relationship to individual faith and believe systems although this was not explicitly explored within the study. Socialising was of particular importance for the exercise group and this was echoed within individual narratives.

In both the yoga and exercise groups the cardiac event was identified as mainly a positive experience which had benefits in terms of their view of themselves, their life and health behaviours. However, a number of them identified it as a negative experience which was unpleasant and stopped them doing things. Some participants said it had both positive and negative aspects such as those identified above.

Change to lifestyle was reported in both groups. Generally, these changes were related to attending the yoga or exercise programme with other lifestyle changes being dietary modification and in some cases stopping smoking.

Self-changes were reported in both groups however; the yoga group identified more self-changes and greater self-awareness together with thoughtfulness about life, self, identification of personal aspirations, enhancement of physical capability changing attitudes to work and lifestyle behaviours. The exercise group reported a more limited

number of self- changes; generally these were less personal and related to participation in the exercise programme and achievement of fitness and well-being.

Global self worth scores were high in both groups although the exercise group demonstrated statistically significantly higher scores than the yoga participants. The yoga group attached statistically significantly greater importance to physical appearance than the exercise group whilst demonstrating a lower rating of their own perceived physical appearance than the exercise group. The exercise group attached statistically significantly greater importance to the provider role than did the yoga group.

In both groups participants, who responded (less than half in each group), identified issues related to their self-image, in particular reduction in self-confidence in the time immediately following their cardiac event. What group participants hoped to achieve through participation in the yoga or exercise programmes was contrasting.

The exercise participants hoped to achieve fitness & health. Whereas they yoga participants gave a wide range of reasons and a range of anticipated benefits. What participants liked about the yoga was wide ranging including feeling relaxed and calm, reduced anxiety, feelings of well-being.

In contrast the exercise participants identified the fitness and well being achieved together with enjoyment of the social aspects. Why participants chose exercise also related mainly to the achievement of health and fitness. The participants in the yoga group chose yoga for a wide variety of reasons relating to relaxation, achieving calm, interest in yoga, previous experience and benefits gained from doing yoga. The groups provided a range of comments regarding their perceived QoL with the most common evaluation being that QoL was good. This was also reflected in the quality of life measures. These results will be discussed further in the summary of results for Time 1 and Time 2 in Section 3.14.

3.15 Results 2: Exercise and Yoga Groups - Transcript Data from Interview 2

Following one year on the yoga and exercise programme participants completed the same questionnaires and were interviewed again. Comparison of Stress and self-perception results between time 1 and time 2 were carried out. The Semi Structured Interview Guide was adapted to reflect this point in the study. See Appendix 4. Transcripts were analysed utilizing the same approach as that identified for the first interviews. See Section 3.1.2.

3.15.1 Drop Out Participants Stage 2

In stage 2 there were further participants who dropped–out. Consequently the Yoga group number dropped to n = 21 and the Exercise group to n = 29. One participant left the yoga programme and continued in the gymnasium programme. Six participants, in the exercise group, three female participants and three male participants, did not wish to continue in the study. The three female participants rarely visited the gym and the three male participants had lost interest in taking part in the study.

3.16 Participant Awareness of Condition

Participants were asked about their current awareness regarding their cardiac condition. From the comments provided by the yoga participants it seems that this awareness relates to having to take medication, whether they have had surgery and if they experience ongoing symptoms during activity. This is also reflected in the comments provided by the participants in each group as summarised. Only one of the exercise participants commented on this issue.

3.16.1 Yoga Group Comments

I think you become more aware of yourself, more aware of yourself physically after having the heart attack. When you get something like a heart attack it brings you up short and you start thinking, a bit more, about why and what causes it and so on. (Yoga 2-49)

I'm only really still aware of it when I try to hurry. I don't really think about it day to day. (Yoga 2-23)

I still take medication, which I'd like to cut down; the side effects don't bother me. (Yoga 2-6)

Yes, I had a heart attack and two bypass ops. (Yoga 2-57)

I am more aware of what my body is doing and what I am doing to my body. (Yoga 2-44)

3.16.2 Exercise Group Comments

I have breathing difficulties, and I have er, sometimes I go dizzy. (Exe 2-28)

3.16.3 Participants Awareness of Condition

The following Tables 3.20 and 3.21 provide an overview of the participants awareness of their condition

Table 3.20: Awareness of Condition Yoga Group

Awareness of Condition	Yes	No	Occasionally
Yoga 2 (n=21)	16 (76%)	3 (14%)	2 (10%)

Table 3.21: Awareness of Condition Exercise Group

Awareness of Condition	Yes	No	Vaguely	Not really
Exercise 2 (n =29)	14 (48%)	5 (17%)	1 (3%)	3 (10%)

The majority of participants in both the yoga and exercise groups reported that they were still very aware of their condition and its impact on their life.

3.17 Maintenance of Lifestyle Changes

When asked about maintenance of the lifestyle changes they had embarked upon 12 months ago the vast majority of participants in each group reported that they were maintaining one or more of these changes.

3.17.1 Exercise Group Comments

We've got into it, we eat all white meats, fish, and that sort of stuff, plenty of salad stuff, porridge, everything we were recommended we do.
I've just got a form to fill in for the local gym.

It seems my whole outlook has changed and I feel so much younger, I mean I go dancing, and I go, when I mean dancing I go moving on the floor. I really do and I love it, and we do it regularly, I feel, well not just better but better than I have done for 30 years, I feel 30 years younger. (Exe 2-55)

I've kept my exercises up, and I go swimming a lot more, a couple of times more, and I go out on my bike a bit more. The only problem I have is my weight, I haven't lost what, I should have lost, I don't think I've lost any. If I'd have lost some weight I'd have felt great. (Exe 2-43)

I've been on a low fat diet ever since, I still do that
GYM Yes I never missed. The only time I missed was when I was on holiday. I didn't want to miss it. (Exe 2-60)

Yeah I mean I never used to exercise, but, I do exercise at least twice a week, and although you don't always be good on what you eat you do sort of think about it, and you know sometimes I'll have another sin but at least you're aware of hard facts, and that sort of junk. (Exe 2-19)

Yes very gentle exercise three days a week. Then I had a 6 months break and I started back in January this year. It has progressed very well. I feel back now like my

original self. I feel fine and I can walk quite a few miles now. I still have a slight bother on the hills, but I have a quick recovery now. (Exe 2-18)

Changed my diet quite a lot. Cut out fats. And not very much chocolate at all now. Ate more fruit and vegetables.

I've joined the gym now, as I've finished at the CR gym.
I attended three times a week. (Exe 2-31)

Yeah, well I changed my diet, I didn't drink anyway, I didn't smoke.

When I say I didn't drink except you know for the odd thing, but erm, I did change me
I maintain a reasonable lifestyle, on fat and on diet
I do a lot of other exercise, in the garden. (Exe 2-34)

3.17.2. Yoga Group Comments

I do the deep breathing and the relaxation at least once a day and attend the yoga classes. (Yoga 2-23)

I have altered my life style.
I always go to yoga. If I don't go it's because I'm ill, or something important cropped up, so I go every Thursday unless something important, yes. (Yoga 2-24)

Swimming, aqua aerobics, and Look after yourself group.
Low fat diet as well
Yoga, I wouldn't miss it. (Yoga 2-2)
Well, I've found Dean Ornish a great inspiration. Reading that taught me a lot about diet, exercise etc.
The yoga has had the biggest effect on my life. (Yoga 2-6)

I'm pretty strict erm, with my diet, the fat side of it, because everything I buy I check to see if it's a low. (Yoga 2-57)

I'm coming twice a week to the yoga classes and the gym. (Yoga 2-48)

Yoga, for I think about twelve months. (Yoga 2-50)

Yes, I do 3 forms of exercise. I do LAY on Monday, Yoga on Tuesday and Aquarobics on Friday. I'm much more conscious of the fat levels and eating fruit and veg. (Yoga 2-22)

I attended yoga until I had the triple bypass and then I knocked off, er I'm not back to it yet. (Yoga 2-45)

3.18 Changes to Lifestyle

The changes that participants had incorporated into their lifestyle included either yoga or exercise and dietary modifications. The yoga participants identified the changes they had incorporated from the yoga programme which were mainly relaxation and meditation.

3.18.1 Range of Lifestyle Changes

An overview of the range of changes made by participants in each group is provided in Table 3.22

Table 3.22: Lifestyle Changes

Lifestyle Changes	**Diet/ Exercise**	**Exercise**	**Diet**	***Diet/ Exercise/ Meditation***	***Not Stated***			
Exercise 1 (n=23)	12 (52%)	6 (26%)	3 (13%)	1 (4%)	1 (4%)			
Lifestyle Changes	**Diet/Yoga**	**Yoga**	**Yoga/ Exercise**	**Diet/ Exe/Yoga**	**Yoga/ Relax/ Meditation**	**Med/ Yoga/ Exercise**	**Diet/ Yoga/ Meditation**	**Not Stated**
Yoga 1 (n=21)	5 (24%)	2 (10%)	2 (10%)	6 (29%)	1 (5%)	1 (5%)	1 (5%)	3 (14%)

The above table demonstrates that participants in each group were making lifestyle change incorporating aspects of their chosen intervention exercise or yoga.

3.19 Reported Benefits of Exercise and Yoga

The participant comments in relation to regular practice of yoga and exercise provide further insight into their experience.

3.19.1 Yoga Group Comments

I do feel more relaxed, I seem to enjoy things better you know. (Yoga 2-25)

I like stretching, I like stretching exercises, the breathing exercises, I find I'm doing those at home. And if I'm trying to get to sleep, and I can't get to sleep, I don't find it makes much difference, but I do, do my deep breathing exercises.
I just like it, and I believe in it, and I'm just sorry that there's an awful lot of people who laugh at you when you say you go to yoga, or look at you as though you're mad, and I think I wish you would go.
I think it's, in the class, you know, we're relaxing, or doing something, and I think, well this is nice, and everything else just isn't important. That you can sort of. Let go. (Yoga 2-1)

I think it might have a little I think I'm a bit more confident than I used to be. I just seem generally a lot happier with life than I was. (Yoga 2-23)

As soon as I come in here I feel like laughing.
I could come here and do yoga and meditation, and it definitely, definitely helped me get a better quality of life. To me, it's very important. (Yoga 2-53)

The avoiding of confrontations and so on, it happens to suit, the way I think. And more importantly probably although I don't practice regularly as I should at home, the breathing has been very important, because one of the things that like I've got today the problem with having a tight chest, and feeling as though I've got a lump of lead in my chest is aided, that if I really feel breathless I can follow the breathing and it does ease it, and although it doesn't put it right it does help. (Yoga 2-24)

I think it's because, you're in tune with your own body and you know how much, it's not too strenuous exercises, it's bending and stretching and I think it makes you more aware of the calming effect it can have on you, because in every day life you're running from one to another and er, if you've got
You do get days when you do feel irritable, and you look back on your yoga and think I'll do some deep breathing er, and some exercises you know yoga exercise and it calms me right down. (Yoga 2-2)

I like to do the limbering up. I feel I'm much more flexible now. I'm much more aware of my body on a subtle sense, because I watch myself and Straighten up. I use it actively and I watch myself. When you come back after a break you notice the difference as you go back.
I think it does, it makes you look at your life differently and look at yourself. Looking at your postures a year on and your breathing. I practice a lot of breathing, especially when I'm driving I do DYB. I am a less aggressive driver. I'm not in a hurry to get anywhere. (Yoga 2-5)

I think the whole thing gives you self-awareness. Whether it was the postures or the relaxation. I've remained self-aware. I used to be self-aware but I let it go and then got it back, of which I'm glad of. I got that back through yoga. I stopped in my tracks and reconsidered myself. (Yoga 2-7)

Everything has changed since I've been coming. You're more friendly towards people and things like that. I put my confidence is down to the yoga. Its done an awful lot to help. (Yoga 2-59)

Yes I thinks so. I think the yoga has had a factor in that, cause its settled me down a bit. Before I used to rush around a lot, now I know I've got to give myself time. I don't feel guilty about looking at the birds in the garden.
I know that's not yoga, but it is the general attitude. (Yoga 2-22)

3.19.2 Exercise Group Comments

Exercise -Well I think it's made me appreciate things a lot more, funny enough. Er. and it's helped me grow in confidence as I said before, but I think because that time is put aside, one thing I never, never done really is put time aside. (Exe 2-36)

It stimulates the heart I mean the exercise I'm doing, it was stressed on us in the first place all leg movements were better than movements of the arm, the leg movements were the thing. Yes I've become aware of my body more now, than what it was before that. (Exe 2-29)

Well I'm told; it does you good, not that you can notice it though
I think it's meeting people as much as anything. (Exe 2-19)

It's just that I feel fitter. (Exe 2-10)

3.19.3 Benefits of Regular Practice Reported by the Yoga Group

When asked about the benefits of regular yoga practice, participants in the yoga group provided a wide range of responses, which highlight the individual nature of the experience and the type of experience or achievement gained through regular yoga practice. See Table 3.23.

Table 3.23: Benefits of Regular Practice: Yoga Group

Yoga 2 (n=21)	Number	%
Self awareness	1	5
Breathing	1	5
Relaxation	2	10
Body flexibility/exercise	4	19
Group support	1	5
Confidence	1	5
Flexibility/calming	1	5
Anxiety reduction	1	5
In tune with the body/calm	1	5
Way of looking at things	1	5
Sets you up	1	5
Something lacking if don't attend	1	5
No swollen legs	1	5
Moved away from the area	1	5
Not Stated	2	10

3.19.4 Benefits of Regular Practice Reported by the Exercise Group

The majority of the exercise group identified fitness and feeling better as the most important benefits gained from practising exercise regularly. This is outlined in Table 3.24

Table 3.24: Benefits of Regular Practice: Exercise Group

Exercise 2 (n=23)	Number	%
Fitness	16	70
Health	2	9
Social	1	4
Confidence	1	4
Feel better	3	13

3.20 Attendance at Classes

The majority of participants in the yoga group had continued to attend the yoga classes, as summarised in Table 3.25.

Table 3.25: Attendance at Classes: Yoga Group

Attendance at Classes	Yes	No	Moved out of the area
Yoga 2 (n=21)	14 (67%)	6 (29%)	1 (5%)

The majority of participants in the exercise programme had continued to attend the classes either at the Cardiac Rehabilitation Centre or had moved on to a gymnasium in their locality to continue there independently, as shown in Table 3.26.

Table 3.26: Attendance at Classes: Exercise Group

Attendance at Classes	Yes	No	Local Gym
Exercise2: (n=23)	5 (22%)	5 (22%)	13 (57%)

3.21 Usefulness of Yoga or Exercise and Home Practise

3.21.1 Usefulness of Yoga and Exercise

When asked about the usefulness of yoga participants in the yoga group once again identified a wide range of individual benefits. The usefulness of breathing techniques was consistently noted. See Table 3.27.

Table 3.27: Usefulness of Yoga

Yoga 2 (n=21)	Number	%
Movement/breathing	1	5
Relaxation/breathing	2	10
Relaxation	1	5
Breathing	7	33
Emotional effects	1	5
Movement/relaxation	2	10
Flexibility/positivity	1	5
Movement/calmness	1	5
Notices lack of it	1	5
Self knowledge/suppleness/relaxation	1	5
Improved life	1	5
Body movement	2	10

3.21.2 Usefulness of Exercise.

The exercise group identified that exercise was most useful to them in the pursuit of fitness and feeling better. See Table 3.28.

Table 3.28: Usefulness of Exercise

Exercise 2 (n=23)	Number	%
Lifestyle	4	17
Feel better	7	30
Keep fit	7	30
Health	1	4
Good when it finishes	1	4
Not Stated	3	13

3.21.2 Home Practice

Participants in both groups reported that they practised at home in addition to attending the yoga or exercise programme. Comments from each group highlight participant views in relation to practising at home.

3.21.3 Yoga Group Comments

I like the relaxation I practise that a lot (Yoga 2-23)
I like stretching exercises, the breathing exercises, I find I'm doing those at home, (Yoga 2-1)

I do the deep breathing and relaxation at east once a day (Yoga2 –49)

Mostly I do deep breathing lying on the floor. I do a few exercises but not a great deal, cause I like the cat posture and the balancing. (Yoga 2-4)

I do the warming up, usually the harmony sequence, the stretching exercises. I do a combination, it depends, I do it outside as well in the garden. And it seems to make me aware and communicate with nature. (Yoga 2-2)

The breath I use that day to day, all the time. If you're tense sometimes you forget to breathe but breathing out for the count of five helps. (Yoga 2-6)

3.21.4 Exercise Group Comments

Golf usually twice a week (Exe 2-16)

I've kept my exercises up, and I go swimming a lot more, a couple of times more, and I go out on my bike a bit more. (Exe 2-43)

Well I've always done, exercise (Exe 2-15)

I do a lot of walking I go for a long walk every day (Exe 2-42)

I'm still hill walking and cycling anyway. I've always been active outside the gym anyway. (Exe 2-13)

3.21.5 Range of Activities Practised at Home

The range of activities practised at home is highlighted in the following tables for each group of participants. The Yoga group results are presented in Table 3.29 the exercise results in Table 3.30.

Table 3.29: Practise at Home: Yoga Group

Yoga 2 (n=21)	Number	%
Yes	7	33
Breathing	5	24
Breathing/relaxation	2	10
Relaxation	2	10
Movement	1	5
No	1	5
Occasionally	2	10
Not Stated	1	5

Breathing and relaxation are the aspects of yoga most commonly practised by the yoga group participants.

Table 3.30: Practise at Home: Exercise Group

Exercise 2 (n=23)	Number	%
Yes	2	9
Walking	5	22
Cycling	1	4
Stretching	1	4
Exercise/swimming	1	4
Always-active	3	13
Go to gymnasium	2	9
No	2	9
Not Stated	4	17

Walking is the most common exercise utilised at home by the exercise group participants. Always being active is reported as the other main form of exercise undertaken.

3.22 Importance of Yoga or Exercise to Lifestyle

The participants in the yoga group identified the importance of yoga, highlighting its unique contribution to them as individuals in their personal comment. See Table 3.31.

Table 3.31: Importance of Yoga

Yoga 2 (n=21)	Number	%
I like it and believe in it	1	5
Helps take a day at a time	1	5
You find out you can do things	1	5
Brings gentleness and calmness	1	5
I wouldn't be without it	1	5
Its part of my life	1	5
Beneficial	1	5
Its essential	1	5
Relaxation	1	5
Its still important	1	5
Always interested	1	5
Important for daily use	1	5
Its a discipline and group therapy	1	5
It was important but couldn't keep up attendance	1	5
Concentrating on how you feel	1	5
I now prefer the gym	1	5
I use it regularly and meditate daily	1	5
Exercise with no strain	1	5
Its very important to me	1	5
Not stated	2	10

The importance of exercise to the exercise group participants was of significance in a less personal but more physical sense. The comments provided by this group were relatively brief and more generalised. See Table 3.32.

Table 3.32: Importance of Exercise

Exercise 2 (n=23)	Number	%
Very important	8	34
Part of lifestyle	5	22
Fitness	1	4
More aware of body	1	4
I don't want to die	1	4
Important now not before	1	4
Not Stated	6	26

3.23 Contribution of Yoga or Exercise in Control of Life

Individual comments provided some insight into the yoga and exercise participants feelings about being in control of their lives.

3.23.1 Yoga Group Comments

In Control - sometimes, sometimes, sometimes er, I feel as if all I'm there for is other people you know. (Yoga 2-25)

Control, yes, more than before. (Yoga 2-59)

3.23.2 Exercise Group Comments

Control Oh yes, erm I don't let things bug me like they used to. I, I was a worrier, a real worrier, I still worry but nothing like I used to worry, I just let it go over my head now and I know I feel so much better for it. (Exe 2-55)

I'm in control in a sense erm, you know I'm looking after the house, the family, er as far as health; I mean it's just a bagatelle. I mean you can do all the proper things eat the right things, take the medication do what they say do your exercise, and out of the blue, you know you just get whatever, but that's the same for everybody. I mean you

don't have to have heart problems, you could walk along get a tachycardia walking along and drop dead, so in that sense it's not a problem, but you certainly become extremely aware from a life point of view you've got no control whatsoever. (Exe 2-36)

I'm definitely in control of my life and my quality of life is pretty good. (Exe 2-13)

3.23.3 Contribution of Yoga to Control of Life

In the yoga group some participants indicated that yoga was a factor in them being control of their lives. Other participants specified the way in which they felt yoga contributed to them being in control of their lives as outlined in Table 3.33.

Table 3.33: Contribution of Yoga to Control of Life

Yoga 2 (n=21)	Number	%
Yes	12	57
No	2	10
Awareness	2	10
Positivity	1	5
Value life	1	5
Builds you up	1	5
Sometimes	1	5
Not Stated	1	5

When questioned further regarding the contribution that the yoga made to being in control of their lives, yoga group participants identified additional factors regarding the specific contribution of yoga. See Table 3.34.

Table 3.34: Yoga a Factor in Control of Life

Yoga 2 (n=21)	Number	%
Yes	12	57
Keeps me on the ground	1	5
Yoga & meditation	1	5
More aware	1	5
Relaxation	2	10
Remain self aware	1	5
No – Work	1	5
No – Angina	1	5
Not Stated	1	5

3.23.4 Contribution of Exercise to Control of Life

The majority of participants in the exercise group reported that they were in control of their life with just less than half suggesting that exercise was a factor in achieving this control as summarised in Table 3.35.

Table 3.35: Contribution of Exercise to Control of Life

Exercise 2 (n=23)	Number	%
Yes	19	83
No	3	13
Sometimes some things I can't do	1	4

Just less than half of the exercise participants thought that exercise contributed to them feeling in control of their life. See Table 3.36.

Table 3.36: Exercise a Factor in Control of Life

Exercise 2 (n=23)	Number	%
Yes	10	43
No	1	4
Don't Know	1	4
Possibly	1	4
Not Stated	10	43

When questioned further regarding the contribution of exercise to control of life no further comments were made. See Table 3.36

3.24 Change in Quality of Life the Influence of Yoga or Exercise

The comments made by participants from the exercise group and yoga group with reference to their quality of life are presented as follows in section 3.24.1.

3.24.1 Exercise Group 2: Comments on Quality of Life

Yes, erm, well a quality of life, er, I feel much better about life, I was never shaken up to that degree about my heart attack, I never once thought anything was going to happen to me - never, I look at life differently now erm, we live very well, from all respects and I think my wife has a different outlook now. We see life differently now, it's not the hum drum that it was, and from that point of view my life has changed, er we feel so much brighter about the future and everything, there's nothing we won't tackle now. (Exe 2- 55)

It could be an awful lot worse, but it could be better. (Exe 2-16)

It's er, I'd say good, there's only a few things I can't do. (Exe 2-43)

I think my quality of life was deteriorating in September last year, or leading up to it, so I decided to shut the company down. Because it came to the point where I could either chase contracts and chase money and keep people employed, or put myself in a wooden box. And I sat there one night after everybody had gone, and thought - nah. So in that sense I had control over my life. I decided to shut the company. (Exe 2-36)

3.24.2 Yoga Group 2 Comments on Quality of Life

Yes, because I appreciate the things that matter a great deal more, you get your perspectives altered and your priorities. I wasn't unhappy with the quality of my life before, but I'm more aware of it. Whether it changes it that much isn't the point, but you are more aware of it. (Yoga 2-22)

I just seem generally a lot happier with life than I was (Yoga 2-23)

I feel very positive about everything (Yoga 2-53)

I think the yoga makes you appreciate life. It brings an awareness to you that you didn't even think about before. A quality of life, how it could be and should be, rather than just plodding along day to day and dealing with the drudgery really. I think its good (Yoga 2-5)

Yes definitely. It gives you more confidence to talk to people and you feel better in yourself. When I leave here after yoga I feel great. Before, you were more morbid and frightened to do things. It gives you a lost of confidence (Yoga 2-59)

3.24.3 Summary of Comments: Yoga Group Quality of Life

Yoga group participants expressed their personal view of the influence of yoga on their quality of life in a number of different ways as summarised in Table 3.37.

Table 3.37: Summary of Comments: Yoga Influence on Quality of Life

Yoga 2 (n= 21)	Number	%
In a way	1	5
More mental influence	1	5
More content	1	5
Yes – definitely	1	5
Responses are heightened	1	5
Value life and things around me	1	5
Don't worry about non-essentials	1	5
Appreciate things that matter	1	5
Enjoy stuff better	1	5
See life differently	1	5
If I went longer to classes	1	5
Recognise self	1	5
Calming effect	1	5
Awareness	1	5
Yes	2	10
No	1	5
Not Stated	4	19

3.24.4 Summary of Comments on Exercise Group Quality of Life

Some participants in the exercise group identified a relationship between participation in the exercise programme and their quality of life, however less than half the number in the group reported this and a number of participants did not provide an answer to this question. A summary is provided in Table 3.38.

Table 3.38: Summary of Comments: Exercise Influence on Quality of Life

Exercise 2 (n= 21)	Number	%
More confident	3	14
More aware of body	1	5
Enjoy exercise	1	5
More space	1	5
Not Stated	12	57
Yes – exercise has influenced my quality of life	2	10
No – exercise has not influenced my quality of life	3	14

3.24.5 Changes in Quality of Life: Yoga Group

The majority of participants in the yoga group identified changes in their quality of life, the comments are summarised in the following Table 3.39.

Table 3.39: Changes in Quality of Life: Yoga Group

Yoga 2 (n= 21)	Number	%
Yes (unqualified response)	9	43
Yes – Better	2	10
Yes – Getting out more	1	5
Yes – Not as busy	1	5
Yes – Look at life differently	1	5
Yes – More awareness	1	5
Yes – Got better	1	5
Yes – Less confident	1	5
Yes – Enjoy self but recognise limits	1	5
Same as before	1	5
Less quality of life now – Can`t walk	1	5
Not Stated	1	5

3.24.6 Changes in Quality of Life: Exercise Group

Participants in the exercise group identified changes in their quality of life, the comments are summarised in the following Table 3.40.

Table 3.40: Change in Quality of Life; Exercise Group

Exercise 2 (n=23)	Number	%
Better than before	3	13
No change	4	17
Same as before	4	17
Good	9	39
Brilliant	1	4
Not Stated	2	9

Some participants indicated their quality of life was unchanged, some said it was good and a small number that it was better than before

3.25 Yoga and Exercise Influence on Attitudes

3.25.1 Yoga Influence on Attitudes

The participants in the yoga group identified a wide range of ways in which their attitudes to themselves had shifted as a direct consequence of undertaking yoga programme. The Table 3.41. demonstrates the breadth of responses.

Table 3.41: Yoga Influence on Attitudes

Yoga 2 (n= 21)	Number	%
Able to let go	1	5
Don't rush and think about self more	1	5
Think more about me	1	5
More confident with people	1	5
Attitudes are clarified	1	5
More patient and smile a lot	1	5
Don't dwell on trivia	1	5
Not really	1	5
A bit calmer	1	5
Awareness	1	5
More amiable	1	5
More conscious of self	1	5
Using affirmations	1	5
Look at life differently, awareness	1	5
Feel better about things, awareness	1	5
Like self, more happy	1	5
Feel better next day after yoga class	1	5
Yes, it has influenced my attitude	1	5
No, it hasn't influenced my attitude	1	5
Not stated	2	10

3.25.2 Exercise Influence on Attitudes

In contrast the exercise group did not report such a wide range of attitudinal shift resulting from participation in the exercise programme as summarised in Table 3.42.

Table 3.42: Exercise Influence on Attitudes

Exercise 2 (n=23)	Number	%
More confident	2	9
Helped confidence	1	4
More aware of body	1	4
Enjoy exercise	1	4
More space	1	4
Yes, it has influenced my attitudes	2	9
No, it hasn't influenced my attitudes	3	13
Not stated	12	52

3.26 Further Comments about Yoga or Exercise

3.26.1 Yoga Group

Participants in the yoga group again provide a more individualised perspective of their experience in the yoga programme as captured within the following summary of comments in Table 3.43.

Table 3.43: Summary of Comments about Yoga

Yoga 2 (n=21)	Number	%
Better to be in a group	1	5
Get up and go	1	5
Supportive	1	5
Enjoyed them very much	1	5
Excellent	1	5
Take what's right for you	1	5
Enormous fun	1	5
People all in the same boat	1	5
Group stimulation	1	5
Support each other	1	5
Good to be part of a group	1	5
Group nice	1	5
Support	1	5
People in the same level	1	5
Just right	1	5
Less serious	1	5
Don't attend now	1	5
Not Stated	4	19

One notable theme emerging from these comments was the importance of the social aspect of individual experience which was highlighted by just less than half of the participants in this group.

3.26.2 Exercise Group

The participants in the exercise group also provided their individual perspectives on their experience in the exercise programme. The summary of comments is provided in the following Table 3.44.

Table 3.44: Summary of Comments about Exercise

Exercise 2 (n=23)	Name	%
Enjoyed them	1	4
All have the same problem	1	4
Boring	1	4
Love exercise	1	4
Organised	1	4
Social aspects	1	4
Enjoy exercise now	1	4
Better with others	1	4
Miss comradeship	1	4
Miss the group	1	4
Social aspects	1	4
Meet friends	1	4
Meeting people	1	4
Miss them	1	4
More confident	1	4
Enjoy exercise	1	4
Not Stated	7	30

The common theme emerging from participants was the valuable contribution of the social aspect to the experience and benefit of the programme.

3.27 Social Aspects of Yoga and Exercise Classes

The participants in both the yoga and exercise groups provided insight into their view of the social aspect of the group experience as summarised in Tables 3.45 and 3.46.

Table 3.45: Yoga Group Social Aspects

Yoga 2 (n=21)	Number	%
Hearing different comments helps.	1	5
Company	1	5
Good talk and laugh	1	5
Good group friendship	1	5
Discipline and good atmosphere	1	5
Great company	1	5
Group support tremendous	1	5
Friendly	1	5
Exchange views and experience	1	5
Group therapy	1	5
Friendly	1	5
Group pushes you along	1	5
Do better in a group	1	5
People in the same level	1	5
Not Stated	7	33

Table 3.46: Exercise Group Social Aspects

Exercise 2 (n=23)	Number	%
Good company	6	26
New friends	3	13
All in the same boat	1	4
Club atmosphere	1	4
Social Aspect is a bonus	1	4
Not important – loner	1	4
Miss the company	1	4
Not Stated	9	39

Participants in both groups highlighted the importance of the social aspect particularly the shared experience of the groups and emerging support and friendship.

3.28 The Contribution of Yoga or Exercise to Managing Stress

3.28.1 Managing Stress: Yoga Group

The yoga group identified a range of ways in which yoga has contributed to the way they manage stress in their lives as demonstrated in Table 3.47.

Table 3.47: Managing Stress

Yoga 2 (n=21)	Number	%
Calmer	6	29
Cope much better	2	10
More tolerant & patient	1	5
Don't bother about things so much	1	5
Everything changed since coming to yoga	1	5
Use yoga and exercise	1	5
Use breathing	1	5
Use yoga	1	5
No panic now	1	5
No change	1	5
Not stated	5	24

The Yoga group participants indicated that they now utilised various techniques they had acquired in the Yoga programme to help manage their stress.

3.28.2 Managing Stress: Exercise Group

Some, participants in the exercise group identified ways in which they felt they managed their stress as summarised in the following Table 3.48.

Table 3.48: Comments Regarding Managing Stress

Exercise 2 (n=23)	Number	%
Just let it go over my head now	1	4
Feel so good, don't let this get you down	1	4
Just decided to shut the company	1	4
Put time aside	1	4
Relaxed and laid back about the whole thing	1	4
Try and set that time on one side	1	4
Slowed the pace of my life down drastically	1	4
Take it easy	1	4
Not stated	15	65

Some the exercise group participants indicated a changed attitude toward managing stress.

3.29 Additional Observations Regarding Participant Experience

3.29.1 Yoga Group

Participants in the yoga programme provided further insightful observations regarding their experience of the yoga programme. A summary of these observations is provided in the following Table 3.49.

Table 3.49: Summary of Additional Observations

Yoga 2 (n=21)	Number	%
Gives a deeper meaning	1	5
More confident and happier	1	5
Feel better in yourself	1	5
Increased spirituality	1	5
Made me a better person	1	5
More confident	1	5
Yoga makes you feel more alert and alive	1	5
More tolerant of people and more gentle	1	5
Calmer due to relaxation	1	5
More at ease with people	1	5
Meditation useful	1	5
Breathing useful	1	5
Awareness	1	5
Meditation and visualization useful	1	5
Rarely lose temper now	1	5
Enjoy meditation	1	5
Meditation useful	1	5

These observations highlight the range of benefits achieved together with the depth of individual experiences, some of which are profound in nature.

3.29.2 Exercise Group

Fourteen exercise participants provided observations of a more practical nature to highlight their experience of the exercise programme as outlined in the following Table 3.50.

Table 3.50: Summary of Additional Observations

Exercise 2 (n=23)	Number	%
Brighter in body and mind	1	4
More dietary support needed	1	4
Exercise fundamental to lifestyle	1	4
Condition has flared up	1	4
Don't attend now	1	4
I miss people from the classes	1	4
Feel normal	1	4
Feel like original self	1	4
Relaxed and laid back	1	4
Wasn't sociable now am	1	4
Miss friendly atmosphere	1	4
Gym boring	1	4
Its a way of life	1	4
More confident	1	4

Within these observations the contribution of the social aspect is still highlighted by some of the participants.

3.30 Quantitative Results at Time 2

3.30.1 Stress and Self Perception Measures: Comparison of Results at Time 1 and 2

Analysis of Variance

A two-way mixed measures ANOVA was conducted to compare scores between groups for stress and the eleven domains of self-perception at Time 1 and Time 2. The numbers of participants providing data varies in each group at Time 1 and Time 2 in these analyses as not all participants returned fully completed sets of measures and due to attrition fewer completed the second set of measures. Participant numbers at Time 1 were Yoga (n=22), Exercise (n=29), Some participants withdrew from the study therefore the numbers in each group at Time 2 became Yoga (n=21), Exercise (n=23), as discussed in Section 3.33.1. The variation in numbers in the results tables reflects the data that was actually completed by those taking part.

Although stress scores appear slightly higher at time 2 there was no statistically significant difference between stress scores at Time 1 and 2 for the yoga or exercise group. See Table 3.51. However, statistically significant results were seen in the following domains at Times 1 and 2 for both groups of participants, as summarised for GSW in Tables 3.51 and other domains in Table: 3.52.

Table 3.51: Mean Stress Scores at Time1 & Time 2

Stress	Time 1 Mean SD	Time 2 Mean SD
Yoga	16.61 (7.7) (n=20)	18.66 (7.7) (n=20)
Exercise	15.1 (7.9) (n=24)	16.9 (8.3) (n = 24)

Table 3.52 Mean Global Self Worth (GSW) Scores at Time1 & Time 2

GSW	Time 1 Mean SD	Time 2 Mean SD
Yoga	2.96 (0.44) (n = 21)	2.98 (0.53) (n = 21)
Exercise	3.17 (0.48) (n = 24)	3.33 (0.49) (n = 24)

The means and standard deviations for Time 1 and Time 2 are presented in Table 3.52. For GSW, there was a statistically significant main effect of group. F 1.39 = 4.50, p = 0.04

The yoga group had statistically significantly lower self worth than the exercise group for both time periods. However, it is noted that both mean values are still relatively high and although they are slightly lower than those of well women and men in the sample population, utilised by the authors to determine consistency and reliability of the instrument, the results compare favourably with that group.

Table 3.53: Job Importance

Job Importance	Time 1 Mean SD	Time 2 Mean SD
Yoga Group	3.33 (0.5) (n = 22)	3.44 (0.5) (n = 21)
Exercise Group	3.77 (0.4) (n = 29)	3.68(0.5) (n = 23)

For job importance, there was a statistically significant main effect for group. F 1,38 = 6.03, p = 0.019. The exercise participants attached greater importance to job competence. See Table 3.53.

Table 3.54: Provider Importance

Provider Importance	Time 1 Mean SD	Time 2 Mean SD
Yoga Group	3.20 (0.6) (n = 22)	3.11 (10.5) (n = 21)
Exercise Group	3.78 (0.4) (n = 29)	3.73 (0.4) (n = 23)

For provider importance, there was a statistically significant main effect for group. F 1,39 = 19, p = 0.000. The exercise participants attached ly greater importance to being a provider, as indicated in Table 3.54.

Table 3.55: Social Importance

Social Importance	Time 1 Mean SD	Time 2 Mean SD
Yoga Group	3.42 (0.7) (n = 22)	2.95 (1.2) (n = 21)
Exercise Group	3.48 (0.5) (n = 29)	3.26 (0.54) (n = 23)

For social importance, there was a statistically significant main effect for time. F 1,40 = 5.42, p = 0.025. These results in Table 3.55 demonstrate that the value placed on social importance decreased over time.

Table 3.56: Physical Appearance

Physical Appearance	Time 1 Mean SD	Time 2 Mean SD
Yoga Group	2.5 (0.4) (n = 22)	2.7 (0.7) (n = 21)
Exercise Group	2.8 (0.5) (n = 29)	2.9 (0.6) (n = 23)

For physical appearance, there was a statistically significant main effect for time. F 1,39 = 4.50, p = 0.04. Over time both groups increased their rating for physical appearance, as shown in Table 3.56.

Table 3.57: Intimate Relationships

Intimate Relationships	Time 1 Mean SD	Time 2 Mean SD
Yoga Group	2.72 (0.7) (n = 22)	2.97 (0.7) (n = 21)
Exercise Group	2.61 (0.6) (n = 29)	2.83) (0.8) (n = 23)

For intimate relationships, there was a statistically significant main effect for time. F 1,39 = 5.97, p = 0.019. Both groups of participants demonstrated increased competence ratings with respect to intimate relationships over time, as summarised in Table 3.57.

3.30.2 Summary of Analysis of Variance

The yoga group participants demonstrated ratings of GSW, job importance, and provider importance, which were statistically significantly less than those of the exercise participants. This may relate to a gender effect as half of the participants in the yoga group are female who work part time or are full time housewives who do not see themselves as the provider. The internal consistency and reliability subscales prepared by the authors Messer & Harter (1986) demonstrated similar results for women in their sample. Overall women tend to rate themselves lower than men on GSW.

Between Time 1 and Time 2 both groups of participants demonstrated an increase in competence within intimate relationships and physical appearance this may reflect increasing adjustment to their CHD. This is set against a drop in estimate of the importance of social competence over time.

3.31 Correlation of Results from the Self Perception Profile at Time1 and Time 2

3.31.1 Pearson Product-Moment Correlation

To consider the relationship among variables in the Self-perception data the Pearson Product-Moment Correlation was used, in this case, to explore the association or otherwise between pairs of variables.

Within the domain of self-perception, global self-worth, which is an individual judgement of overall self-esteem, was correlated with each of the eleven separate domains of self-perception, in order to assess the importance of these domains for individuals' feelings of self-worth. The latter is regarded as the measure of the person's overall feelings of self-esteem. Ratings of competence in the individual domains may or may not be related to global feelings of self worth.

The statistically significant correlations from results from the Self-Perception Profile are summarised below, the main table of results may be referred to in Appendix 8a.

3.31.2 Correlations

Global Self Worth (GSW) is capturing the overall feeling of self worth on a measure of overall Self Esteem.

Question

What Self Assessed Competence is GSW associated with in this population both overall and in the separate groups?

Yoga Group Time 1

GSW is significantly correlated with *Sociability* r = 0.69 p = 0.01
GSW is significantly correlated with *Job Competence* r = 0.57 p = 0.01
GSW is significantly correlated with *Nurturance* r = 0.53 p = 0.01
GSW is significantly correlated with *Adequate Provider* r = 0.41 p = 0.05

Yoga Group Time 2

GSW is significantly correlated with *Sociability* r = 0.58 p = 0.01
GSW is significantly correlated with *Job Competence* r = 0.45 p = 0.05
GSW is significantly correlated with *Physical Appearance* r = 0.74 0.001
GSW is significantly correlated with *Adequate* Provider r = 0.52 p = 0.01

Exercise Group Time 1

GSW is significantly correlated with *Sociability* r = 0.50 p = 0.01
GSW is significantly correlated with *Job Competence* r = 0.57 p = 0.01
GSW is significantly correlated with *Physical Appearance* r = 0.66 p = 0.001
GSW is significantly correlated with *Adequate Provider* r = 0.54 p = 0.01
GSW is significantly correlated with *Morality* r = 0.57 p = 0.01
GSW is significantly correlated with *Householder* r = 0.58 p = 0.01
GSW is significantly correlated with *Intimate Relationships* r =0.50 p = 0.01
GSW is significantly correlated with *Intelligence* r = 0.42 p = 0.05

Exercise Group Time 2

GSW is significantly correlated with *Sociability* r = 0.40 p = 0.05
GSW is significantly correlated with *Job Competence* r = 0.61 p = 0.001
GSW is significantly correlated with *Nurturance* r = 0.47 p = 0.05
GSW is significantly correlated with *Physical Appearance* r = 0.42 p = 0.05
GSW is significantly correlated with *Adequate Provider* r = 0.53 p = 0.01

3.31.3 Summary of Correlation Results

Similar patterns of statistically significant association with GSW can be seen in both groups at both time periods. Sociability, job competence and being an adequate provider are statistically significantly associated at both times for the exercise and yoga groups. Thus both groups of participants are similar in areas that lead to a higher or lower order of overall self-esteem.

3.32 Quality of Life Time 2

3.32.1 QoL Measures 2

Means were 73.27 and SD (11.93) for the yoga group and 75.41 and SD (14.46) for the exercise group. They were not statistically significantly different. See Table 3.58. An increase in the Mean QoL was demonstrated between Time 1 and Time 2 in both the yoga and exercise group but this was not statistically significantly different, as illustrated in Table 3.58. The QoL means were lower for the yoga and exercise group than for a healthy elderly and healthy adult group in a study of QoL in the healthy elderly conducted by Browne et al., (1994). However, in comparison to individuals with irritable bowel syndrome (Guthrie et al., 1987) the QoL means were higher. Mean QoL values were comparable to individuals with Peptic Ulcer Disease (Guthrie et al., 1987). This suggests that chronic illness does affect quality of life, but that different conditions have varying negative effects.

Table: 3.58 Quality of Life Means at Time 1 and 2

Quality of Life	Group	N	Mean	SD
QoL1	Yoga	24	71.0833	15.4298
	Exercise	30	71.5333	17.4529
QoL2	Yoga	18	73.2778	11.9302
	Exercise	24	75.4167	14.4671

3.32.2 Quality of Life Domains Selection at Time 1 and Time 2

The Domains nominated by participants in each group as relevant to their quality of life on both occasions are shown in Table 3.59.

In relation to judgement analysis, following multiple regression analysis at Time 1 (19%) of participants (n = 10) had an R^2 less than 0.7 and at Time 2, (14%) (n = 6). R^2 varies with the consistency of the judge: if he or she changes the weight placed on certain domains R^2 will be low. This suggests some concern about the validity of judgements for these participants across the measure. This may relate to participants level of comprehension of the measure, or loss of concentration during completion.

Table 3.59: Quality of Life Domains

Domain	%Yoga Group (n=22) Time 1	*Rating*	% Yoga Group (n=21) Time 2	*Rating*	%Exercise Group (n=29) Time 1	*Rating*	%Exercise Group (n=23) Time 2	*Rating*
Health	80	1	72	1.5	80	2	60	3
Family	76	2.5	72	1.5	89	1	66	1
Finance	76	2.5	60	3	77	3	63	2
Hobbies/Interests	52	3	44	5	71	4	57	4
Faith	24	5	24	6.5	6	9.5	9	8.5
Job	12	8	4	12	3	10.5		
Music	8	9.5	4	12	3	10.5	6	9.5
Home	20	6	4	12	17	7.5	6	9.5
Friends	28	4	56	4	40	5	23	5
Socialising	16	7.5	24	6.5	20	6	14	6
Exercise	4	10			17	7.5	6	9.5
Yoga	8	9.5	20	7				
Holidays/Breaks	16	7.5	8	9	11	8	9	8.5
Happiness/Contentment			8	9	6	9.5	11	7
Fitness			8	9				

3.32.3 Summary of Quality of Life Measures

Participants in the yoga and exercise group identified health, family and finance as the three most important domains determining their quality of life at time 1 and Time2 although the number of participants who selected these particular domains was slightly less at Time2. See Table 3.59.

The pattern of domains as selected by the participants' individual rating, in table 3.59, was similar for both groups at Time1 and 2 indicating that these domains have remained relatively constant over the year.

In addition the domains selected were similar to those chosen by healthy elderly individuals participating and healthy adults in a study conducted by Browne et al., (1994) using SEIQoL to determine quality of life in the elderly. Furthermore a study by Guthrie et al., (1987), which related to the QoL of patients with irritable bowel syndrome and patients with peptic ulcer disease demonstrated that these two groups also selected the same domains.

Finally, in relation to domains selected by each group, there was a greater emphasis placed on faith by the yoga group and a greater emphasis placed on exercise by the exercise group. Otherwise the two groups look fairly similar in respect of their selections.

3.33 Summary of Qualitative and Quantitative Results at Time 2

The following is the summary of results from the second interviews conducted one year after entry to the participants chosen intervention

The majority of yoga and exercise participants were still aware of the cardiac event and its impact on their life. In addition the majority in each group were maintaining a number of lifestyle changes. Some of those participants who dropped out of the study continued to attend the exercise programme others did not and their awareness of condition and whether they continued to maintain their lifestyle changes cannot be accounted for.

The majority of the yoga group were still attending the classes run at the CR centre whist the majority of the exercise group continued to attend exercise sessions. However, most participants in the exercise group now attended a local gym and not the gymnasium at the CR centre. Section 3.7.

Yoga group participants identified a range of individual benefits achieved through regular yoga practice, whereas, those in the exercise group identified fitness as the primary benefit from exercising regularly. Section 3.19.

Participants in the Yoga group identified a range of ways in which yoga was particularly useful to them, with a number noting the usefulness of breathing techniques in helping to manage different aspects of their personal responses. In contrast the exercise group found that the sense of fitness & feeling better was the main benefit achieved through participation in the exercise programme. The majority of yoga & exercise participants reported that they practised outside of classes. Section 3.21.

In relation to the importance of yoga or exercise to lifestyle, the yoga participants provided individualised comments, often personal, in contrast the exercise participants highlighted the importance of the more practical physical benefits of exercise. Section 3.22.

The majority of Yoga participants attributed yoga as a factor contributing to them being in control of their lives. However, in the Exercise group, less than half the participants suggested exercise was a factor contributing to them being in control of their lives. Section 3.23

Most of the yoga group participants noted a change for the better in their quality of life with individualised views of this. In the exercise group participants noted a relationship between exercise & QOL, however, this was reported by less than half of the group, and others did not respond. Both groups demonstrated an increase in their mean quality of life score at time 2. Section 3.24. These results must be set against the attrition from the study and the consequent reduction in numbers within each group. The participants in the yoga group identified a range of ways in which their attitudes

to themselves had shifted as a direct consequence of undertaking the yoga programme in the exercise group the participants attitudes to themselves had changed minimally. Section 3.25.

The participants in the Yoga group provided a range of positive individualised comments regarding their overall experience of the yoga programme. The Exercise group participant's comments were also of a positive nature and these related mainly to the social aspects of attending the group and the benefits from participation in the exercise group. Section 3.26.

With regard to the social aspects of participation on the programmes, both yoga & exercise groups found the social aspects very important noting the benefits of the shared experience and support afforded by the group. Section 3.27.

The additional observations provided by each group were contrasting. The Yoga group participants provided insightful observations indicating the depth and in some cases the personally insightful nature of the benefits of the yoga programme. Whilst the majority of exercise participants' provided positive comments about the health, physical and social benefits of the exercise programme. Section 3.29.

The results from the analysis of quantitative data highlighted that the yoga group participants demonstrated ratings of GSW, job importance, and provider importance, which were less than those of the exercise participants. This possibly related to a gender effect as half of the participants in the yoga group were female who worked part time, were full time housewives and did not see themselves as the provider. Very similar patterns of statistically significant association with Global Self Worth can be seen in both groups at both time periods. Sociability, job competence and being an adequate provider are statistically significantly associated. Thus both groups of participants are similar in areas leading to a higher order of overall self-esteem. There was no statistically significant difference in the individual rating of stress between time 1 and 2, however commentaries suggest some enhanced ability on behalf of a small number of the yoga participants to deal with challenging potentially stressful life events. Section 3.31.

In relation to QoL participants in the yoga and exercise group identified health, family and finance as the three most important domains determining their quality of life at both Time 1 and Time2. These results were comparable with studies of healthy individuals and patients with health problems. Section 3.32. These results will be further discussed in relation to the overall aims and questions of the present study in the Discussion Chapter 4.

3.34 Attrition from the study

Attrition from the study was explored to determine if there was any difference between those who did not continue in the study with those who did.

3.34.1 Attrition from the Yoga Group (n = 5)

Five participants did not continue in the study, four women at stage 1 and I man at stage 2. Only one left because he did not wish to continue, two women died and two women could not continue, one because of family ill health and one moved out of the area.

In this group, for those for who did not continue, self-competence was noted to be generally lower and in particular lower across the measure of GSW. This group rated social importance as very important but rated their social competence as low. The domains, which were statistically significantly lower for this small group, were social competence, job competence and morality. No differences were noted, in this group, in relation to self-evaluation of quality of life. Section 3.34

3.34.2 Attrition from the Exercise Group (n = 11)

Eleven participants dropped out of this group - 8 men, (5 at stage 1 and 3 at stage 2) and three women who left during stage 2. Reasons for leaving the study included ill health, having cardiac surgery and not wishing to continue in the exercise programme and the study. Of the eleven participants who dropped out of the study, no statistically significant differences were found in the data between those who dropped out and those who did not. Section 3.34

3.35 Overall Summary of Combined Results from Time 1 and Time 2

The stress experience in both yoga and exercise groups was most commonly linked to the demands and pressures of work with only a few participants relating stress to particular life events. From the qualitative data it can be seen that individuals recognised they had been stressed prior to their cardiac incident, and realised that lifestyle changes were necessary to reduce stress. This might in part account for slightly lower than average stress scores. Section 3.4

Stress scores at Time 2 were slightly higher than at Time 1 however the difference was not statistically significant. In both the yoga and exercise groups the cardiac event was identified as mainly a positive experience which had benefits in terms of their view of themselves, their life and health behaviours. However, a number of participants identified it as a negative experience which was unpleasant and stopped them doing things. Some participants said it had both positive and negative aspects. In each group approximately half of the participants identified issues related to their self-image, in particular reduction in self-confidence immediately following their cardiac event. Sections 3.4 and 3.28.

The majority of yoga and exercise participants reported at Time 2 that they were still aware of the cardiac event and its impact on their life. This mainly related to such issues as the presence of ongoing symptoms, taking medication, or reduced physical ability since cardiac incident and consequent inability/unwillingness to pursue certain physical pursuits such as hill walking. Section 3.16.

At Time1 change to lifestyle was reported in both groups. Generally, these changes included attending the yoga or exercise programme and incorporation of other lifestyle changes such as dietary modification and in some cases stopping smoking.
Both groups reported self changes, however; the yoga group identified more self-changes and greater self-awareness together with more thoughtfulness about aspects of their life, self, identification of personal aspirations, enhancement of physical capability, changing attitudes to work, and lifestyle behaviours. The exercise group reported a more limited number of self- changes; generally these were less personal

and related to participation in the exercise programme and achievement of fitness and well-being. Section 3.7.

At Time 2 the majority of participants in each group were maintaining a number of lifestyle changes. Some of those participants who dropped out of the study continued to attend the exercise programme, others did not, and whether they were still aware of their condition or maintained lifestyle changes cannot be determined. Section 3.8.

The majority of the yoga group were still attending the classes run at the CR centre whist the majority of the exercise group continued to attend exercise sessions, However, most participants in the exercise group now attended a local gymnasium rather than the one at the CR centre. Section 3.17.

At Time 1 the yoga group attached statistically significantly greater importance to physical appearance than the exercise group, although they rated themselves as statistically significantly lower on physical appearance. In addition the exercise group attached statistically significantly greater importance to the provider role. It is possible that this could be explained by the gender difference between the groups and this issue will be explored further in the Discussion Chapter 4. Section 3.13.3.

The exercise group had statistically significantly higher feelings of global self-worth than the yoga group; again this may reflect gender differences. Although, it should be noted that global self worth scores were high in both groups. Section 3.13.3.

The results from the analysis of quantitative data at Time 2 demonstrated that the yoga group participant's ratings of GSW, job importance, and provider importance, were statistically significantly less than those of the exercise participants. This possibly related to a gender effect as half of the participants in the yoga group were female who worked part time or were full time housewives who do not see themselves as the main provider. Very similar patterns of statistically significant association with GSW can be seen in both groups at both time periods. Sociability, job competence and being an adequate provider were statistically significantly associated with GSW. Thus, both groups of participants are similar in areas, which lead to a higher order of overall self-esteem. Section 3.31.3.

Why participants chose exercise also related mainly to the achievement of health and fitness, while the participants in the yoga group chose yoga for a wide variety of reasons relating to relaxation, achieving calm, interest in yoga, previous experience and benefits gained from practicing yoga. Sections 3.10 and 3.11.

What group participants hoped to achieve through participation in the yoga or exercise programmes was contrasting. The exercise participants hoped to achieve fitness & health. Whereas they yoga participants gave a wide range of reasons and a range of anticipated mind and body benefits they hoped to achieve. These include; to keep in touch with the self, ability to relax, ability to meditate, enhanced coping, strategies to help cope with stress, exercise, flexibility and fitness. Sections 3.10 and 3.11.

At Time 2 Yoga group participants identified a wide range of individual benefits achieved through regular yoga practice, whereas those in the exercise group identified fitness as the primary benefit they gained from exercising regularly. Section 3.19.

Participants in the Yoga group identified a range of ways in which yoga was particularly useful to them, with a number noting the usefulness of breathing techniques. Other benefits included feeling relaxed and calm, reduced anxiety together with feelings of well-being. In contrast the exercise participants identified the fitness and well being achieved together with enjoyment of the social aspects. Section 3.19.

The majority of Yoga and Exercise participants reported that they maintained their lifestyle changes by practising outside of the classes. Section 3.21.

The majority of Yoga participants attributed yoga as a factor contributing to them being in control of their lives. Whilst in comparison less than half of the participants in the Exercise group suggested exercise was a factor contributing to them being in control of their lives. Section 3.23.

At Time 1 the groups provided a range of comments regarding their perceived QoL with the most common evaluation being that QoL was good. Mean QoL scores for the

yoga group and the exercise group were not statistically significantly different. Sections 3.12 and 3.13.

Reports from Time 2 indicate that most of the yoga group participants maintained the same level of QoL or noted a change for the better in their quality of life. In the exercise group participants noted a relationship between exercise and QoL, however, this was reported by less than half of the group, and others did not respond. Both groups demonstrated maintenance of or an increase in their mean quality of life score at Time 2. Sections 3.24 and 3.32.

Participants chose QoL domains or the five most important areas or activities in their life most relevant to the individual's quality of life during interview in the present study. At Time 1 and then again at Time 2, participants rated each domain, they had selected, from worst to best possible and then weighted each in terms of relative importance at Time 1 and Time 2. Section 3.32.2.

The majority of participants had the benefit of support from others. The narratives at Time 1 and Time 2 suggest it was an important factor in adaptation and change with the spouse being a central support to many participants. Other family and friends were also important this was reinforced by the QoL data where participants highlighted family/friends as being a main determinant of their perceived quality of life. In relation to QoL participants in the yoga and exercise group identified health, family and finance as the three most important domains determining their quality of life at both Time 1 and Time2. These results were comparable with studies of healthy individuals and patients with health problems. Sections 3.5 and 3.32.2.

The participants in the Yoga group identified a wide range of ways in which their attitudes to themselves had shifted as a direct consequence of undertaking the yoga programme. The comments from this group of participants regarding their overall experience of the yoga programme were individualised, insightful and mainly positive. The Exercise group participants, in comparison, provided very general impersonal comments mainly related to the social aspects and fitness benefits of participation in the Exercise group. Section 3.25.

With regard to the social aspects of participation on the programmes, both Yoga and Exercise groups found the social aspects very important noting the benefits of the shared experience and support afforded by the group. Section 3.27.

The additional observations provided by each group were contrasting. The Yoga group participants provided insightful observations indicating the depth and in some case the profound nature of the benefits of the yoga programme. Whilst the vast majority of exercise participants' provided positive comments about the health, physical and social benefits of the exercise programme. Section 3.29.

In Chapter 4, the combined results from the study will be discussed more fully in relation to the original aims and objectives of the study, and the relevant theoretical framework. Key findings and methodological issues will also be considered.

4.0 Discussion

4.1 Chapter Outline

This final chapter will provide a summary of the thesis and discussion of how the findings address the research questions and reflect or expand the concepts and existing knowledge from the literature. The methodology used will be discussed and limitations outlined. The key findings that have emerged from the study, conclusions and implications together with recommendations for future research and clinical practice are presented. The contribution that this knowledge makes to understanding individual patient needs, contemporary approaches to CR provision and associated professional practice will be discussed. The implication that the findings have for wider policy and service delivery will be considered together with recommendations for future research.

The present study had two aims, the first aim being to describe characteristics of individuals who choose yoga or exercise as part of a continuing cardiac rehabilitation programme. The second aim was to explore over time the process of adaptation and change alongside the benefits perceived by individuals with CHD who undertake the continuing yoga or exercise rehabilitation programmes.

4.2 Methodology

The design of this study was that of an Exploratory Between Methods Triangulation approach. A longitudinal approach was incorporated in order to capture the process of adaptation and change experienced by study participants over one year. The methods utilised were self-reports in the form of quantitative questionnaires together with qualitative semi-structured interviews. The questionnaire data was triangulated with the data from the interviews to compare the experiences, processes and any benefits achieved by participants in both the exercise and yoga groups. The design of the study incorporated methods which would complement each other and increase the validity of the findings (Mitchell, 1986).

Quantitative data were generated using standardized instruments. while semi structured interviews were used to determine individual participants' experiences. Separate sets of semi-structured interviews plus repeated questionnaires were used to explore the impact of the intervention on the participants at the end of a 12-month period.

The 'Between Method' triangulation facilitated the use of data collected through the different methods to look for commonalities in the findings (Mitchell, 1986; Duffy, 1987). In addition, using dissimilar methods to measure the same unit is said to achieve a comprehensiveness that a single approach could not yield and allow cross-validation (Denzin, 1978; Goodwin & Goodwin, 1984; Bargagliotti & Trygstad, 1987; Polit & Hungler, 1991).

The data produced by the different methods in the present study produced a profile of each individual participant together with providing composite sets of information relating to each of the groups at Time 1 and then again at Time 2, which could be compared within and across each of the groups.

The construction and deconstruction of the transcript data facilitated description and interpretation of themes in the participants' lived world, providing a continuum between description and interpretation Kvale (1996).

In order to integrate the findings from the 2 sets of data, qualitative and quantitative data were first analysed separately, then a search for logical patterns of relationship and meanings between and among significant variables took place (Mitchell, 1996). As suggested by Fielding & Fielding (1986) it was not always straightforward within the triangulation to relate the data. In the event of identifying relationships between the two sets of data, however, then triangulation may be seen as a way of confirming the accuracy and trustworthiness of one's data (Denzin, 1989).

Within the present study data were related as far as possible. The data regarding the stress experience of participants and their overall rating of perceived stress suggests that at the time of data collection participants reported no more that average stress. Many of the participants however, had highlighted in their narratives that prior to their

cardiac event they had experienced stress within their everyday life and that they believed that this stress had contributed to their cardiac event. Similar findings were reported by Clark (2003) in a study which looked at post MI patients' views of stress. Correlation of the two sets of data thus provided opportunity to gain insight into contextual differences within individual experience together with a breadth of perspective on the same issue

The quality of life data related well as the narrative gathered by semi-structured interviews allowed participants to provide an overall rating of their perceived quality of life and the SEIQoL data, where specific domains of QoL were individually selected, provided a deeper perspective of the same phenomenon allowing comparison of domains and ratings across both groups.

The findings in relation to quality of life also correlated with other aspects of the qualitative data, particularly participants' perception of being in control of their lives and their fears relating to participating in certain activities. Generally, many of the experiences reported by participants in their commentaries could be related to quality of life.

The results from the self-perception profile showed that Global Self Worth was quite high for both groups. This result correlates well with the lifestyle changes being made and maintained by participants in each group. Such changes would demand a relatively high GSW, which is associated with individuals attempting to take control of their lives.

Overall the quantitative results provide a broad view of issues such as a comparative global view of stress levels, self perception and perceived quality of life at Time 1 and Time 2, whilst the qualitative results provide a deeper, richer more multi-faceted insight into the individual experience through their personal commentaries (Foss & Ellefsen, 2002). Comparison across and between the groups longitudinally was also useful in providing a perspective on change and adaptation over time within the data.

In summary, the methodological choices have supported achievement of the study aims and outcomes. The qualitative data retrieved through semi- structured interviews

was rich and relevant to the study, providing insight into the process, adaptation and changes experienced by participants in the Yoga and Exercise groups. The individual experiences of participants became very clear and this facilitated insight into their adaptation process. One limitation within this data related to the stress experience of individuals where questions regarding this experience could have been more focused and detailed at Time 1 and Time 2 in order to provide more information and clarity regarding any changes.

The data gained from the Perceived Stress questionnaire was unremarkable and added little to the study. The more relevant data was from the participants' commentaries.
The Self-Perception profile provided useful data regarding GSW, which was of particular relevance when considering the motivation of participants' to initiate and sustain lifestyle changes. This was also useful in indicating what was important to those individuals.

With regard to quality of life data the phenomenological data gathered using the SEIQoL was congruent with the qualitative data provided by participants' accounts. This set a wider context in which to consider quality of life for individuals adapting to illness. The SEIQoL was an excellent tool in terms of the phenomenological data it provides. However, its completion had to be closely supervised, instructions had to be very clear and for some participants it was difficult to complete, because of lack of full understanding or ability to concentrate and be consistent in its completion.

4.3 Limitations of the Study

A limitation of the present study was that there was no comparison with individuals who had participated in the initial 6-week CR programme but were not then following the continuing CR programme. This would have provided a useful comparison of self-perception, stress and QoL together with the experience and process of such a group. It would provide a contrast to the experiences of the exercise and yoga groups and further insight into the needs and experiences of both men and women.

A further limitation related to the questions in the semi-structured interview, surrounding stress. These needed to be more specific, to provide further detail in the

emerging narratives surrounding experience of stress before, during and after the cardiac event, together with the specific contribution of yoga or exercise within its subsequent management.

4.4 Methodological Changes Recommended for Future Studies

The self-perception profile although useful for measuring GSW was a long, laborious and time-consuming measure for participants to complete. It was standardised to the American culture; and for some the questions appeared strange and accounted for a number not being returned.

A broader comparative perspective using largely qualitative methods would be utilised in future studies. Such a comparison group would consist of trying to recruit individuals who had left after the initial CRP and who were not attending the continuing CR programme. This would provide insight into the characteristics of a group not pursuing an intervention and determine their process of lifestyle change. Differences and similarities with the Yoga and Exercise groups would be highlighted thus providing opportunity to further clarify the impact of the intervention on lifestyle changes.

Major lifestyle changes are required after MI; however, the vast majority of patients are unsuccessful in maintaining these changes (Oldridge et al., 1988; Frenn, et al., 1989; van Elderen-van Kemenade et al., 1994). Therefore, the addition of a further longitudinal phase to the study to facilitate follow-up of participants, from the groups, at three then five years following the CR programmes would be useful to provide ongoing comparison. This would determine whether lifestyle changes were maintained over a longer term and what further health benefits might have been realised.

It would be possible to replicate this study on another site with groups of CR participants, equally this study could be utilised for other groups of individuals, such as those with cancer.

4.5 Discussion of Results

4.5.1 What are the Characteristics of People Who Choose Exercise and Yoga and Do They Differ?

At the outset of the study Yoga was selected by both male (n=11) and (n=14) female participants in contrast with the exercise group where there was a predominance of male participants (n=32) and very few females participants (n=3).
The number of female participants in the CR programme generally was much less than men and the majority of females did not attend the exercise programme. There were very few women who attended the gymnasium and there were no sessions dedicated to women alone to encourage female participation. In addition women appeared reluctant to attend exercise in all male groups.

It is often found that women are poorly represented in CR programmes.
(Brink et al., 2002; Rankin, 1995), and Cahart & Ades (1998) suggest gender differences in response, recovery, morbidity and mortality following a cardiac event.
Also many women who develop MI are in the older age group (Hamilton, 1990; McGhee & Horgan, 1992; Abbey & Stewart, 2000; Brink et al., 2002). Furthermore, women in the older age group may not attend CR exercise programmes as a result of not having appreciated the benefits of vigorous physical activity when they were younger (Rankin, 1995).

Women were comfortable to take part in the yoga with the male participants, although as can be seen from the interviews were not keen to participate in the gymnasium-based programme with men. The nature and type of programme can be seen to be, for this group of women, the more important factor than participation with men.

The age of women on the yoga programme ranged from 50-78 years so this group was in the older age group and previous experience and perceptions of vigorous physical exercise may have had some bearing on their choice of this programme. However, such issues were not explored and women were not asked why they did not attend the exercise programme.

The present study was not designed to explore gender issues in depth, however, it is clear that the needs of the majority of women or men in relation to participating in exercise generally or what their specific needs were with regard to accessing and participating in the gymnasium exercise programme had not been determined during their CR programme.

As in other studies women can be seen to be under-represented in the exercise programme and have particular needs in relation to CR which remain unmet. To begin to reverse this situation a wider range of choice within CR provision is required. which has been developed in response to the perceived needs of women service users.

The yoga programme appealed to women participants and met a number of their perceived needs; therefore, this is an important finding from the present study. Such programmes have great potential to be offered more widely and cost-effectively opening up further choice within CR provision which meet the needs of both women and men.

4.5.2 What Reasons Do People Give for Choosing the Yoga /Exercise Programmes?

Some participants had previous experience or interest in yoga, a few had been recommended yoga by friends, and others had found that the yoga taster session had captured their interest and consequently they decided to attend the classes.

A number of individuals did not enjoy exercise in a gymnasium setting, others did not feel able to exercise strenuously due to the severity of their condition, advancing age or because they did not enjoy exercise. However, such individuals wanted to try a different approach to exercise through yoga. Although the female participants were not asked about this specifically at interview, they indicated within general discussion that they were reluctant to go to the gymnasium to exercise with the men and this is borne out by the fact that only a very small number of women attended that gymnasium and those who did attended infrequently compared to the male participants. There were no gymnasium sessions dedicated solely for women. Many male participants on the exercise programme enjoyed exercise and had always exercised regularly through out their life. A few participants in the exercise group did

not enjoy exercise, particularly in a gymnasium, and found it boring, but they felt that their health needs together with the potential health benefits outweighed their dislike. Sections 3.10 and 3.11.

What group participants hoped to achieve through participation in the yoga or exercise programmes was contrasting. The exercise participants hoped to achieve fitness & health, whereas, the yoga participants gave a wider range of reasons and a range of anticipated benefits they hoped to achieve. This included: relaxation, achieving calm, reduction of stress, a wish to repeat previous experience and personal enjoyment and or benefit from doing yoga. Sections 3.10 and 3.11.

The features of yoga that were most liked by participants related directly to those aspects of yoga practice which helped participants realise themselves by promoting, self-awareness, relaxation, reduction of stress and anxiety, feelings of wellness and being uplifted. The yoga participants, irrespective of gender, found the group support and sharing an important aspect of the experience. Section 3.11. It has been shown that those individuals who have experienced a cardiac event, share a common insight into each other's needs and emotional experience (Johnson, 1982; Turton, 1998).

Whilst the exercise participants enjoyed the exercise and the social aspects, their experience was described more practically. For some it was a means to an end, for others who had a long standing interest it was enjoyment of a hobby and for a few participants exercise was a way of life. The group support was reported as being a very positive aspect of their experience, providing comradeship and friendship and personal benefits gained from sharing a common experience. Section 3.27.

A universal need is a sense of belonging and acceptance which contributes to overall self-esteem and support groups such as the exercise and the yoga group can help reinforce the individual' self-esteem by helping him or her to realise they are not alone (McGlashsan, 1988). Furthermore, participants in CR programmes who have successfully changed their behaviours and who share this experience provide others with the opportunity to learn from their experience (Frenn et al., 1989; Ornish, 1994).

Such opportunity to share, learn and be supported with this type of group has been found to help in the changing of beliefs and attitudes and in anticipating changes (Frenn et al., 1989).

4.5.3 What Benefits Do Individuals Experience as Part of a Yoga Programme in Comparison to an Exercise Programme?

In the present study the experience of the yoga participants contrasted with that of the exercise group who identified health and fitness together with a sense of feeling better as the primary benefits from exercising regularly see Sections 3.12, 3.13, 3.15, 3.16, 3.27 and 3.28. This experience was clearly relevant to their motivation to initiate, make and sustain lifestyle changes to achieve better general and heart health and minimise risk factors. Some individuals found the exercise programme enjoyable others did not. A very small number of participants in the exercise programme identified an increased self awareness and greater appreciation of life following their cardiac event, however, this was generally not attributed to the exercise programme but was seen to reflect individual adaptation to the cardiac event.

Analysis of interview data showed that the Yoga group identified a range of individual benefits achieved through regular yoga practice as highlighted in Section 3.25. In summary, these were mind/body benefits in combination, mind benefits alone, self-awareness, group support and social aspects. The above categories were broken down into the following range of benefits including: ability to relax, an increased self-awareness, a general reduction of stress and anxiety, experience of greater calmness, positive and uplifting feelings, flexibility and suppleness of the body and the sharing and experience of being supported in the group.

In addition some individuals identified change in attitude including: the acknowledgment of the priorities within their life and the re-ordering of these to make, 'the self', health and the use of their personal time of greater importance. The overall value placed on life was reported by a number of participants as being greatly enhanced. The above changes reported by participants regarding the benefits of yoga must also be viewed not only within participation in the yoga programme, but the yoga programme combined with the wider context of the participants' adjustment to their cardiac event which has brought about individual responses and changes as

explored in Section 3.

This was also highlighted by Johnson & Morse (1990) who reported that individuals describe surviving a life-threatening event as a profound experience because it forced them to contemplate the possibility of their own deaths. Following such an event for many there is a feeling of gratefulness for having survived, together with a new appreciation of life. Frankl (1984) believed that survival of life threatening events took place when individuals found a sense of meaning within a traumatic experience. It is possible in this case that the meaning individuals find is their own survival of the cardiac event.

In the studies conducted by Ornish (1998) individuals reported that having had a heart attack was the best thing that had happened to them because it had brought about personal changes for them which would have not been possible had they not experienced such a traumatic event. Ornish (1998) suggested that it is useful to understand the alchemy resulting from suffering and the possibilities for transformation that it brings.

For some individuals participation in the yoga programme with its focus on the self and self-awareness may have enhanced and or prolonged feelings of this type. It is interesting to note that Ornish (1998) also suggested that awareness is the first step in healing not only for the individual but society as a whole.

Such a view of the transformational power of illness is congruent with the increasing use and demand for CAM wherein the public are seeking a more holistic and personalised approach to their illness, their individual needs and the therapeutic approaches available to support them.

A number of the exercise participants, (Section 3.7.3 and 3.9.2,) also experienced such feelings of gratefulness and a new appreciation of life and as a consequence were particularly positive and enthusiastic about the exercise programme and were making lifestyle changes which they viewed as an opportunity and a second chance for health and life. This again suggests it is a general phenomenon which leads many people into

a review of their lives during a life event such as a cardiac incident (Johnson & Morse, 1990; Ornish, 1998).

Further benefits of the exercise programme identified by the exercise participants, in Section 3.11, included health and fitness and feelings of wellness. In response to questions regarding self-image, participants from both groups identified issues related to their self-image. Participants in each group identified that an immediate problem following their cardiac event was a reduction in self-confidence, (Sections 3.9 and 3.10.) This type of experience associated with Myocardial Infarction is reported to undermine confidence and self-worth. Johnson & Morse (1990) held that a heart attack might undermine confidence and self-worth, threaten independence, and consequently jeopardize an individual's sense of self.

A major issue for some individuals in achieving success in lifestyle change is lowered self-esteem. Self-esteem is an evaluative feeling, referring to negative or positive, or neutral judgements that are placed on the self-concept. Cardiac disease may pose such a major challenge to some people that it lowers their self-esteem. The individual following a cardiac incident needs to have a strong self-concept and self-esteem in order to effectively participate in improving his/her health (McGlashan, 1988).

Current approaches to CR provide little support for patients with lowered self-esteem. However, in the present study Global Self Worth measurement revealed that participants across each group demonstrated above average values. Although for some in the early stages following MI loss of confidence was an issue, this changed as adaptation and lifestyle modification brought positive results and feelings of well-being. It is possible that people with low self-esteem do not attend CR; hence the above average scores seen in this study. This suggests the need to target such individuals immediately following their MI and to try to involve them in rehabilitation appropriate for them.

This is congruent with the research conducted by Johnson and Morse (1990) and Ornish (1998) who found that people who had a positive attitude, were confident that they would recover, were grateful for a second chance, believed they knew the cause of their heart attack, possessed specific plans for reform, perceived that their

limitations were acceptable, and were likely to be optimistic about the future.

In the present study such responses are evident in the reported experiences of those participants with positive attitudes from both the Yoga and the Exercise group pursuing their lifestyle changes through their chosen intervention. Participation in lifestyle change for many of the participants in each group can be seen as a positive strategy utilised to achieve restoration of equilibrium through adaptation and change made in response to illness. Sections 3.7 and 3.25.

The increased self-awareness achieved by a large number of the yoga participants is an important aspect of the potential benefits of yoga. Pashkow et al., (1995) suggested that one important psychological factor which needs to be addressed following MI is lack of self-awareness. An increase in self-awareness such as demonstrated by the yoga participants and highlighted by their commentaries in Sections 3.11.1 and 3.19.1, supports the recognition of physical, mental and emotional changes, which have occurred in response to changing and challenging circumstances and environments. The recognition of personal responses to stress is an important factor reported by many of the yoga participants as summarised in Sections 3.4.1 and 3.19.1. Through the recognition of personal responses to stress these may be acknowledged and prevented and/or managed as appropriate.

In relation to recognition of personal responses such as this, there is supporting evidence from the grounded theory research conducted by Frenn (1989) where participants in her CR study, found that self-perception and self-insight were enabling factors supporting their lifestyle changes. Similarly, in the present study participants in the yoga group found the techniques of yoga effective in the management of life situations, this encouraged and enabled the ongoing use of such techniques and a deepening self-awareness. Thus a cycle of reinforcing benefits and practice was established.

The standard approaches incorporated within CR programmes do not include specific strategies for building the self-awareness of individuals. In contrast, one of the main principles of yoga is self-awareness (Satyananda, 1984). This is reflected in the yoga

programme, which utilised an approach that focused on supporting the development of self-awareness in the physical, mental emotional and spiritual aspects, within each individual (Desikichar, 1995). It is widely held that the purpose of yoga is to achieve systematically higher awareness of the body and mind which will in turn lead to some control over them (Neurnberger, 1981).

Whilst practicing yoga attention is paid to lengthening the spine, linking movement with the breath, and placing awareness on what is experienced in the body at each moment. Should the attention wander, the intention is established to keep coming back to an awareness of the breath, the movement and the moment (Iyengar, 1997). There is an emphasis on cultivation of the qualities of calmness and alertness (Bouanchaud, 1977).

A study by Rani & Rao (1994) investigating body awareness and yoga training in two independent groups of healthy individuals undertaking a three month yoga training programme found that the practice of yoga enhances the awareness of normal, non-emotive bodily processes and that the yoga group had demonstrated a greater body awareness than the control group.

In the present study the breathing techniques were reported as being important to nearly all participants in the yoga group in respect of their usefulness in managing and reversing stressful situations whilst helping to keep them calm (Sections 3.19.1 and 3.21.1 and Tables 3.27 and 3.29.) In the yoga programme the breath was integral to the relaxation techniques, meditation and yoga posture work and served to be a method for releasing physical, mental and emotional tension held within the individual. According to Goyeche (1977) the practice of voluntary breath regulation and cessation done in co-ordination with various postures, reconditions irregular breathing patterns and restores optimal diaphragmatic breathing, which in turn can also lead to changes in consciousness. The most elementary aspects of change in consciousness emerging from this are enhancement of self-awareness and greater motivation to pursue personal goals (Buss, 1980; Bishop. 1987).

Yoga Breathing. (Pranayama) exercises are simple to learn and this approach to correct breathing helps individuals relax muscle tension and create a state of calmness

(Wood, 1993; Schell et al., 1994). Goyeche (1977) held that the practice of concentration and meditation whilst in yoga postures leads to a sense of awareness other than that of our usual self-consciousness.

Clinical observations undertaken during teaching yoga to patients with psychosomatic problems revealed that when posture is improved, muscles relaxed and breathing corrected, there are corresponding psychological and behavioural changes (Goyeche, 1977; Emery & Blumenthal, 1990; Sharma, et al., 1991; DiCarlo et al., 1995). Experience of psychological conflicts and defences are chronically structured in the body as muscle tension, which during yoga training is relaxed and released allowing the individual to become aware of this process and become tension and anxiety free (Goyeche, 1977; Berger & Owen, 1992).

Breathing techniques were a main component in all aspects of the yoga practised in the present study, consequently, participants reported that they became increasingly able to effectively utilise breathing techniques for self-management, in and outside of the classes.

There is already well-established evidence of the benefits of relaxation and breathing in CR. The major finding of a study by van Dixhoorn & Duivenvoorden (1999) was that the use of individually tailored breathing and relaxation techniques improved recovery after myocardial infarction, even in the long term. In a 5-year period after infarction, patients enrolled in cardiac rehabilitation with additional breathing and relaxation therapy, had considerably less cardiac events and re-hospitalisations than patients who had exercise training only. The results suggest that the inclusion of breathing and relaxation therapy improves the long-term outcome of cardiac rehabilitation.

In three studies with cardiac patients similar long-term effects of relaxation and stress management were found. Similar results were achieved by Patel et al., (1985) in a trial with a 4-year follow-up of relaxation training in patients with high cardiovascular risk. A long term follow up for the two groups in the present study would have provided an interesting perspective in relation to the longer term benefits and maintenance of lifestyle changes.

Ornish (1990) recommended the usefulness of training people with CHD to relax for a number of reasons. The physiological changes of the relaxation response include decrease in heart and respiratory rate, blood pressure and oxygen consumption, which impact favourably on myocardial oxygen consumption. Elicitation of the relaxation response appears to involve reduction in the activity of the sympathetic nervous system therefore it works in the opposite physiological direction of the stress-induced fight or flight response. He also believed that psychological benefits from eliciting the relaxation response allow individuals to reduce the anxiety inducing " inner dialogue" or "self talk" which appears to be a major contributor to psychological stress. Furthermore, individuals who elicited the relaxation response frequently reported lower levels of anxiety and hostility, thereby reducing stress-induced cardiovascular reactions.

The majority of participants on the Yoga programme reported the benefits achieved through practising relaxation within the yoga sessions and also highlighted their own continued practice of relaxation within their day-to-day life. This indicates their commitment to maintain the relaxation as a new health belief and action within their lifestyle. Sections 3.19 and 3.21.

Another mind body therapy akin to yoga is Tai Chi that has been included in a CR programme in the United States of America. The results from a study related to this intervention demonstrate some interesting and related findings. Those individuals practising Tai Chi reported a sense of enhanced well-being, increased alertness, relaxation, better mental outlook, together with reports of achievement, and greater confidence following completion of the Tai Chi exercise programme. Furthermore, Tai Chi users exposed to stressful situations, were found to demonstrate enhanced ability to cope with and recover from stress quickly with an improvement in mood state (Taylor-Piliae, 2003).

LaForge (1997) wrote that mind-body orientated approaches such as yoga and Tai Chi teach the individual to be mindful of the intrinsic energy from which he or she may ultimately perceive greater self control and empowerment. He suggested that intentionally becoming aware of the specific proprioceptive sensations whilst

performing low-level physical activity associated with yoga or Tai Chi returns the centre of attention and importance to the person.

The majority of yoga and exercise participants reported that they practised outside of classes either at home or as part of their work or social life, (Sections 3.21.1 and 3.21.2, and Tables 3.29 and 3.30.) In the case of yoga, breathing techniques were also practised most commonly to help manage situations or in preparation for social encounters or as part of the practice of progressive relaxation or meditation.

The Exercise group identified walking as the most common exercise undertaken outside of the gymnasium with some reporting that their strategy was to stay active within their everyday life, a few others took part in swimming or cycling. Section 3.21.5. For both groups this demonstrates individual motivation to further enhance and maintain lifestyle changes through everyday utilisation of both yoga or exercise in daily life and the ongoing integration of the yoga or exercise practice within their everyday lives.

With reference to the perceived importance of yoga or exercise to individual lifestyle, it was notable that the nature of the yoga participants comments were much more individualised and often personal in nature. Sections 3.19 and 3.21. In contrast, the exercise participants simply highlighted the importance of the physical benefits of exercise. Sections 3.19 and 3.21. This response reflected the nature of the gymnasium exercise programme, which was to attend and participate in the programme, focusing predominantly on the physical experience and benefits.

The yoga demanded more personal participation and reflection and the group were clearly involved mindfully in their yoga in this way, which involved self, reflection on the self and ongoing re-evaluation of the self. This also included a change in mental outlook, which for many of the participants was demonstrated in their personal comments. The reflective mindfulness was demonstrated by both women and men in the group and therefore could not be attributed to gender differences but to the impact of the nature and focus of the yoga programme on individual participants. The type of individuals attracted to such a programme might also be an important factor, although at the outset the participants entering the yoga group would not have fully appreciated

on entry the mindful focus of the programme. The Exercise group noted a more limited number of self-changes and these tended to be less personal and related largely to the physical dimension of their experience on the exercise programme. Again the perspectives captured from this group relate to the nature and focus of the exercise programme which was enhancement of physical fitness. In addition there may be a gender issue to consider within this, that many men, in Western cultures, are less interested in self-awareness.

Adoption of lifestyle changes was demonstrated in both groups. Generally, these changes were related to practising yoga or exercising in the classes as well as home practice. According to Conn (1992) the repeated performance of self-care behaviours may be more important than education in developing a pattern or habit of performing the behaviour. In some cases other lifestyle changes were included, such as dietary change or, in a few cases, stopping smoking.

The above self-changes were reported in both groups; however, the Yoga group identified a wider range of self-changes and greater self-awareness than the Exercise group. The yoga participants demonstrated their adjustment and coping through the construction of positive meaning and self-benefits, which included in many cases a new appreciation of life, health and their own potential. In contrast the majority of exercise participants reported the contribution of exercise to their personal health and fitness. However, there was no acknowledgement of any deeper personal experience emerging from participation in the exercise programme.

4.5.4 Which Intervention (Yoga or Exercise) is More Effective in Promoting Self Awareness.

As outlined in the previous section the focus and purpose of yoga is to promote self-awareness (Desikichar, 1995) and the indicators within the present study are that the majority of the Yoga group participants achieved self-awareness as clearly illustrated by their personal comments. The yoga participants provide an interesting breadth of perspective in relation to their personal experience and the changes they highlighted within their descriptions of themselves in relation to becoming more aware. The self is seen as integral to the change and the changes are described in relation to the mental, emotional and the physical self. There is good evidence that the yoga

participants achieved enhanced self-awareness together with attitudinal and lifestyle changes in the year over which the study was conducted.

The focus and purpose of the exercise programme was the promotion of physical exercise and as already highlighted, the physical benefits achieved through exercising are reported by the exercise group. These findings in the present study demonstrate the positive impact of the physical aspects of exercise (NHS Review, 1998), which are achieved through exercise based CR programmes. However, controlled trials have almost universally reported that exercise and advice alone do not produce long-term improvements in overall psychosocial adjustment in post MI or surgery patients (Naughton, 1973; Plavsic, 1976; Mayou, 1981; Stern, 1982; Greenland and Chu, 1988; Lipkin, 1991; Oldridge, 1991; Bertie, 1992).

Whilst the achievement of some degree of self-awareness is a constituent component of exercise, it is normally experienced mainly in the physical aspect, as compared to the awareness achieved through yoga practice, which is more multi-dimensional in nature. Consequently, the experience is more holistic encompassing a combination of physical, mental, emotional social and spiritual aspects of personal exploration and practice. Both groups made changes to lifestyle and the majority sustained these for the duration of the study and practised yoga or exercise out with the organised sessions. Sections 3.21 and 3.22.

In summary, enhancement of ability to change lifestyle, for participants in the Yoga group is evident but whether it is greater enhancement than for the Exercise group depends upon the value system from which the issue is viewed. However, it can certainly be said to be different in its nature, focus and outcomes.

4.5.5 Are There Measurable Differences in Stress Reduction Before and After the Yoga and Exercise CR Programmes?

In the present study the stress experience prior to cardiac event in both the Yoga and the Exercise groups was most commonly linked to the demands and pressures of work and day to day stress, with only a few participants relating stress to particular life events. Section 3.4. The quantitative data analysis did not identify the stress

experienced by each group as being greater than that of the general population. Section 3.30.1. However, the incidence of CHD in the general population is relatively high and this could suggest that average stress levels encountered by individuals within the general population may be sufficient to contribute to the development of CHD or that the more highly stressed individuals may not participate in CR. These suggestions certainly merit further exploration in relation to stress as a risk factor in CHD.

A further perspective on this comes from Clark (2003) who reports, following a study where the post-MI views of patients on stress was sought, that participants' perceived stress are a common cause of MI rather than a consequence of it. They also described their stress as being caused by everyday living and that it was the most important causal risk factor above others such as smoking and diet. Two studies that looked at the level of public awareness with regard to risk factors in CHD also found that the majority of respondents nominated stress or worry as the most important cause of MI. (Murray, 1989; Greenwood et al., 1994)

The overall results in the present study did not show any statistically significant change in the quantitative rating of stress between the first and second set of results. Section 3.30.1. This finding was similar to that in a study conducted by (Conn, Taylor & Cassey, 1992) where there was a lack of association between CR programme participation and stress modification.

However, the Yoga participants' comments support a subjective experience of managing stress better as a result of using yoga techniques such as breathing and relaxation to help manage everyday events, (Section 3.19.1). Cohen et al., (1985) suggested that individuals can reduce their stress by taking control over how they respond to stressful events. They identified different types of control: behavioural, cognitive, decisional, informational and retrospective each of which can reduce stress. They found that cognitive control appears to have the most consistently beneficial effect. The majority of Yoga participants attributed yoga as a factor contributing to them being in control of their lives, the cognitive aspect of this experience may relate to achievement of deepening self awareness impacting on ongoing self evaluation and emerging perspective of self following the CR and yoga programme. Those

participants still experiencing symptoms or taking medication and or experiencing uncertainty with regard to physical activity or going on holiday experienced a loss of control, which impacted directly on their perceived QoL. This experience is congruent with that of participants in studies by Winter (1997) and Johnson and Morse (1990).
In the Exercise group, in contrast, less than half the participants suggested exercise was a factor contributing to them being in control of their lives. The participants' perception of being in control also links to individual re-evaluation of self and new emerging perspectives of self and lifestyle. Such change followed the individual experience of the cardiac incident, participation in the CR programme then the yoga programme; therefore, each of these events would contribute to the observed change. Furthermore, the yoga offers the opportunity for reflection, relaxation and achievement of skills of enhanced self-awareness, together with opportunity to utilise captive time set aside in which to undertake this facilitated exploration of self and change in health related behaviour.

In the present study the yoga participants experienced the feeling of being in control, which may be attributed to deepening self-awareness together with the achievement of new and sustained behavioural change, see Section 3.19.1 and Table 3.34. Or it may be that both groups felt in control of their lives and decided to opt for one or other CR programme. In future work it would be interesting to identify individuals with low feelings of self control and determine whether yoga could help increase their sense of control.

The cognitive benefits of increased self-confidence and self esteem that result from participants feeling fit, well, relaxed and free from anxiety through their own individual participation in their chosen interventions are evident in the personal comments of the yoga participants. In comparison the Exercise group, many of whom had always exercised together with those who did not enjoy exercise, reported that exercise did not feature as a factor in them feeling in control of their lives. This may have been because it was either not a new, or in some cases a particularly desirable, behaviour.

Wallston (1989) argued that health behaviour is a function of health value, health locus of control, beliefs and self-efficacy beliefs. Thus to perform health behaviours

such as those demonstrated by the Yoga and Exercise group, individuals must value their health, believe that benefits achieved follow their health related actions and concurrently believe that they are capable of performing the behaviour in question. Self-efficacy, a key social cognitive theory proposed by (Bandura, 1977), provides individuals with a sense of control over the environment. It is a subjective assessment of what one "can do" and affects how people feel, what they think and what they do (Shaw, 2003).

When individuals have a strong sense of their own ability it motivates them to act and perform more challenging tasks, in addition they invest more effort and persist longer in attempting to achieve desired goals (Locke & Latham, 1990). This is reflected in the perseverance within both groups in relation to the pursuit of and regular participation within their chosen intervention both in the organised sessions and at home, see Sections 3.17 and 3.19. Participants are demonstrating that they value their health as confirmed by their health related actions surrounding their chosen intervention and their belief in their capability of performing that behaviour. For some individuals in the exercise programme this participation is an extension of previous lifestyle patterns. For others, for whom exercise has not been part of their lifestyle, it reflects a changing lifestyle pattern in response to their cardiac event as demonstrated by their changing health belief and actions and as expressed within their personal commentaries describing their lifestyle changes.

4.5.6 Are There Measurable Differences in Quality of Life Before and After Yoga and Exercise CR Programmes?

Quality of life can be expressed through universal themes and as an idiosyncratic individual interpretation where certain features special features are valued (McKenna, 1993). Thus for the purposes of this study QoL has been measured using both objective and subjective measures.

There have been many definitions of quality of life, however for the purposes of the present study the preferred definition is that QoL is seen as the capacity of the individual to realise his or her life's plans (Cohen, 1982). Velde (1997) proposed that activity, which is purposeful and meaningful to the individual, appears to contribute

positively to an individual's perception of his or her own quality of life. Further, Velde (1997) also believed that the amount of personal power or control an individual perceives that they have in their life is important and suggests that as the amount of control increases the individual may perceive a higher quality of life. As discussed in section 4.6, the sense of control experienced by individuals relates to self-efficacy (Bandura, 1977) a subjective assessment of what an individual can do which affects how they feel and think. The link between self-efficacy, control and quality of life is important and such concepts need to be taken into account when developing individual and group programmes designed to support lifestyle change.

Congruent with the above proposals Cohen (1982) identifies the individual and phenomenological nature of QoL, which was reflected in the findings of the present study. Participants identified a wide variety of individually specific cues, which they considered important to QoL. There were a number of general themes demonstrated commonly across the two groups of participants.

The results of participants rating their individual QoL demonstrated that at time 1 the exercise group mainly rated their QoL as good and the Yoga group rated it as fairly good to very good, see Section 3.12. When QoL was measured again at time 2 in each group a level equivalent to or exceeding the prior level of satisfaction at time 1 was achieved in each group. However, the results were not statistically significantly different, (Sections 3.24 and 3.31.)

Previous studies have found that following MI as many as 30% of patients regard their QoL as superior to their pre-infarct life. Reasons given include; improved intimacy in relationships increased joy in being alive, a re-evaluation of ambitions and the value of their relationships and increased feelings of well being through adopting a more healthy lifestyle (Laerum, 1988). This is congruent with the Johnson & Morse (1990) work on adaptation to Myocardial Infarction and the experience of individuals on the lifestyle programme developed by Ornish (1990).

In the present study the QoL domains chosen at time 1 and time 2 were very similar in each group and similar to the findings in other studies of individuals with identified health problems. The most important domains selected in order of priority were

health, family, finance, hobbies/interests. See Table 3.59.

Similar importance in selected domains was reported for individuals participating in the two following studies: a study by O' Boyle et al., (1992) of individual QoL in patients undergoing hip joint replacement, and a study undertaken by Browne et al., (1994) of the QoL of the healthy elderly.

The importance of friends and socialising and home were very similarly rated by the two groups. Interestingly exercise was not highly rated in relation to QoL by either group (Section 3.59). Faith was rated in the mid range by 24% of the yoga group at time 1 and 2 as compared with the exercise group for whom it was less important. Selection of this cue by the yoga group may be important and provide some further insight into their interest in self awareness and the content of individual narrative reporting insightful experience and particular aspirations associated with them being on this type of programme.

The types of issues, identified within individual commentaries, across various sections of the analysis, which also appeared to impact on quality of life for participants in the present study included re-occurring symptoms, taking medication and being unable to participate in certain physical activities, such as hill walking, either due to health or as a result of being fearful. Sections 3.12.2 and 3.12.3. Fear is a common emotional response following MI related to the threat of sudden death and uncertainties surrounding health status (Wiklund, 1984; Johnson & Morse, 1996). As a consequence of this type of fear some individuals articulated fear of travelling abroad on holiday where medical provision may not be available should it be required (Wiklund et al., 1989). This impacted on the perceived QoL of these individuals and their rating of it was therefore lower. Some participants noted a relationship between exercise and QoL, which reflected the fitness and health benefits they had achieved, however, less than half the group reported this. See Table 3.39.

In a 5-year post MI study of 539 patients exploring QoL and influencing factors (Wiklund et al., 1989) reported that post MI patients have a comparatively high quality of life. It was noted, as in the present study, that there was a decrease in certain hobbies and holiday activity compared with the normal population. Also, that

living with ongoing symptoms such as dyspnoea, angina pectoris, and anxiety were closely associated with a decreased quality of life.

The SEIQoL instrument (O'Boyle et al., 1993) utilised within the present study is based on a phenomenological approach to the measurement of quality of life, in which the terms of reference are determined entirely by the individual. It was therefore regarded as a more sensitive tool than a standard questionnaire. Those aspects of life considered by the individual as crucial to his/her quality of life are elicited by means of a structured interview. During interview each aspect is rated as it relates to the individuals current satisfaction and the individual functioning. The strength of this instrument is that it is individual in nature and reflects the individual judgement and value system, but in addition it may be utilised across the age span and also for a variety of patient groups. This facilitates comparison with the findings from other patient groups, which has been a useful aspect of the present study. The use and applicability of this instrument however, is limited to those have no cognitive or motivational impairment.

In the present study the use of SEIQoL has allowed individuals in the Yoga and Exercise groups to provide valid judgements of their quality of life. This data together with the wider perspective contained within individual commentaries from participants this has provided useful objective and subjective data with regard to general QoL themes and specific individual values.

Issues surrounding use of this tool related to the complexity if the tool and potential for participants to encounter difficulty in understanding instructions for completion. In addition it was time consuming to complete which raised the issue of loss of concentration and consistency of judgement in completion. Such difficulties may be more pronounced for individuals who are ill or recovering. It was time consuming to collate manually and this was compounded by primitive soft ware to complete the analysis

QoL is an important outcome measure in CR because of the effect it may have on the individual's capacity to make lifestyle changes necessary for secondary prevention, and this has implications for the ongoing development and future direction of CR

provision. McGhee (1996) suggested that it is likely in the future that QoL assessment will become a standard component of evaluation in cardiac rehabilitation and a range of QoL assessment tools are currently being evaluated in cardiac rehabilitation settings. It is possible that people with low self-esteem do not attend CR; hence the above average scores seen in this study. This again suggests the need to target such individuals immediately following their MI and then follow them up. From a philosophical perspective the SEIQUOL has attributes to recommend it in particular its ability to capture the phenomenon of individual perception of quality of life, which is its unique feature. However, it is limited by the factors outlined above. Recommendation of this tool would be subject to careful consideration of the potential participants, the timescale of the study and improved software to support analysis.

4.5.7 Are There Measurable Differences in Self-Esteem Before and After the Yoga and Exercise CR Programmes?

Following MI, individuals are likely to experience decreased self-esteem as they confront the task of redefining self-concept, changing roles and altering lifestyle (Roy & Andrews, 1991; Johnson & Morse, 1990; McGlashan, 1988; Taylor & Brown, 1988; Runion, 1985; Roviaro et al., 1984). According to Roy & Andrews (1991) individuals may use various strategies to maintain consistent self-organisation and to avoid the discomfort of dis-equilibrium. Furthermore, Taylor (1983) postulates that when an individual experiences a personally threatening event, the readjustment process focuses around three themes, a search for meaning in the experience, an attempt to regain mastery over the event in particular and over one's life more generally and an effort to enhance one's self-esteem to feel good about one's self after the personal setback.

The findings from the present study in relation to self-perception show that the mean values for the GSW scores in both groups are relatively high and only slightly lower than those of the well women and men in the sample population, utilised by the authors to determine consistency and reliability of the instrument. Section 3.30.

The Yoga group participants demonstrated ratings of Global Self Worth, job importance, and provider importance, which were statistically significantly less than those of the Exercise participants. Section 3.30. This may relate to a gender effect, as half of the participants in the Yoga group were female and of a generation where having a job and being a provider may not have been the major focus within their lives. Also women, who are not employed as was the case for the majority the participants in the yoga group, tend to have lower GSW than men as evidenced by Messer and Harter (1986) However, it is interesting to note that the overall the mean scores were high and possibly indicates positive self esteem combined with internal locus of control.

Between Time1 and Time 2 both groups of participants demonstrated an increase in competence within intimate relationships and physical appearance (Section 3.31). This is set against a drop in the importance of sociability over time. This result is hard to explain because it does not correlate with the competence reports of participants where the social aspects of attending their yoga or exercise group were seen as being a very important part of their experience. This result may be due to chance.

Very similar patterns of statistically significant association with GSW were seen in both groups at both time periods. Sociability, job competence and being an adequate provider are statistically significantly associated with GSW. Thus both groups of participants were similar in areas, which lead to a higher order of overall self-esteem. Section 3.31.

In the present study participants have taken part in the initial and continuing CR programmes to support their re-adjustment process, seeking out new health behaviours to regain mastery and control over their health and well being. This has been driven by the generally positive attitude that participants have toward their illness. Those with positive self-esteem and internal locus of control do not have negative attitudes toward their illnesses (Cornwell & Schmitt, 1990) In addition the positive self-esteem and internal locus of control of many of the participants have been intrinsic factors helping them to achieve the personal goals they have set within their CR.

The Self Perception Profile (Messer and Harter, 1986) was devised to reflect the complexity of a multi- dimensional adult self-concept. This scale allows for the examination of an individual's profile of perceived competencies across different domains including measure of global self-worth. In addition it includes assessment of the importance of these domains for the individual.

Interest in the self as a psychological construct remains of considerable interest within psychology and increasingly, concepts such as self-esteem, self-image, and perceived competence are becoming central to a variety of formulations emerging from personality theory, social learning theory, social cognition, and theories of intrinsic motivation (Messer & Harter, 1986). At the more applied level, Messer & Harter suggest that the issue of assessing as well as enhancing a person's self-esteem is critical to diagnosticians, therapists, and counsellors. In relation to CR programmes such assessment would help tailor these programmes to meet the needs of individuals, whilst helping to determine requirements for particular therapy to support, where necessary, the building of self-esteem. Such an approach has the potential not only to meet individual needs but more effectively support lifestyle change and maintenance.

This tool was useful in the present study because of its sensitivity to change allowing GSW and competency across the range of domains to be measured for each individual participant. It also facilitated comparison between the two groups at the beginning of and then at the end of the study to determine whether any change had taken place over time. Given the relatively high initial self esteem of these groups it may be that a ceiling effect was seen. These findings again highlight the importance of assessment within CR to identifying and targeting those individuals with low self-esteem.

The findings from the present and other studies, regarding individual needs arising from adaptation to CHD are important and should be taken into account within the design, content and delivery of CR programmes. The most important considerations emerging from these findings are those surrounding individual assessment on entry to a CR programme to ensure provision of appropriate CR opportunities.

4.5.8 Are There Measurable Differences in Search for Meaning of the Cardiac Event Before and After Yoga and Exercise CR programmes

The majority of participants in each group identified their cardiac event as being a positive experience, which had benefits in terms of their view of themselves, their life and health behaviours, see Section 3.6. However, a number of them identified it as a negative experience which was unpleasant and stopped them doing things. Some participants said it had both positive and negative aspects. The experience of both positive and negative responses to the cardiac incident is commonly reported. Section 3.9.

Individuals, following MI, described surviving a life-threatening event as a profound experience because it forced them to contemplate the possibility of their own deaths. They also experienced gratefulness for having survived and found a new appreciation of life. (Johnson & Morse, 1990; Ornish, 1990).

The majority of participants had the benefit of support from others. The narratives suggest it was a crucial factor in adaptation and change with the spouse being a central support to many participants. Other family and friends were also important, see Section 3.5. The QoL results correlate with these findings where family, friends and socialising are among the domains rated most highly by both the yoga and exercise groups. The CHD literature supports the belief that social support is a positive factor in making and sustaining life style changes (Ornish, 1990;Lewin et al., 1992; Billings et al., 1996; NHS Centre for Reviews, 1998; Carlson et al., 2001).

4.5.9 What is Being Promoted Within Each of the Programmes (Yoga and Exercise)?

There are two perspectives which may be utilised when considering what is being promoted by the yoga and exercise programmes. The first perspective relates to what each programme essentially aims to achieve and the participants reports on their experience and benefits achieved.

The yoga programme is promoting mind body awareness and is facilitating participants in the development of a range of strategies to help them maintain self

awareness and use self management strategies to support them in their life and lifestyle change. This is evident from the responses of yoga participants in Section 3.19. In the exercise programme physical health is being promoted utilising a gymnasium based exercise programme and exercise participants identify this benefit in Section 3.19. Both programme offer the additional benefit of being group programmes consequently, there is the important contribution of social support which is also acknowledged by participants in both the yoga and exercise groups.

Another perspective on what is being promoted or supported by such programmes is described by Fleury (1991) and is known as Empowering potential.

Empowering potential is a basic social process proposed by Fleury (1991) to explain individual motivation to initiate and sustain new health behaviour. This is a continuous process of individual growth and development, which facilitates the emergence of new and positive health patterns. Within this process individuals use a variety of strategies, which guide initiation, and maintenance of new health behaviours. The participants within the present study can be located within this process and it serves to provide a context and framework in which to describe their lifestyle changes.

The various stages of the process proposed by Fleury have been matched with the process of adaptation and lifestyle change of participants from the present study:

- The first stage: Appraising readiness or the intention to initiate and sustain changes.

Participants in the present study attended the initial 6-week CR programme to initiate preliminary lifestyle changes and set goals to be achieved.

- The second stage: Changing, where intentions are transformed into personal; action.

The participants in the present study completed the initial CR programme, decided to proceed to the continuing CR programme, to sustain lifestyle changes and make

choices with regard to the interventions they would pursue within this programme.

- The third stage: Integrating Change, where lifestyle changes were more fully incorporated into existing life patterns.

At this stage the participants in the present study were attending the practice sessions in their chosen intervention and are also practising outside of these sessions over a time period with reported impact on health and lifestyle.

- The fourth stage: Imaging, or developing valued ways of being, and action statements based on these values.

The participants in the present study were developing new health beliefs and health actions and report the personal impact of these changes within life situations.

- The fifth stage: Social support systems.

It is evident that participants in the present study were provided with support from family and or friends and from other participants in the group. The contribution of the group support was noted as valuable in terms of support, shared experiences and friendship. Section 3.27.

The findings from Fleury's (1991) study produced a theory of individual motivation to initiate and sustain new health behaviours, which reduce risk factors in CHD. This provides further insight into ways of representing and investigating the complexities of health behaviour change for patients challenged with CHD risk factor modification. In addition it has provided a useful framework or continuum in which to locate the process and experiences of participants from the present study. The degree of integration of the lifestyle changes for the yoga group was not reported only on a physical level, as in the exercise group. This group made and sustained their lifestyle changes and demonstrated that they had developed new and valued ways of being which were related to their behaviour, attitudes and emotions. Such a framework would be useful to guide the sequencing, content and nature of therapeutic provision

within CR programmes to help tailor this service to more closely meet the needs of individuals with CHD.

4.5.10 Yoga and Exercise Participants After One Year.

Following the one year of the study the majority of yoga and exercise participants were still aware of their condition i.e. the cardiac event and its implications on their life. Generally, this awareness of their condition related to the presence of ongoing symptoms experienced on a regular basis or to the taking of medication long-term. For some individuals it related to their perceived need to maintain their lifestyle changes to prevent reoccurrence of symptoms or cardiac event and to maintain the level of fitness and or wellness they had achieved and were benefiting from (Section 3.16).

The majority of the Yoga group was still attending classes and continued to do so after the second phase of the present study, see Section 3.19, which relates to both the Yoga and the Exercise groups. The majority of the Exercise group continued to exercise mainly in a local gymnasium rather than the CR centre. For some of the Exercise group the transition to the community gymnasium resulted in their attendance dropping off. This related to moving away from the social support and common purpose of the cardiac group together with the difference in culture and mixed ability experienced in the community gymnasium. These factors raised questions about physical competency for certain individuals together with in some cases feelings of inadequacy and not feeling part of the culture or age group associated with the new gymnasium.

4.6 Key Findings

This section will consider the emerging evidence from the experience of participants .who have participated in the yoga and exercise CR programmes.

The majority of yoga group participants achieved mind/body benefits including enhanced self-awareness, reduction in stress and anxiety, greater calmness, positive inspirational feelings, flexibility and suppleness within the body. Further, they

recognised and managed everyday stress better as a result of using yoga techniques such as breathing and relaxation. An increased self-awareness was reported by a large number of the yoga participants, this was achieved largely through participation in the Yoga programme. They also demonstrated attitudinal change and this related to making "the self" the central focus of their life, together with generally viewing life with new appreciation and enthusiasm.

The nature of the yoga participants comments were much more individualised and often personal in nature. The practice of yoga demanded more personal participation and reflection and the group were clearly involved mindfully in their yoga in this way, which involved self, reflection on the self, and ongoing re-evaluation of the self. The experiences within the yoga group could be attributed to gender in that half of this group were women, however, the male participants provided narratives which were equally insightful to those of women. The majority of participants attributed yoga as a factor contributing to them being in control of their lives.

The Exercise group participants reported that they benefited from enhanced physical fitness and feelings of general well-being. However, this group noted a more limited number of self-changes and these tended to be much less personal and related largely to the physical dimension of their experience on the exercise programme. This group reported that exercise did not contribute to them feeling in control of their lives.

Participants in both groups demonstrated that they value their health as confirmed by their health related actions, together with their belief in their capability to perform that behaviour. Each group of participants practiced outside of the classes and this new health behaviour was being integrated within their lifestyle. Both groups identified the importance of the shared and supported experience they enjoyed with other members of their group. For both groups feeling that they were "in control" was an important aspect of Perceived Quality of Life. The QoL domains chosen at Time 1 and Time 2 were very similar in each group and similar to the findings in other studies of individuals with identified health problems. The most important domains selected were health, family, finance, hobbies/interests.

However, the experiences of participants in each group were qualitatively, personally and aspirationally different. As a point of comparison it would have been interesting to compare the results of those individuals following the exercise and yoga programmes with those who were not attending any ongoing programme or were attending other programmes, to determine if there was any differences in overall experience together with individual QoL. Further, comparison with another group undertaking a yoga programme as a component of ongoing CR would provide a useful comparison in relation to both group characteristics, possible gender biases and the overall nature and quality of experience emerging from the programme.

The process of making and sustaining new health behaviour can usefully be placed within a framework, which provides an overview of this process. Such a framework known as "Empowering Potential" was proposed by Fleury (1991). The findings of the present study are that both groups may be contextualised within this framework in respect of the process of change they are experiencing. The difference between the two groups is essentially qualitative in nature.

The findings from this study provide preliminary evidence of the contribution that yoga can make within cardiac rehabilitation. By introducing a yoga intervention, the intention was to offer a holistic mind-body therapy which facilitates individuals to become more self aware, to acquire new skills of stretching, moving and gently exercising the body combined with breathing, relaxation 2002). Within yoga the premise is that wholeness is achieved progressively through practice and within that concept is the notion that the benefits achieved are experienced at all levels of the individual (Ornish, 1990; Iyengar, 1997). The release of tension from the body and mind is a fundamental practice, using the breath and meditation (Jones, 2002) visualisation, movement, postures and meditation as the tools. Through that release, space is made within the self by reducing physical and mental stress and the constant internal dialogue (Ornish, 1990). This facilitates experience of the self, developing awareness of how the body feels, what the thoughts are, and who that person is in the moment. This is built progressively into a clearer awareness of the self as experienced during both the yoga practice and within the wider context of the individual's life (Neurnberger, 1981; Satyananda, 1984).

The participants in the Yoga group have articulated their experience of yoga, and in their personal commentaries they have expressed the ways in which they have utilised and benefited from yoga techniques to release physical an mental tension, to relax, achieve calm, reduce stress and find a range of coping strategies for use in their everyday life. They have also expressed their increasing self-awareness and how that has impacted upon their lives and helped empower lifestyle change.

The yoga programme in the present study was particularly attractive to women, who generally, are under represented in CR programmes, particularly the exercise provision. As women who have CHD tend to be in the older age group and may be experiencing more severe symptoms this may provide some explanation for their non-participation. (Hamilton, 1990; McGhee & Horgan, 1992; Abbey & Stewart, 2000; Brink et al., 2002). In the present study the yoga programme clearly has met some of the needs of such women, therefore the indicators are that different types of provision require to be developed to meet the needs of women. Further exploration of the impact of a wider range of interventions within CR specifically designed for women would provide further validation of such a claim.

4.7 Issues Arising From the Study Findings.

In response to the emerging evidence from the present study this section considers some issues surrounding current policy and practice in respect of CR programmes.

4.7.1 Cardiac Rehabilitation.

CR informs individuals of the changes they require to make in order to reduce the risk factors in CHD. The information regarding these changes is provided as patient education delivered informally or formally to individuals or groups usually over 6-8 weeks. This may include attendance by partners or family members. A block of group aerobic exercise is offered once a week over 6-10 weeks as these programmes focus mainly on promoting cardiovascular fitness through gymnasium based exercise. (Thompson et al 1997) The Exercise programme is the active component of the CR programme, and individuals are required to actively participate and attend regularly to benefit.

Around 90% of CR programmes offer some form of stress management (Bethell et al., 2001) This development has been supported by policy and clinical guidelines (NHS Centre for Reviews and Dissemination, 1998; Balady et al., 2000; Department of Health, 2000) However, few offer structured support to empower lifestyle change, which facilitates exploration of how to make and how to sustain lifestyle changes. The questions surrounding how lifestyle changes are made and sustained generally remains uninvestigated by the individual and largely unacknowledged and unanswered by health professionals.

In relation to Healthcare provision the process surrounding individual adaptation to illness is largely theoretical and is mainly confined to the textbooks. The evidence base related to making and sustaining lifestyle changes, how this impacts on the individual together with its implications for therapeutic practice, healthcare practice and service provision specific to the individual remains largely undeveloped.

The CR needs of those with CHD are specific and individualised. The current approach within CRP's includes exercise programmes and varying educational support, which focuses on risk factor modification and medication topics (NHS Centre for Reviews and Dissemination, 1998). Such provision does not include opportunities and interventions designed to accommodate the full range of individual needs. This generic approach to CR may impact on the CHD statistics in terms of mortality, however, it is debatable whether it meets the perceived needs of a wide range of individuals, or the needs of the limited number of women who attend CR programmes (Thompson et al., 1997), or if this approach helps support sustained lifestyle change.

Long term maintenance of lifestyle changes is important. A survey conducted by Cambell et al., (1998) of individuals with documented CHD revealed that the majority were not taking regular exercise; were overweight and were not eating an appropriate diet. The majority of these individuals would have benefited considerably from making further changes in lifestyle. This raises not only questions about how individuals are supported in making lifestyle changes; how these changes may be sustained on the long term and questions about how the wider needs of individual beyond those in the physical dimension may be identified and met.

On entry to CR there is no assessment of individual needs in the vast majority of programmes, neither is there evaluation of the benefits of the programme to individuals or what outcomes they have achieved. Such an approach to assessment would help determine the range of individuals needs and facilitate allocation of appropriate interventions. Those individuals who have always exercised would be able to follow a shorter programme in the gymnasium and be directed to community gymnasia. This would provide more opportunity for the programme to focus on meeting the needs of those who require to be encouraged to exercise and who in the present circumstances will either attend intermittently or not at all. This group would include, women, the elderly and ill individuals who currently tend to fall through the CR net.

In CHD the question of how lifestyle changes are initiated and maintained including further exploration of the individual factors which, support this process together with how such change may be sustained beyond the short term requires to be further researched. Additionally, CR programmes require evolution and further development to become more evidence based and relevant to the holistic needs of individual service users.

The restoration of individuals with CHD to their greatest health potential is more complex than is currently acknowledged within healthcare provision. It has been reduced to a series of inputs to restore physical health and output measures of the efficacy or curative aspect of that treatment. In the contemporary context all of this is being controlled within scales of time and economy. Consequently, this reductionism has resulted in the individual consumer of CR being less and less recognised as an individual and more and more as a commodity with measurable and manipulable characteristics. Yet there never has been a time when there has been a greater emphasis within healthcare policy on patient participation and choice.

In a century where individuals are consumers of an infinite numbers of options and opportunities, it is ironic that with regard to healthcare there remains such little choice. To offer choice in CR programmes does not necessarily mean greater cost; rather it offers the opportunity to enhance cost effectiveness. Individualised CR programmes have the potential to capture the interest and attendance of more service

users, to offer effective secondary prevention, and even primary prevention with good local planning.

The view of CHD as an illness with associated risk factors is at one level useful and at another level limiting. The premise surrounding therapeutic intervention in CR relates to changing the risk factors. However, the personal aspect, when looking at this risk in the programmes currently offered, is not considered. What the contribution that the individual has within the risk factors raises such issues as how do individual characteristics such as perception, personality, self-esteem, self efficacy, together with coping mechanisms, adaptability, lifestyle, social, environmental and cultural context impact within their health and illness. Furthermore, do these characteristics change in relation to lifestyle changes and if so how?

Therefore, the question remains as to what are the individual needs and how can these best be met within CR programmes. The answer to this question will depend on what is valued within such a programme, at present physical fitness to ensure cardio-vascular function is what is valued. The recommendations from the present study relate to a somewhat more holistic view of individual needs and aspirations within CR that relate to building self-awareness in response to the health challenge and making and sustaining life-style changes. This includes using a range of self-management strategies such as gentle exercise, breathing techniques, relaxation, and meditation.

Stress contributes to CHD and has been increasingly recognised as an important risk factor (Ornish, 1990; Wahrborg, 1998; Pashkow, 1999). This relates to the individual's response to his her situation / life / challenges. The complex nature of individuals, the combined effects of mind-body interaction and their impact on health and illness are increasingly being realised. It is clear that the individual requires to be facilitated to understand their own stress in terms of personal challenges, realisation of individual responses and how these impact on well being. Increasingly CR programmes are including relaxation training as a component of programmes (Campbell, 1996), however, such provision is not comprehensive or well developed and there is scope for a wider range of therapeutic interventions to meet individual stress prevention and management needs.

The recognised psychosocial aspects of CHD need to be reconsidered, not only as the remit of a limited group of health professionals namely, psychologists and counsellors, but as an area where complementary and other approaches might make an important contribution. Such approaches would contribute to supporting the coming to terms with finding the self when adapting to illness, whilst initiating and making changes which are sustainable through developing new strategies to manage life's challenges. In addition this would provide opportunity to gather important evidence surrounding the efficacy of such approaches which could be qualitative as well as quantitative

4.8 Recommendations for Further Work

The findings from this preliminary study have been very encouraging in relation to the benefits realised by participants, particularly women, following the yoga intervention as a choice within a CR programme. Therefore, recommendations from the present study regarding further research would include conducting a funded, larger scale, multi-site, comparative study using a mixed methodology to further research the process of lifestyle change for individuals in CR. Concepts such as self-awareness, self-efficacy, locus of control and the conceptual process surrounding illness and making and sustaining lifestyle change emerging from present study have been congruent with a number of other studies relating to CR and from subject areas such as psychology, these merit further study in relation to a wider group of participants on CR programmes pursuing different combinations of interventions within their CR programme.

In future research, a comparative study would facilitate a wider exploration of the lived experience of individuals making lifestyle changes following a yoga programme, each with similar and different adaptation needs. This comparison might be made with a group of individuals with Cancer who are following a palliative care programme. In addition it would be important to include a further dimension to the project and compare the experience of the two groups following a supporting programme with those individuals not participating in a support programme. Such a study would utilise a qualitative approach and would be designed to reflect an holistic

perspective of the individual experience including physical changes together with the psychosocial and spiritual dimensions.

This would provide contrasting perspectives of individuals facing transitions within their life and in what ways yoga might support adaptation to illness and making lifestyle change. This would generate further insight into the potential contribution that yoga may make as a therapeutic intervention.

4.9 Recommendations for Practice Policy and Education

This section will consider how the emerging evidence from the experience of participants .who have participated in the yoga and exercise CR programmes might inform the future development of CR programmes.

4.9.1 Programme Content

Widening the range of choices in CR programmes can support the empowerment of lifestyle change. CR programmes would be enhanced through inclusion of a generic programme, followed by a range of interventions to choose from to meet the breadth of individual needs. The inclusion of a range of exercise options to meet the needs of all types of individuals including women, the elderly and those who are ill would increase the accessibility of CR programmes to a wider range of individuals in accordance with NSF (1999). Such interventions as Yoga and Tai Chi, are options which might be included to support development of the skills of self-awareness, and gentle exercises whilst supporting the making and sustaining of lifestyle changes. In addition, when content of CR programmes is being planned, account should be taken of the consumer experience and the evidence base. This would achieve the recommendations of the NSF (1999) for choice and partnership in relation to care, together with the call for evidence based practice. Furthermore the NSF notion of accessibility would be addressed, as this approach offers an exercise programme, which is gentle and designed to meet a wider range of needs thus more women, older people and those who are ill may be encouraged to attend.

4.9.2 Needs Based Provision

There requires to be assessment of individuals on entry to and exit from programmes. This would facilitate needs being identified and therefore, individuals being directed only to the appropriate aspects of the programme. This approach would be more effective in meeting specific needs and ultimately more cost effective should secondary prevention aims, that are the essential aims of all CR programmes, be 205achieved.

4.9.3 Education of Health Professionals

In adjusting to the challenges of CHD, individuals may seek help from health professionals and from CR programmes. There is a requirement for evidence based knowledge and skills together with an expanded range of therapeutic interventions, which take account of individual needs and response to support such changes (Ornish, 1997).

Since the NSF for CHD (1999) there have been more continuing professional development courses in cardiac care for health professionals within CR. Within this educational provision to support care of those with CHD there requires to be greater emphasis on contemporary evidence from research to underpin the identification of the specific needs of those with CHD and to encourage the further development of supporting therapeutic practice. The health professional attending such educational programmes would benefit from a greater breadth of perspective in relation to evidence based cardiac care and rehabilitation to provide a stronger foundation on which to evolve future CR programmes.

Currently there is a limited skill base in relaxation, stress management and CAM, as these skills are not developed within the clinical training of health professionals. This skill base could readily be provided through development of modules within CPD programmes for health professionals. In addition complementary therapy practitioners could be employed as part of the CR team to facilitate aspects of the CR programmes. this would widen the skill and therapeutic base from which to further develop CR programmes and would also be cost effective in terms of education and salary costs.

Furthermore such initiatives would provide opportunity for clinical research and generation of evidence to support the ongoing use and development of programmes of this type.

Such an approach would be congruent with the notion of "Integrated Healthcare" where CAM and conventional approaches to medicine collaborate in the provision of post-modern holistic healthcare through integrated practice, research and education. At the heart of which is a patient centred approach which values the subjective experience of individuals and places this experience firmly within its evidence based which acknowledges outcomes not only in terms of mortality but in terms of such constructs as QoL, self awareness and maintenance of lifestyle change. This combination has evocative potential, not only for the individual recipient of healthcare provision but for the health economy where primary or secondary prevention, through such approaches, may be more cost effective than " cure" which tends to only deal with the consequence of rather than the root causes of health challenges.

4.10 Conclusions

The findings of this study demonstrate that the yoga intervention has supported the achievement of enhanced self-awareness for a large number of participants in the yoga group. This awareness has contributed to their ability to make and sustain lifestyle changes together with developing strategies such as breathing, relaxation, and medication to support self-management of stress. The gentle exercise component of the yoga programme facilitated release of body tension, increased flexibility, suppleness, general fitness and provided an encouraging experience for the less able and those who disliked conventional forms of exercise. This intervention offers a "whole" experience for participants, one which is not simply confined to the physical aspects but one which involves a deeper exploration and realisation of the "self" in illness progressing toward change and new ways of being.

These findings contrast with those from the exercise group where participants reported the benefits of enhance physical fitness and sense of well-being. This too is a valuable outcome for the participants, however, is limited, for most individuals, to a

physical experience and benefits, together with establishment of a new or renewed physical fitness regime within the life of the individual.

Both groups of participants would be located within a process of lifestyle change as suggested by Fleury (1990). However, the depth and breadth of engagement and individual aspiration in relation to that process appeared to be greater for the yoga participants. They displayed greater awareness of the self, their life and the implications of having CHD and consequently how they would proceed within their life and what changes they would bring about to make the most of their current health and well-being and future lifespan.

Arising from this study is the need to move away from the more reductionist approach to CHD where the view is held that management of this disease lies only in the modification of risk factors, with the restoration of cardio-vascular fitness being of paramount importance in this process. This approach does mot take into account the individual and their personal contribution to their health and illness. Neither does this approach explain the need to sometimes repeat surgical revascularisation of the heart within months of the individual procedure despite CR.

The contemporary approach to CR appears to deal with the tip of the CHD iceberg and whilst the morality figures have been reduced the morbidity associated with this disease remains a serious challenge to be managed within conventional approaches to healthcare. If the treatment of CHD is limited to the physical then it comes back repeatedly (Ornish, 1990). An approach, which acknowledges the holistic aspects of individuals and addresses the need for emotional and physical healing offers interesting potential for future therapeutics.

The findings from this study demonstrate the potential for more holistic interventions and choice within CR with the commensurate increase in the depth and breadth of individual's responses. The transformational power of illness can be harnessed through approaches such as yoga, and used to support and empower lasting and meaningful lifestyle changes for a wide range of individuals with a full spectrum of needs.

The evidence base relied upon to inform best practice needs to move beyond the contribution of the randomised control trial to capture alongside it the qualitative dimensions of the experience of both illness and therapeutics. Further decision making with regard to health provision and development requires to emerge from this more balanced and humanistic perspective. This combination has a powerful potential to evolve and drive development of health policy and practice towards new perspectives in therapeutics which meet the holistic needs of individuals and harness the potential to empower potential for, self-realisation, transformation and healing.

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PARTICIPANT INFORMATION SHEET. 1.

Research Project:

Comparison of Individuals Following a Yoga or Exercise Programme as part of a Continuing Cardiac Rehabilitation Programme.

I would like to ask for your help in the above study which is designed to follow the progress, over one year, of individuals who participate in yoga programme following their heart attack compared with individuals on the exercise programme. If you agree to take part in the study you will participate in your choice of programme either yoga or exercise.

- You will be asked to complete **3 questionnaires** and participate in an **interview** with the researcher at the beginning of the study and on completion of the study at 12 months.
- At your interview **audiotape recording** will be used.
- All information either written, recorded or stored data will be **confidential** and when publication of results takes place all personal information will be anonymous.
- All contributions you make to this project will take place, through prior arrangement with the researcher and when you normally attend the Heart Support Centre, this will avoid you having any additional expense.

If you decide not to take part in the study or withdraw during the study this will not affect your future participation in the yoga classes / heart support group / centre.

You will be able to continue attending the yoga classes/ heart support group when your participation in the study ends.

I am happy to discuss any questions, which you may have regarding the study. I can be contacted at the office number below during office hours.

Please keep this sheet for future reference.

Researcher:
Telephone:
Tel:

Appendix 1

PERCEIVED STRESS SCALE

NFER NELSON

Name: .....

Date: ..... **Record Number:** .....

Instructions

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:

0 = never
1 = almost never
2 = sometimes
3 = fairly often
4 = very often

1. In the last month, how often have you been upset because of something that happened unexpectedly? ☐
2. In the last month, how often have you felt that you were unable to control the important things in your life? ☐
3. In the last month, how often have you felt nervous and stressed? ☐
4. In the last month, how often have you dealt with irritating life hassles? ☐
5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life? ☐
6. In the last month, how often have you felt confident about your ability to handle your personal problems? ☐
7. In the last month, how often have you felt that things were going your way? ☐
8. In the last month, how often have you found that you could not cope with all the things you had to do? ☐
9. In the last month, how often have you been able to control irritations in your life? ☐
10. In the last month, how often have you felt that you were on top of things? ☐
11. In the last month, how often have you been angered because of things that happened that were outside of your control? ☐
12. In the last month, how often have you found yourself thinking about things that you have to accomplish? ☐
13. In the last month, how often have you been able to control the way you spend your time? ☐
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? ☐

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Appendix 2

WHAT I AM LIKE

These are statements which allow people to describe themselves. There are no right or wrong answers since people differ markedly. Please read the entire sentence across. *First* decide which one of the two parts of each statement *best describes you*; then go to that side of the statement and check whether that is just *sort* of true for you or *really* true for you. You will just check ONE of the four boxes for each statement.

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
1.	☐	☐	Some adults like the way they are leading their lives	**BUT**	Other adults don't like the way they are leading their lives	☐	☐
2.	☐	☐	Some adults feel that they are enjoyable to be with	**BUT**	Other adults often question whether they are enjoyable to be with.	☐	☐
3.	☐	☐	Some adults are not satisfied with the way they do their work	**BUT**	Other adults are satisfied the way they do their work	☐	☐
4.	☐	☐	Some adults see caring or nurturing others as a contribution to the future	**BUT**	Other adults do not gain a sense of contribution to the future through nurturing others.	☐	☐
5.	☐	☐	In games and sports some adults usually watch instead of play	**BUT**	Other adults usually play rather than just watch.	☐	☐
6.	☐	☐	Some adults are happy with the way they look	**BUT**	Other adults are not happy with the way they look.	☐	☐
7.	☐	☐	Some adults feel they are not adequately supporting themselves and those who are important to them	**BUT**	Other adults feel they are providing adequate support for themselves and others.	☐	☐
8.	☐	☐	Some adults live up to their own moral standards	**BUT**	Other adults have trouble living up to their moral standards.	☐	☐
9.	☐	☐	Some adults are very happy being the way they are	**BUT**	Other adults would like to be different.	☐	☐
10.	☐	☐	Some adults are not very organized in completing household tasks	**BUT**	Other adults are organized in completing household tasks.	☐	☐
11.	☐	☐	Some adults have the ability to develop intimate relationships	**BUT**	Other adults do not find it easy to develop intimate relationships.	☐	☐

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
12.	☐	☐	When some adults don't understand something, it makes them feel stupid	**BUT**	Other adults don't necessarily feel stupid when they don't understand	☐	☐
13.	☐	☐	Some adults can really laugh at themselves	**BUT**	Other adults have a hard time laughing at themselves	☐	☐
14.	☐	☐	Some adults feel uncomfortable when they have to meet new people	**BUT**	Other adults like to meet new people	☐	☐
15.	☐	☐	Some adults feel they are very good at their work	**BUT**	Other adults worry about whether they can do their work	☐	☐
16.	☐	☐	Some adults do not enjoy fostering the growth of others	**BUT**	Other adults enjoy fostering the growth of others	☐	☐
17.	☐	☐	Some adults sometimes question whether they are a worthwhile person	**BUT**	Other adults feel that they are a worthwhile person	☐	☐
18.	☐	☐	Some adults think they could do well at just about any new physical activity they haven't tried before	**BUT**	Other adults are afraid they might not do well at physical activities they haven't ever tried	☐	☐
19.	☐	☐	Some adults think that they are not very attractive or good looking	**BUT**	Other adults think that they are attractive or good looking	☐	☐
20.	☐	☐	Some adults are satisfied with how they provide for the important people in their lives	**BUT**	Other adults are dissatisfied with how they provide for these people	☐	☐
21.	☐	☐	Some adults would like to be a better person morally	**BUT**	Other adults think that they are quite moral	☐	☐
22.	☐	☐	Some adults can keep their household running smoothly	**BUT**	Other adults have trouble keeping their household running smoothly	☐	☐
23.	☐	☐	Some adults find it hard to establish intimate relationships	**BUT**	Other adults do not have difficulty establishing intimate relationships	☐	☐
24.	☐	☐	Some adults feel that they are intelligent	**BUT**	Other adults question whether they are very intelligent	☐	☐

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
25.	☐	☐	Some adults are disappointed with themselves	**BUT**	Other adults are quite pleased with themselves	☐	☐
26.	☐	☐	Some adults find it hard to act in a joking or kidding manner with friends or colleagues	**BUT**	Other adults find it very easy to joke or kid around with friends and colleagues	☐	☐
27.	☐	☐	Some adults feel at ease with other people	**BUT**	Other adults are quite shy.	☐	☐
28.	☐	☐	Some adults are not very productive in their work	**BUT**	Other adults are very productive in their work.	☐	☐
29.	☐	☐	Some adults feel they are good at nurturing others	**BUT**	Other adults are not very nurturant.	☐	☐
30.	☐	☐	Some adults do not feel that they are very good when it comes to sports	**BUT**	Other adults feel they do very well at all kinds of sports	☐	☐
31.	☐	☐	Some adults like their physical appearance the way it is	**BUT**	Other adults do not like their physical appearance.	☐	☐
32.	☐	☐	Some adults feel they cannot provide for the material necessities of life	**BUT**	Other adults feel they do adequately provide for the material necessities of life	☐	☐
33.	☐	☐	Some adults are dissatisfied with themselves	**BUT**	Other adults are satisfied with themselves	☐	☐
34.	☐	☐	Some adults usually do what they know is morally right	**BUT**	Other adults often don't do what they know is morally right.	☐	☐
35.	☐	☐	Some adults are not very efficient in managing activities at home	**BUT**	Other adults are efficient in managing activities at home.	☐	☐
36.	☐	☐	Some people seek out close relationships	**BUT**	Other persons shy away from close relationships.	☐	☐
37.	☐	☐	Some adults do not feel that they are very intellectually capable	**BUT**	Other adults feel that they are intellectually capable.	☐	☐

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
38.	☐	☐	Some adults feel they have a good sense of humor	**BUT**	Other adults wish their sense of humor was better	☐	☐
39.	☐	☐	Some adults are not very sociable	**BUT**	Other adults are sociable	☐	☐
40.	☐	☐	Some adults are proud of their work	**BUT**	Other adults are not very proud of what they do	☐	☐
41.	☐	☐	Some adults like the kind of person they are	**BUT**	Other adults would like to be someone else	☐	☐
42.	☐	☐	Some adults do not enjoy nurturing others	**BUT**	Other adults enjoy being nurturant	☐	☐
43.	☐	☐	Some adults feel they are better than others their age at sports	**BUT**	Other adults don't feel they can play as well	☐	☐
44.	☐	☐	Some adults are unsatisfied with something about their face or hair	**BUT**	Other adults like their face and hair the way they are	☐	☐
45.	☐	☐	Some adults feel that they provide adequately for the needs of those who are important to them	**BUT**	Other adults feel they do not provide adequately for these needs	☐	☐
46.	☐	☐	Some adults often question the morality of their behavior	**BUT**	Other adults feel that their behavior is usually moral	☐	☐
47.	☐	☐	Some adults use their time efficiently at household activities	**BUT**	Other adults do not use their time efficiently	☐	☐
48.	☐	☐	Some adults in close relationships have a hard time communicating openly	**BUT**	Other adults in close relationships feel that it is easy to communicate openly	☐	☐
49.	☐	☐	Some adults feel like they are just as smart as other adults	**BUT**	Other adults wonder if they are as smart	☐	☐
50.	☐	☐	Some adults feel that they are often too serious about their life	**BUT**	Other adults are able to find humor in their life	☐	☐

Appendix F

	IMPORTANCE RATINGS			
HOW IMPORTANT IS IT TO YOU?	VERY IMPORTANT	PRETTY IMPORTANT	ONLY SORT OF IMPORTANT	NOT VERY IMPORTANT
1. To be sociable/at ease with others	_____	_____	_____	_____
2. To be good at your work (how did you define work: __job __homemaking)	_____	_____	_____	_____
3. To care for others	_____	_____	_____	_____
4. To be good at physical activities	_____	_____	_____	_____
5. To be good looking	_____	_____	_____	_____
6. To be an adequate provider	_____	_____	_____	_____
7. To be moral	_____	_____	_____	_____
8. To be good at household management	_____	_____	_____	_____
9. To have intimate relationships	_____	_____	_____	_____
10. To be intelligent	_____	_____	_____	_____
11. To have a sense of humor	_____	_____	_____	_____

On the lines below list the 3 areas from above which are <u>most</u> important to you and list the 2-3 areas which are <u>least</u> important to you:

Most Important	Least Important
_____	_____
_____	_____
_____	_____

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Appendix D

INDIVIDUAL CODING SHEET

ADULT SELF-PERCEPTION PROFILE

Domain	Items and Item Scores	Total	Average	Importance	Discrepancy
SOCIABILITY	2 __ 14 __ 27 __ 39 __	____	____	____	____
JOB COMPETENCE	3 __ 15 __ 28 __ 40 __	____	____	____	____
NURTURANCE	4 __ 16 __ 29 __ 42 __	____	____	____	____
ATHLETICS	5 __ 18 __ 30 __ 43 __	____	____	____	____
APPEARANCE	6 __ 19 __ 31 __ 44 __	____	____	____	____
PROVIDER	7 __ 20 __ 32 __ 45 __	____	____	____	____
MORALITY	8 __ 21 __ 34 __ 46 __	____	____	____	____
HOUSEHOLD MGT	10 __ 22 __ 35 __ 47 __	____	____	____	____
INTIMATE REL	11 __ 23 __ 36 __ 48 __	____	____	____	____
INTELLIGENCE	12 __ 24 __ 37 __ 49 __	____	____	____	____
HUMOR	13 __ 26 __ 38 __ 50 __	____	____	____	____

- -

GLOBAL
SELF-WORTH 1 __ 9 __ 17 __ 25 __ 33 __ 41 __ = ___ Total

(Divide total by 6)= ___ Mean of Global Self-worth

- -

Aid to find averages for the 11 specific domains (Totals divided by 4):

Total:	4	5	6	7	8	9	10	11	12	13	14	15	16
Average:	1.0	1.25	1.5	1.75	2.0	2.25	2.5	2.75	3.0	3.25	3.5	3.75	4.0

- -

How to compute discrepancy scores:

Discrepancy = Importance minus Average

Discrepancy is calculated only for those subscales with an Importance Rating of 4.

Compare the mean of the discrepancy scores to the global self-worth score. It i predicted that the larger the discrepancy score, the lower the global self-worth score.

Appendix 3

INTERVIEW RECORD FORM

1. TIME TAKEN

2. UNDERSTANDING OF METHOD

- not understood ___
- poor/ uncertain understanding ___
- understood ___

3. FATIGUE/ BOREDOM

- none _____/_____
- some _____/_____
- a lot _____/_____

4. OVERALL VALIDITY OF INFORMATION (in the light of 2 & 3 above)

- definitely invalid _____
- uncertain _____
- valid _____

SCORES ON VISUAL ANALOGUE SCALES (in mm)

1 _____	11 _____	21 _____
2 _____	12 _____	22 _____
3 _____	13 _____	23 _____
4 _____	14 _____	24 _____
5 _____	15 _____	25 _____
6 _____	16 _____	26 _____
7 _____	17 _____	27 _____
8 _____	18 _____	28 _____
9 _____	19 _____	29 _____
10 _____	20 _____	30 _____

CUE DEFINITIONS RECORD FORM

DESCRIPTION OF CUE — CUE LABEL

1. _____ _____

2. _____ _____

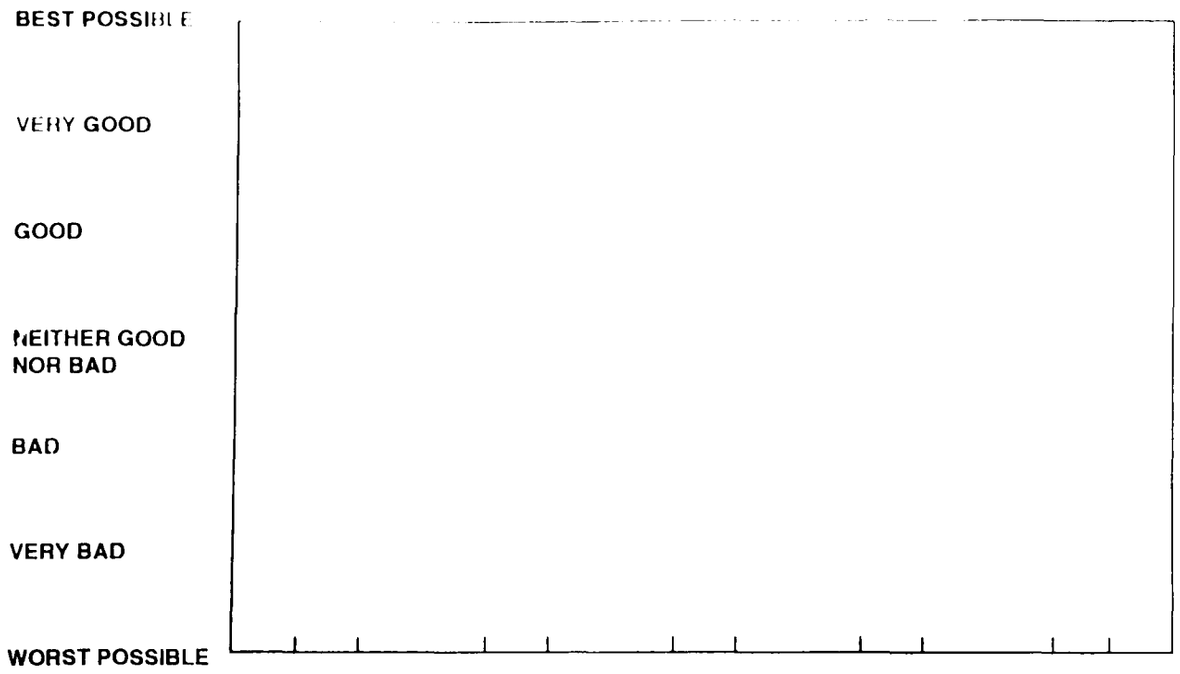
3. _____ _____

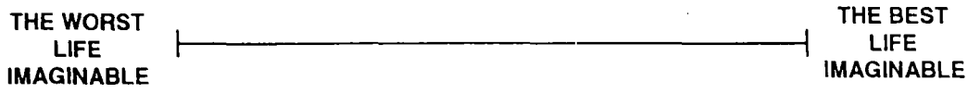
4. _____ _____

5. _____ _____

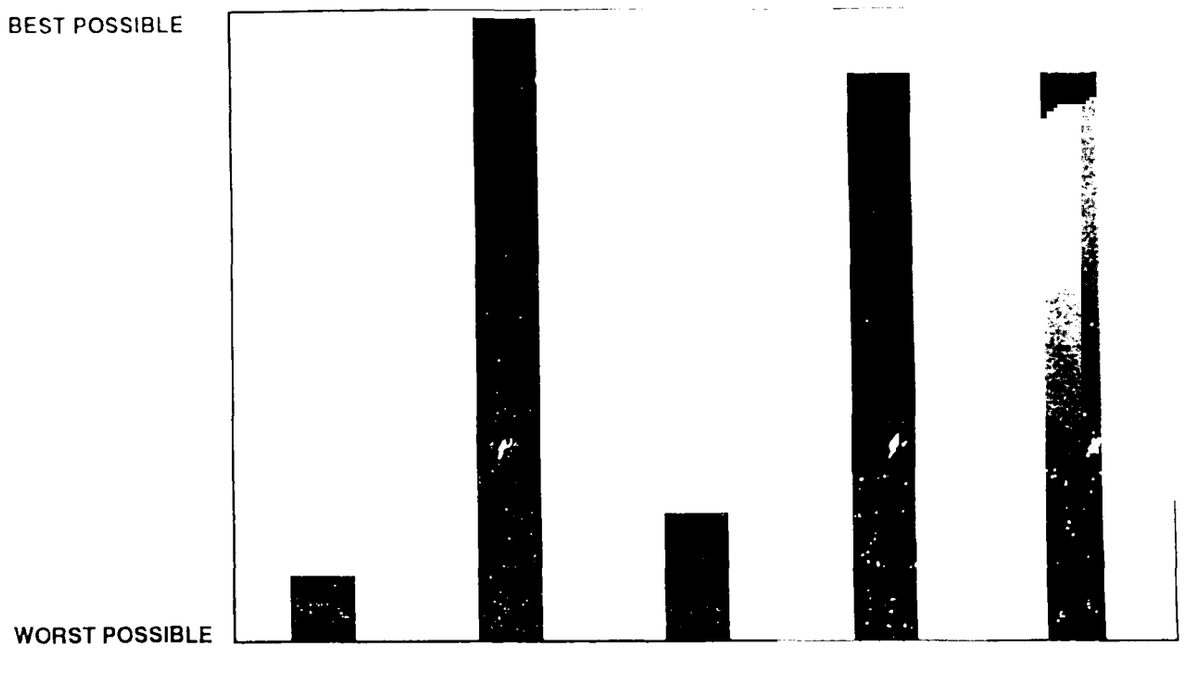
(Tick any cues elicited by reading list to person).

SAMPLE CUE LEVELS RECORD FORM





HYPOTHETICAL CASE FORMS

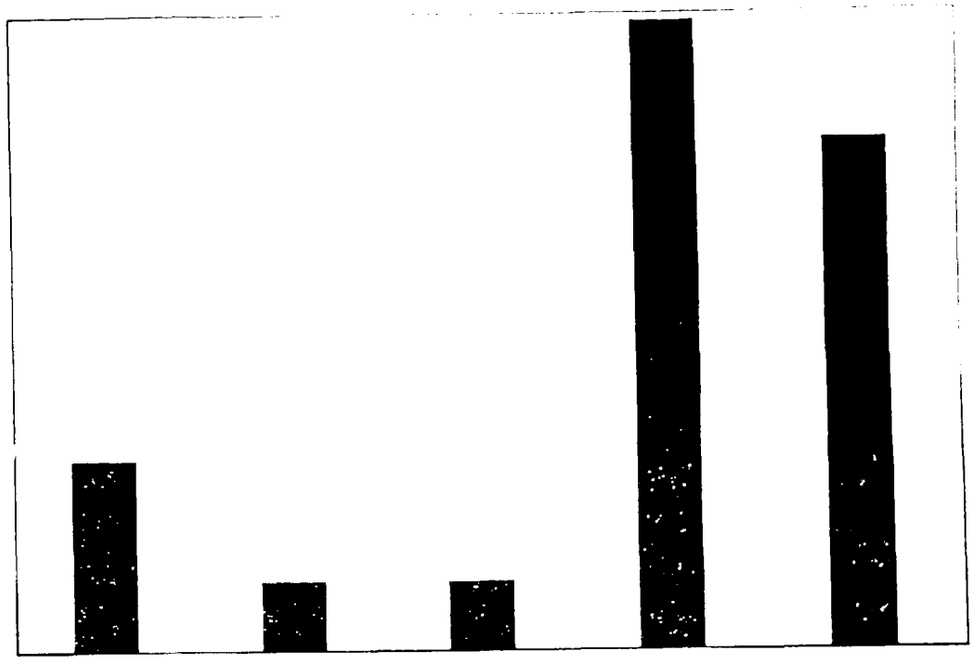


BEST POSSIBLE

WORST POSSIBLE

THE WORST LIFE IMAGINABLE ——— THE BEST LIFE IMAGINABLE

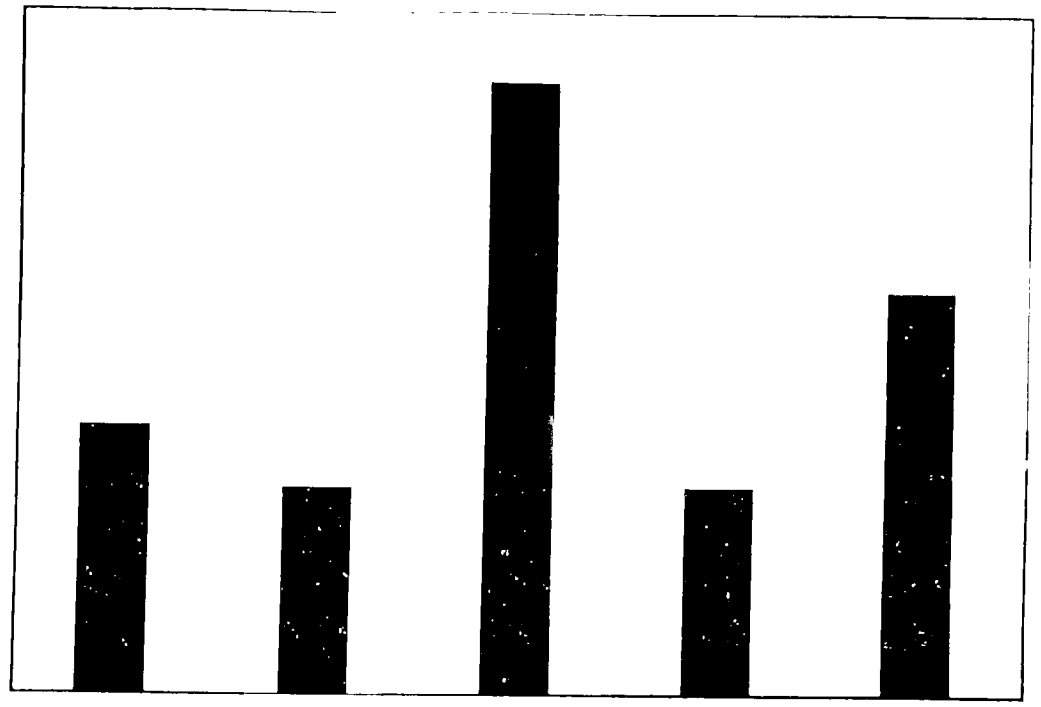
BEST POSSIBLE



WORST POSSIBLE

THE WORST LIFE IMAGINABLE ——— THE BEST LIFE IMAGINABL

BEST POSSIBLE

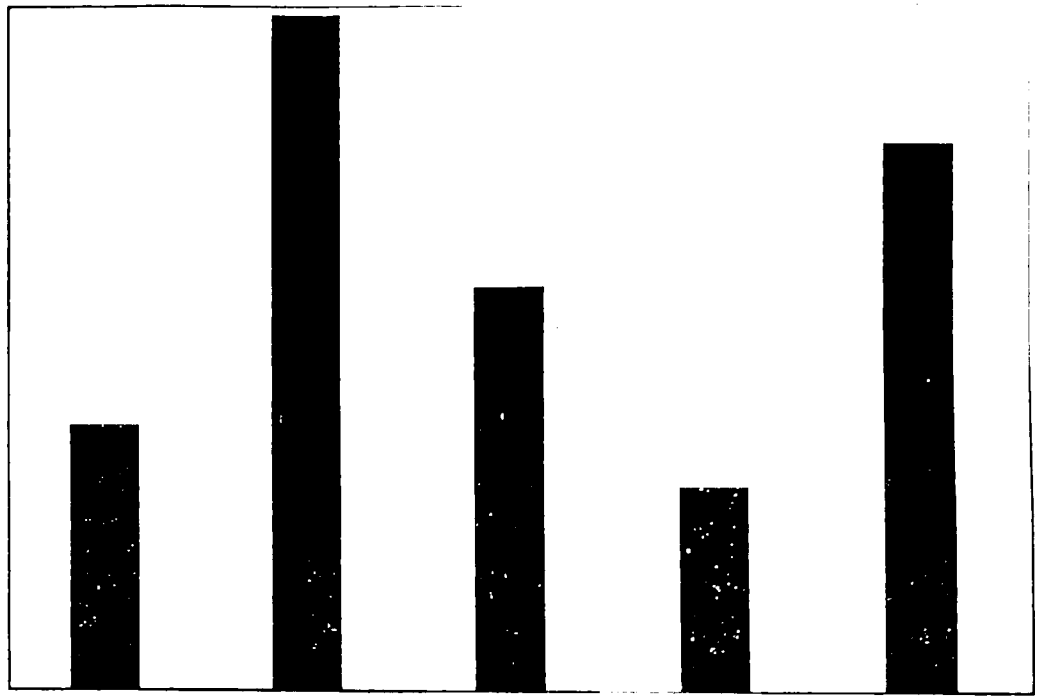


WORST POSSIBLE

THE WORST LIFE IMAGINABLE

THE BEST LIFE IMAGINABLE

BEST POSSIBLE



WORST POSSIBLE

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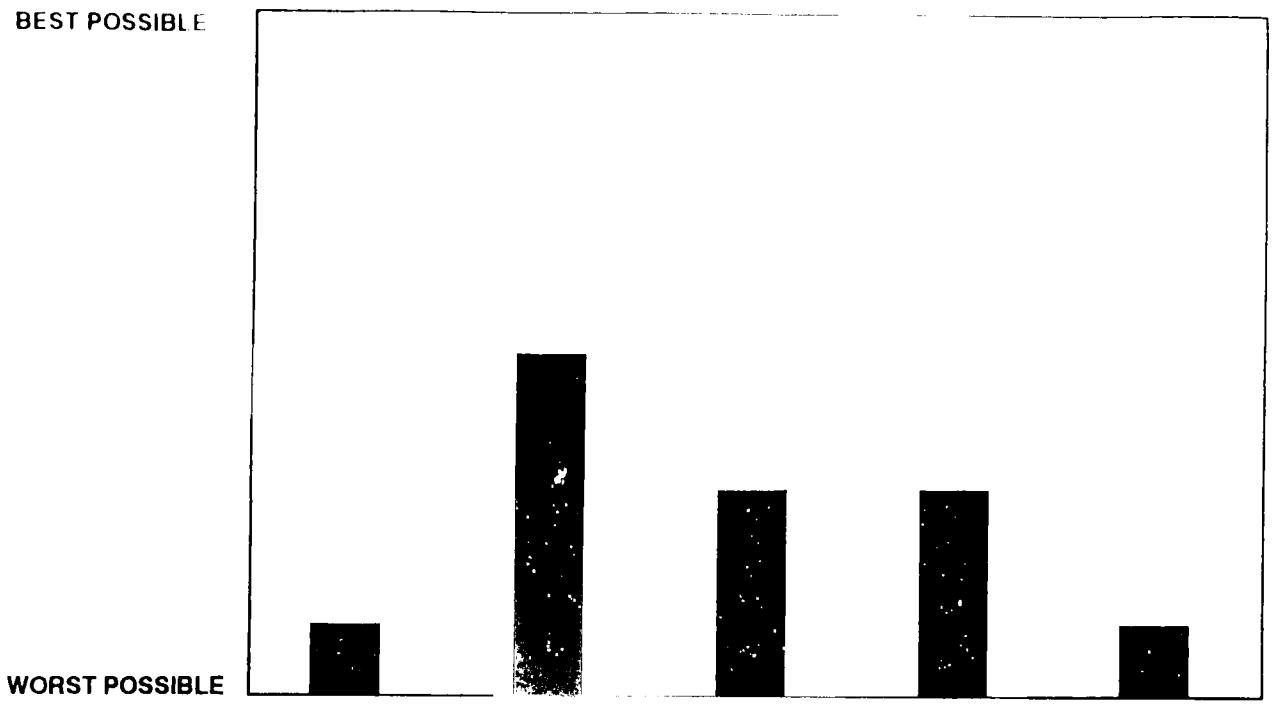

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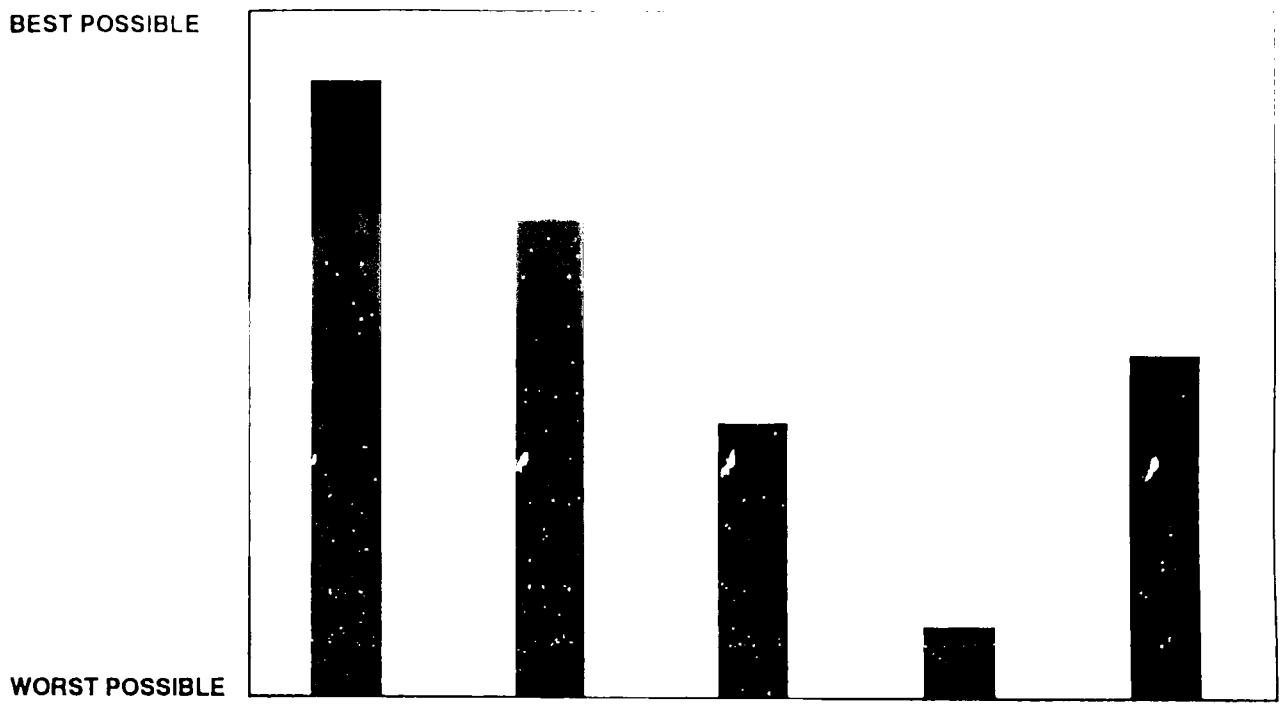

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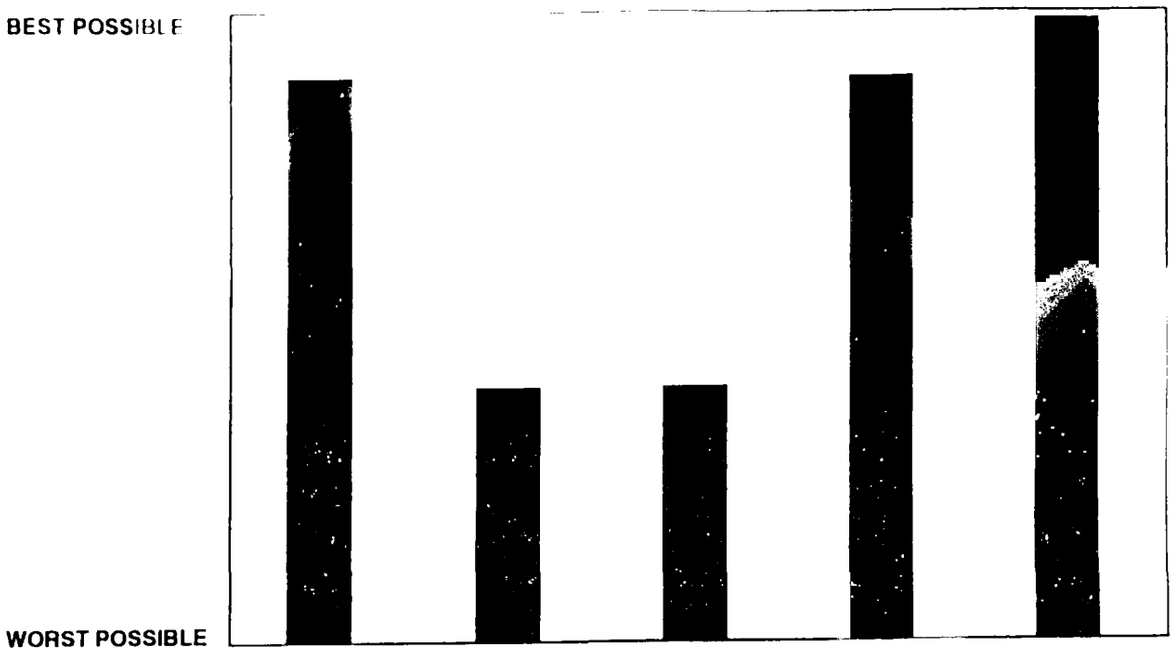
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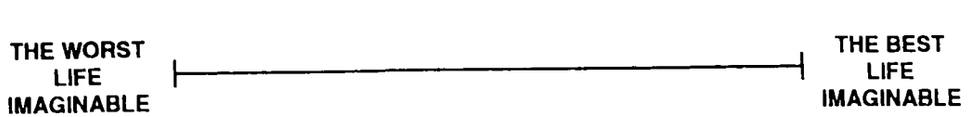
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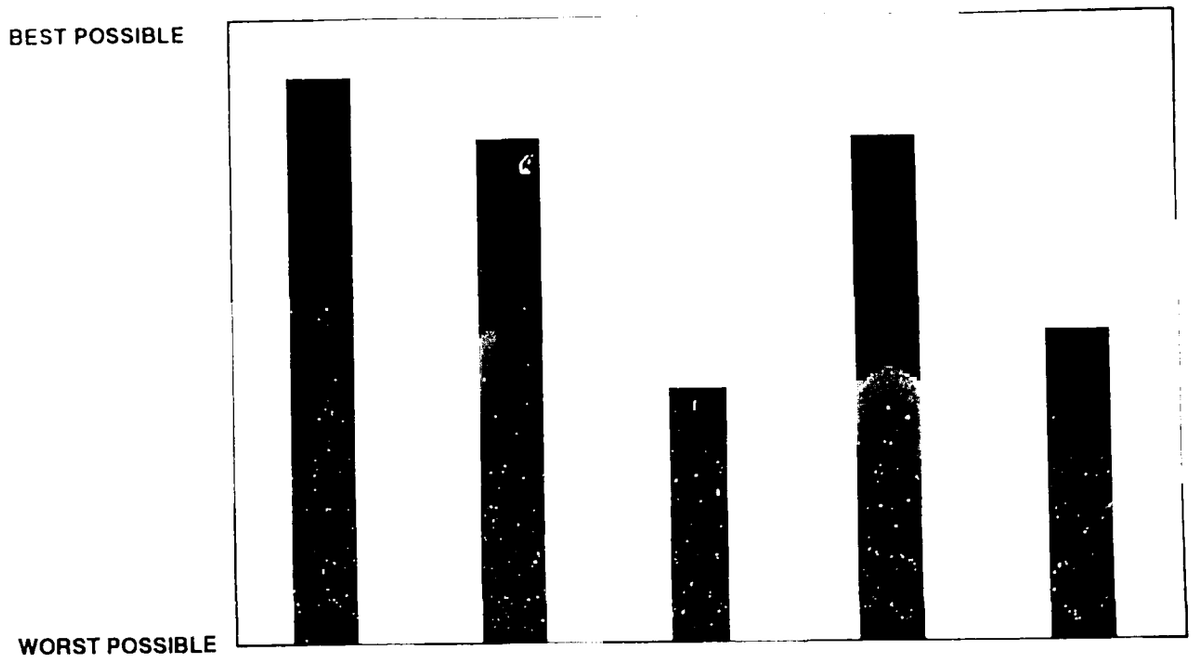
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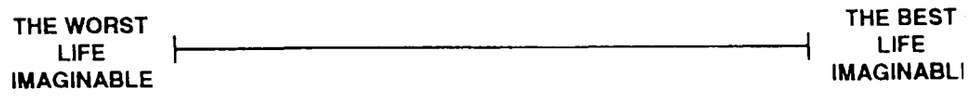
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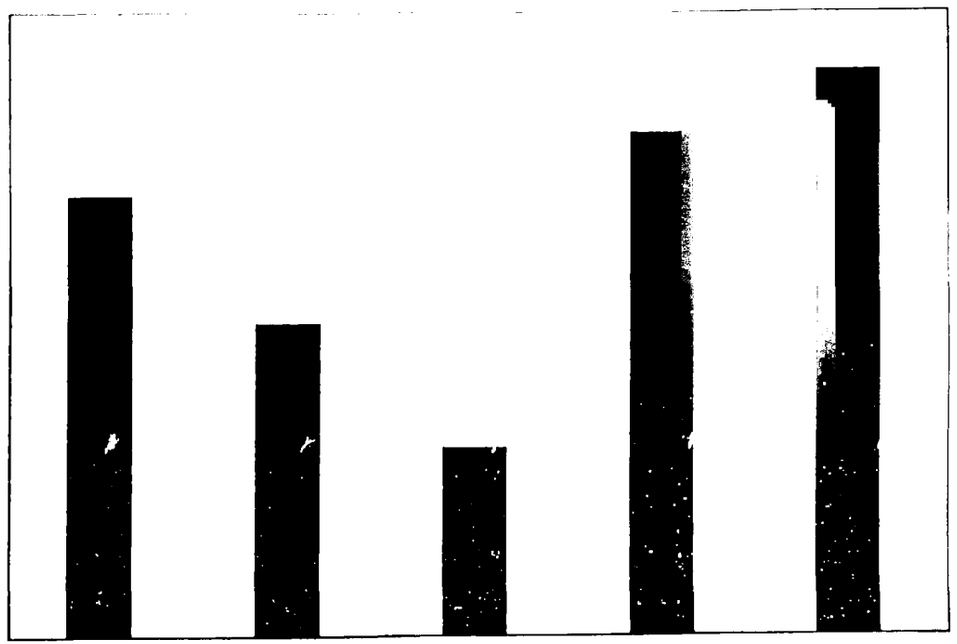

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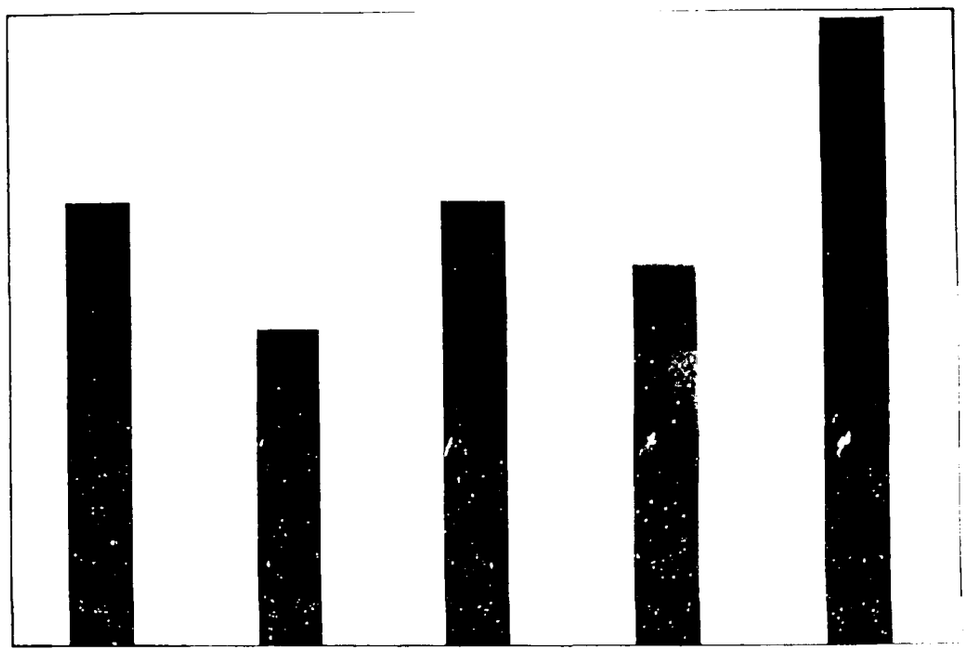

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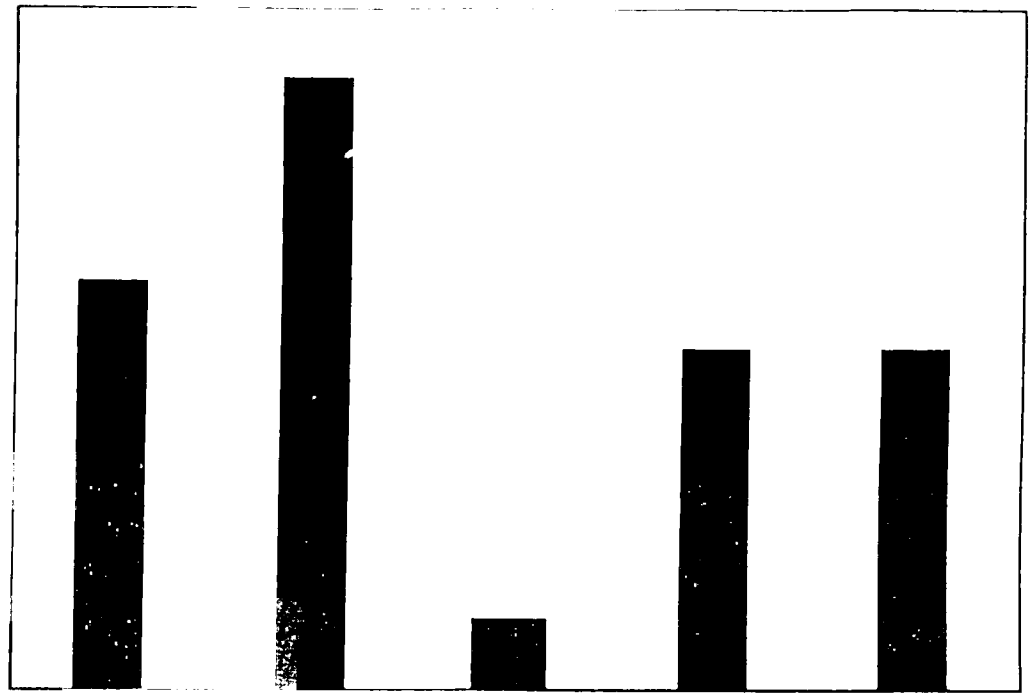

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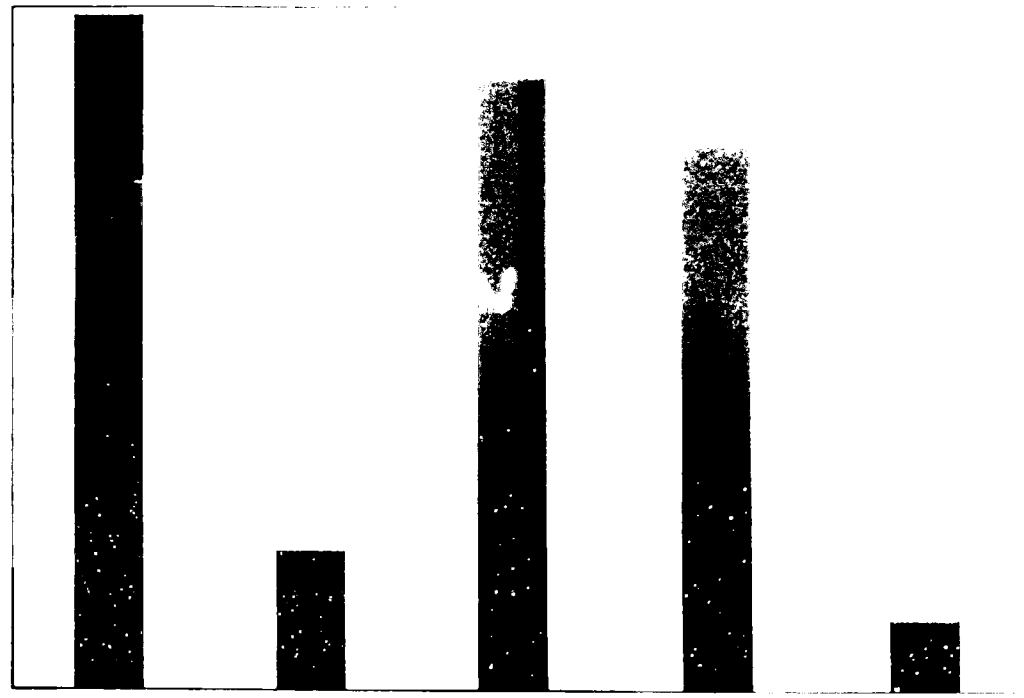

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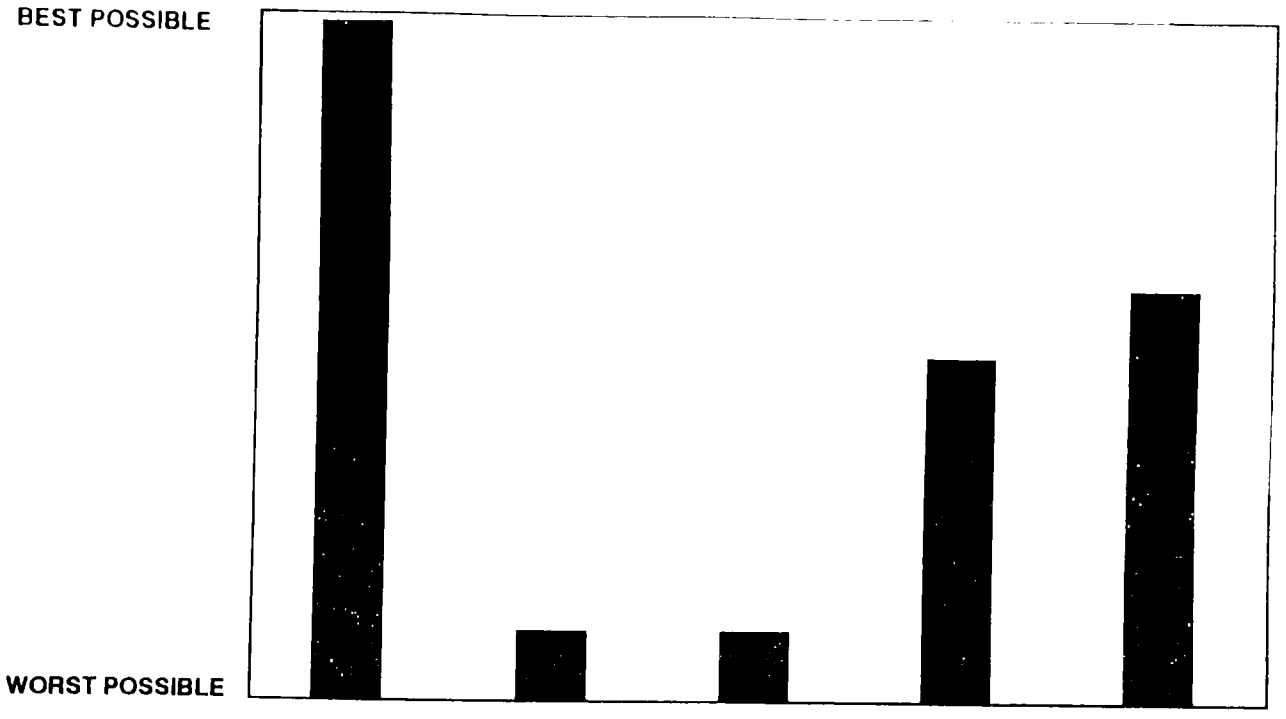
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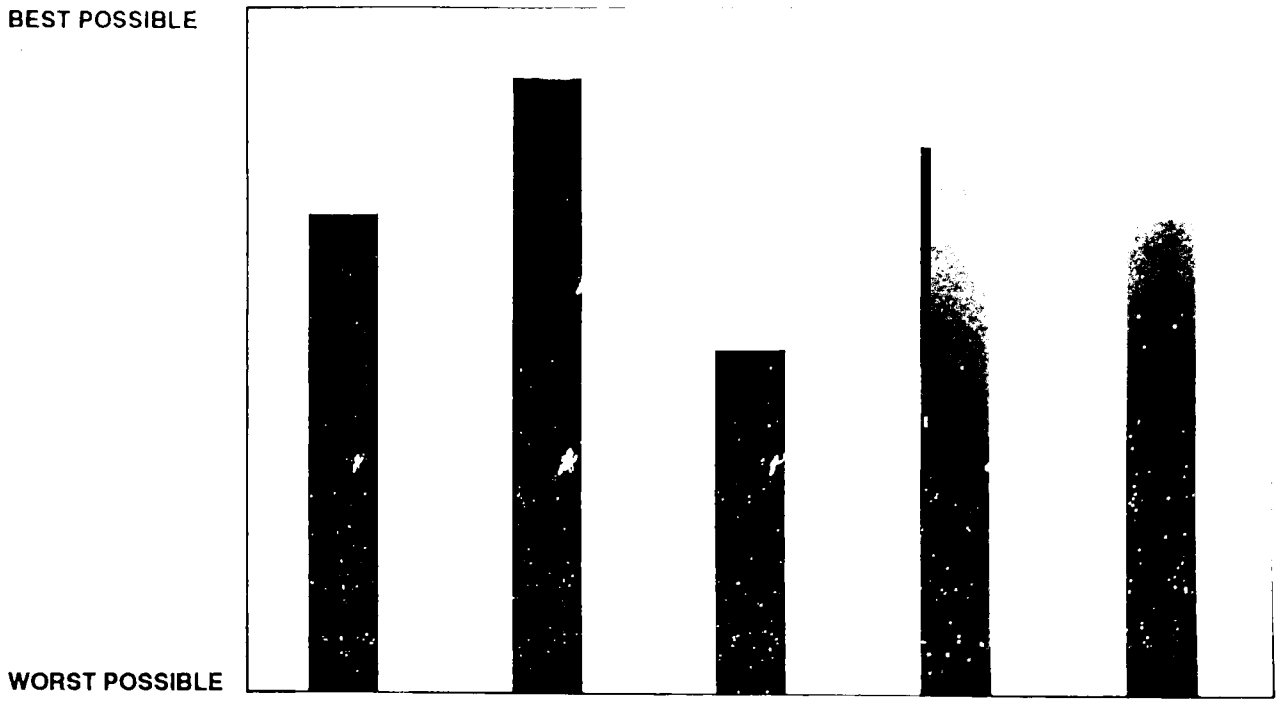
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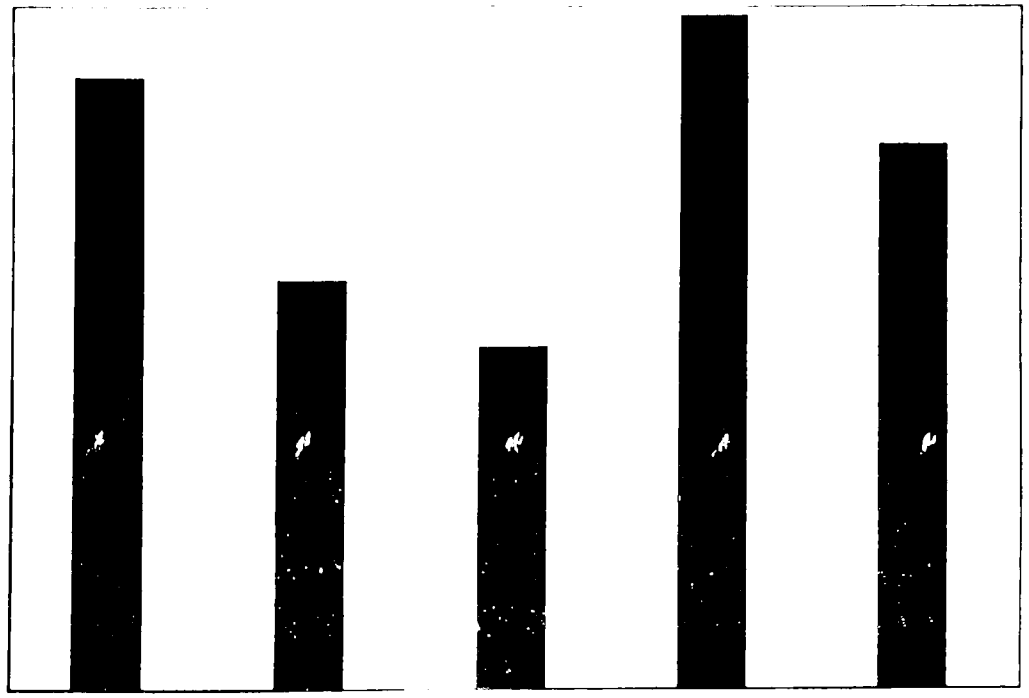

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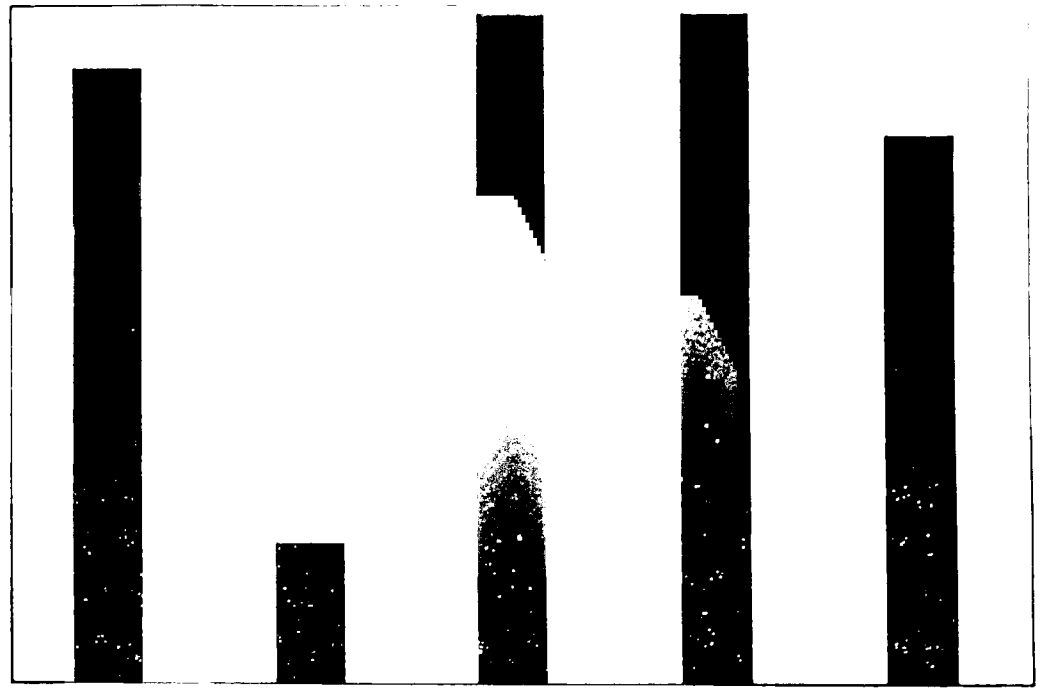

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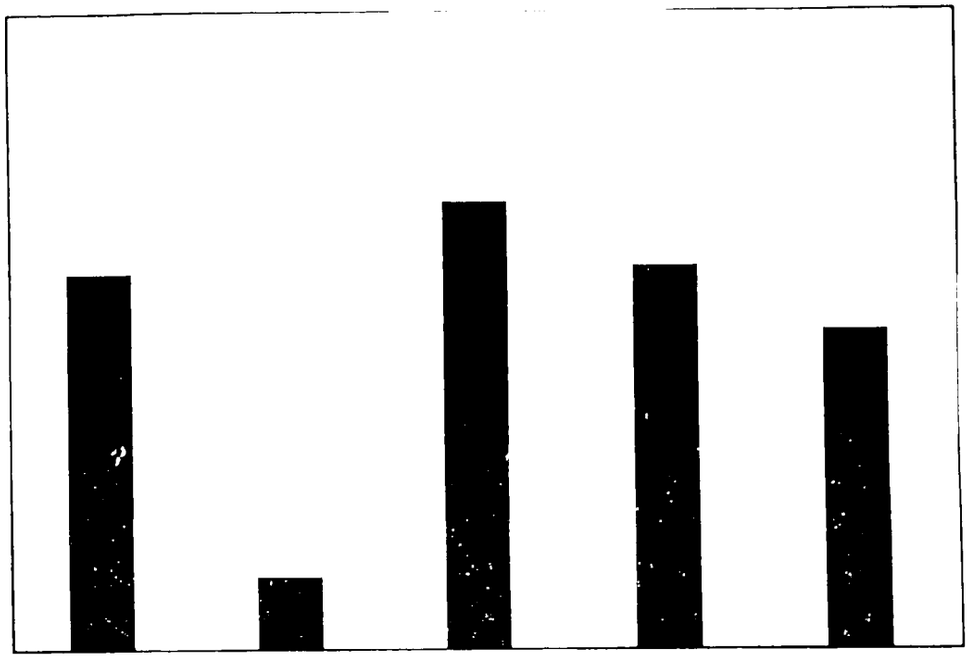

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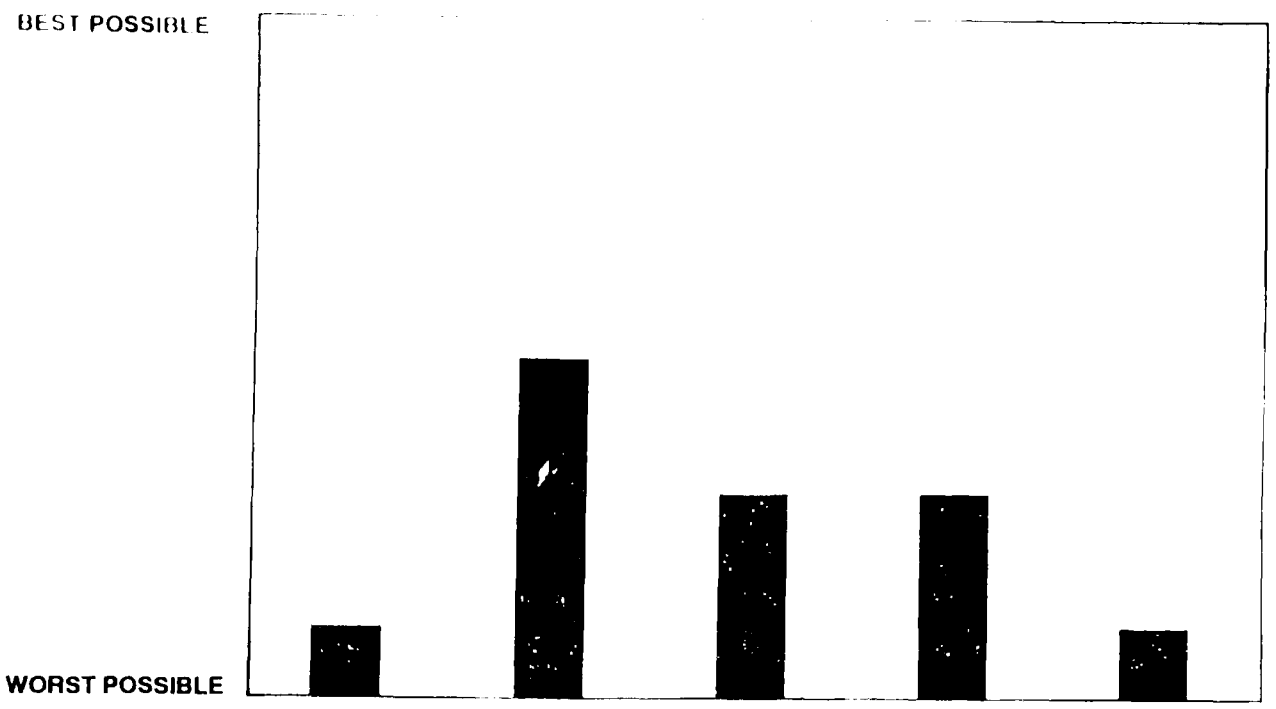
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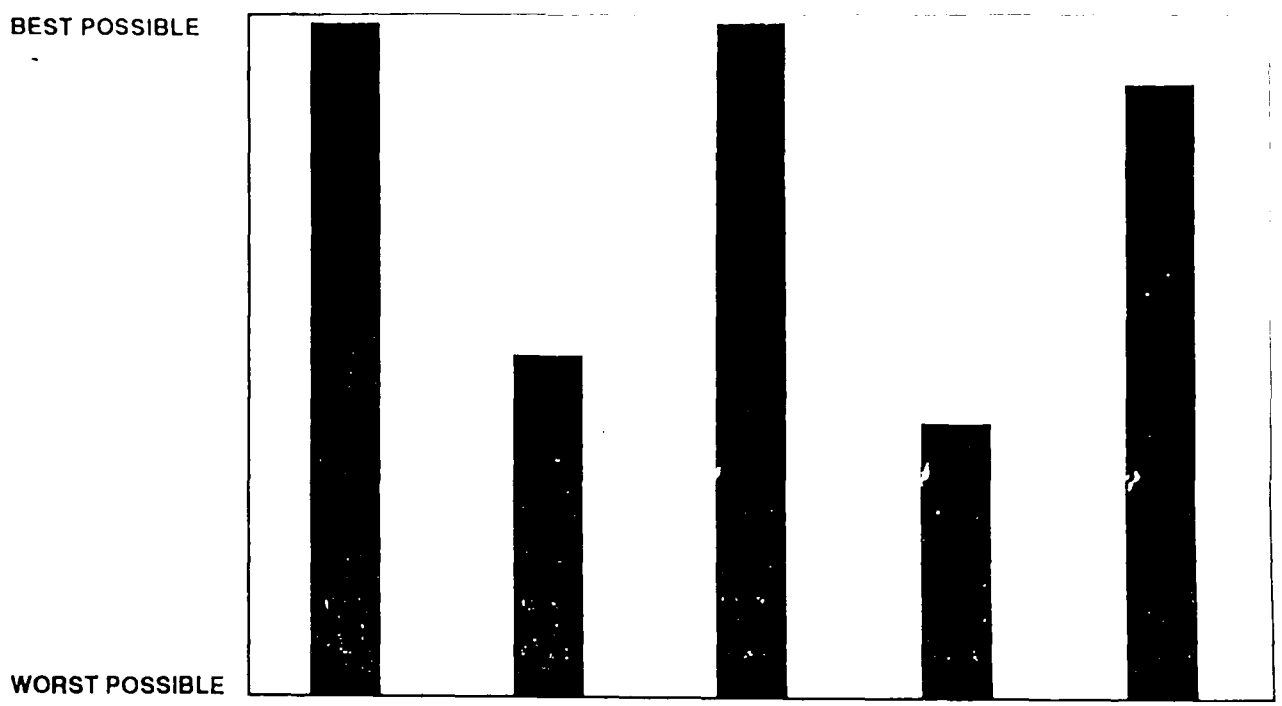
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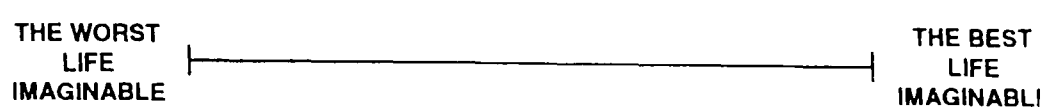
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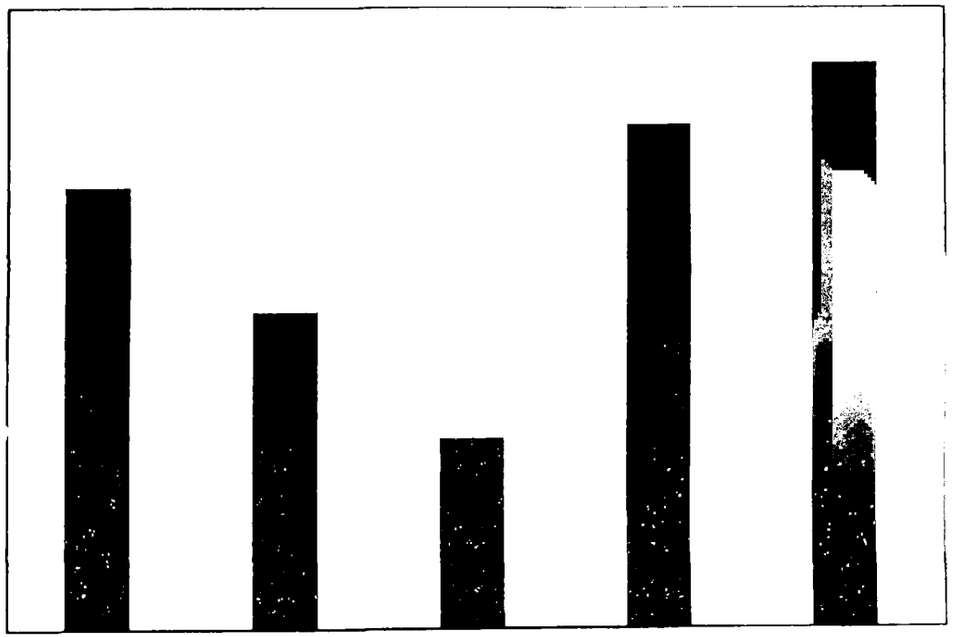

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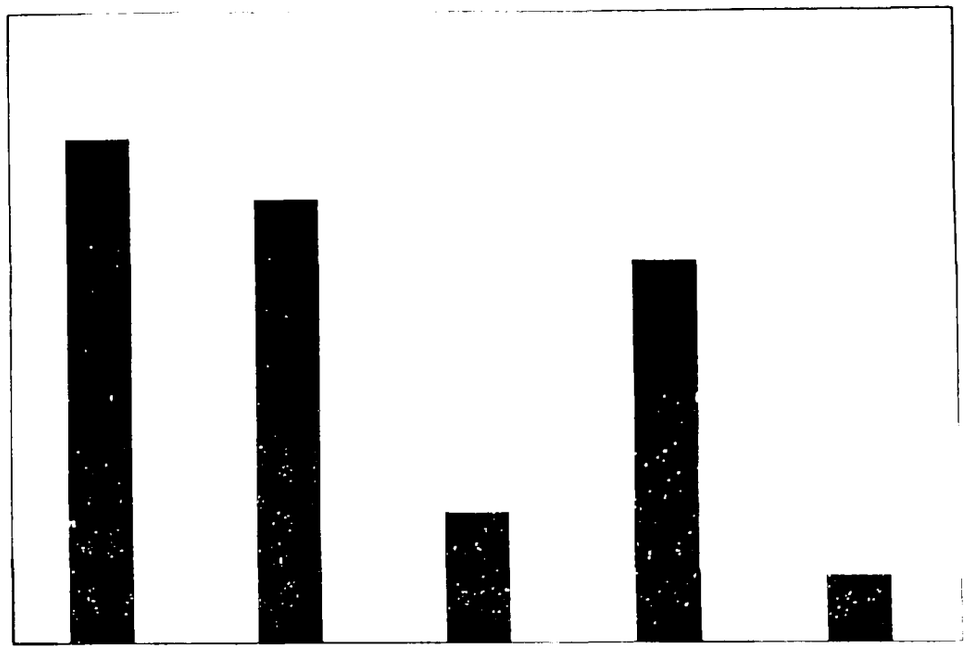

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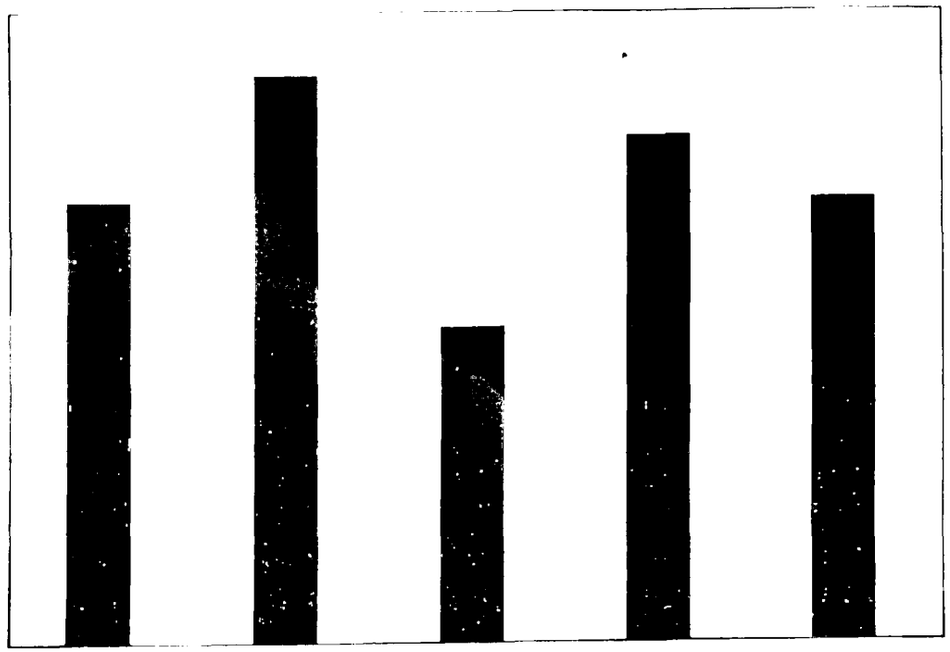

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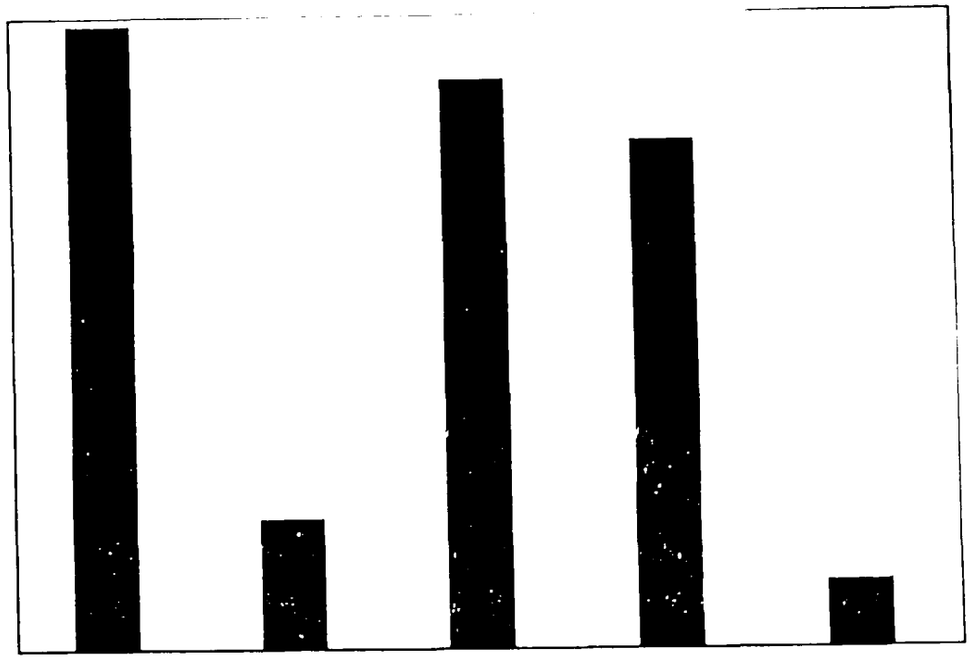

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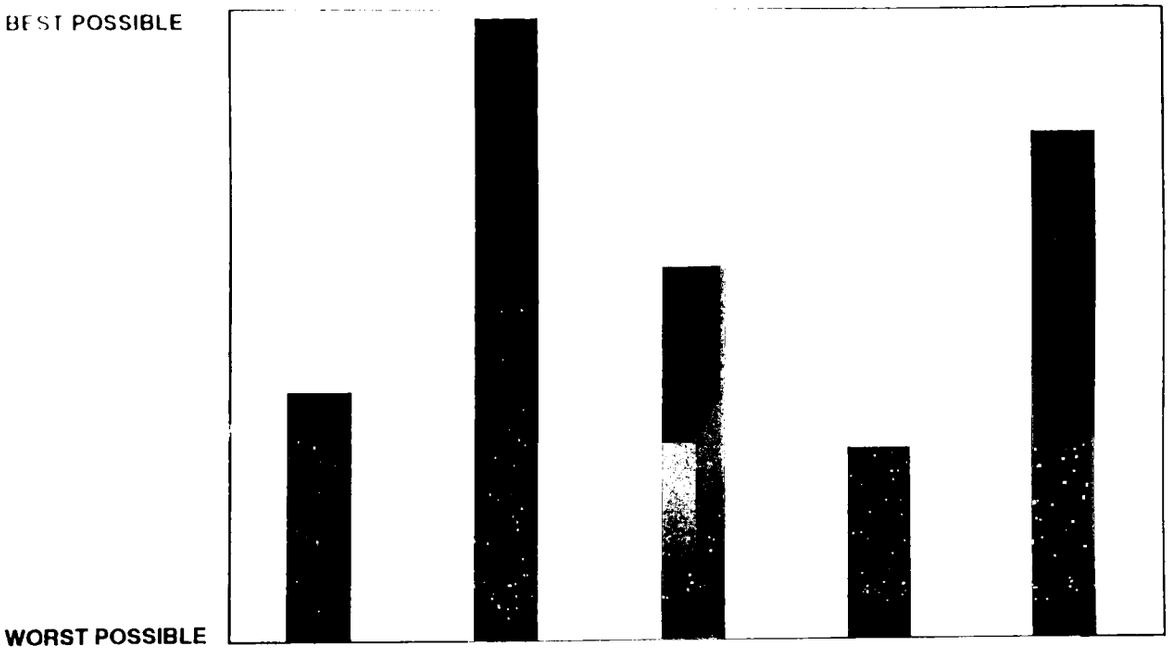
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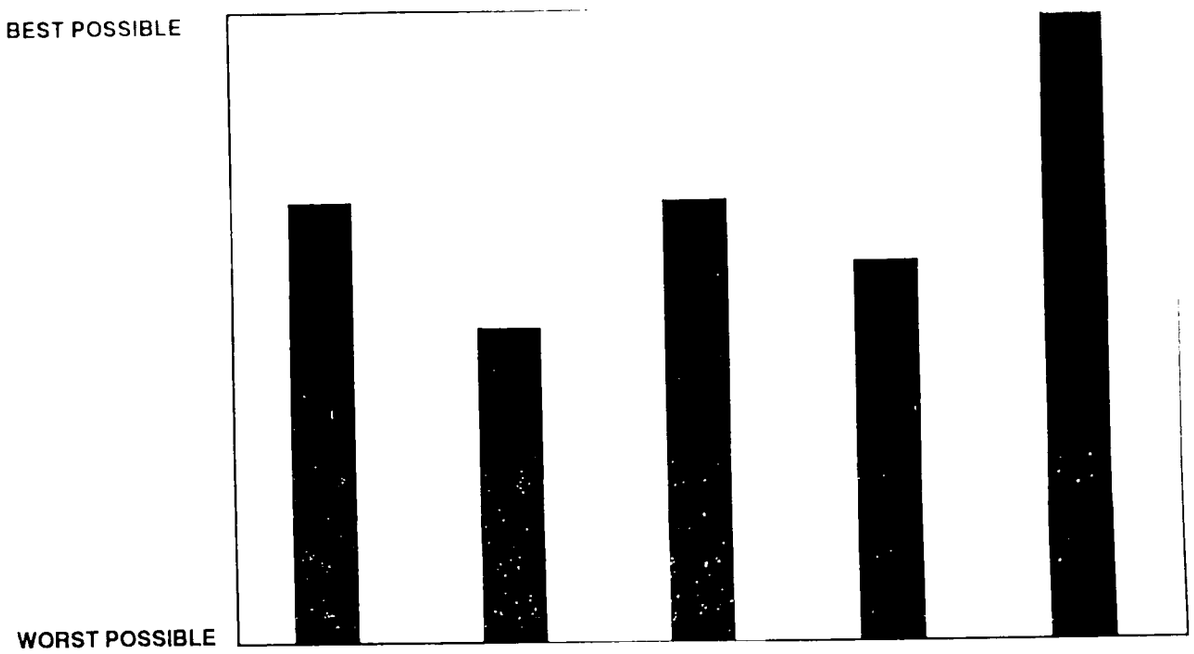
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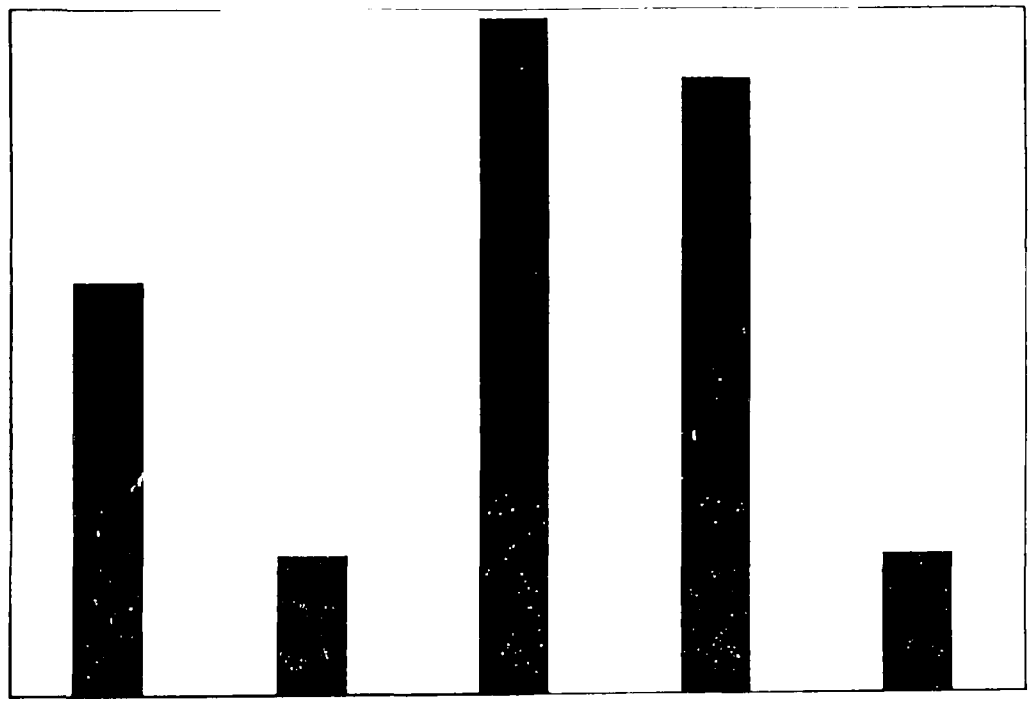

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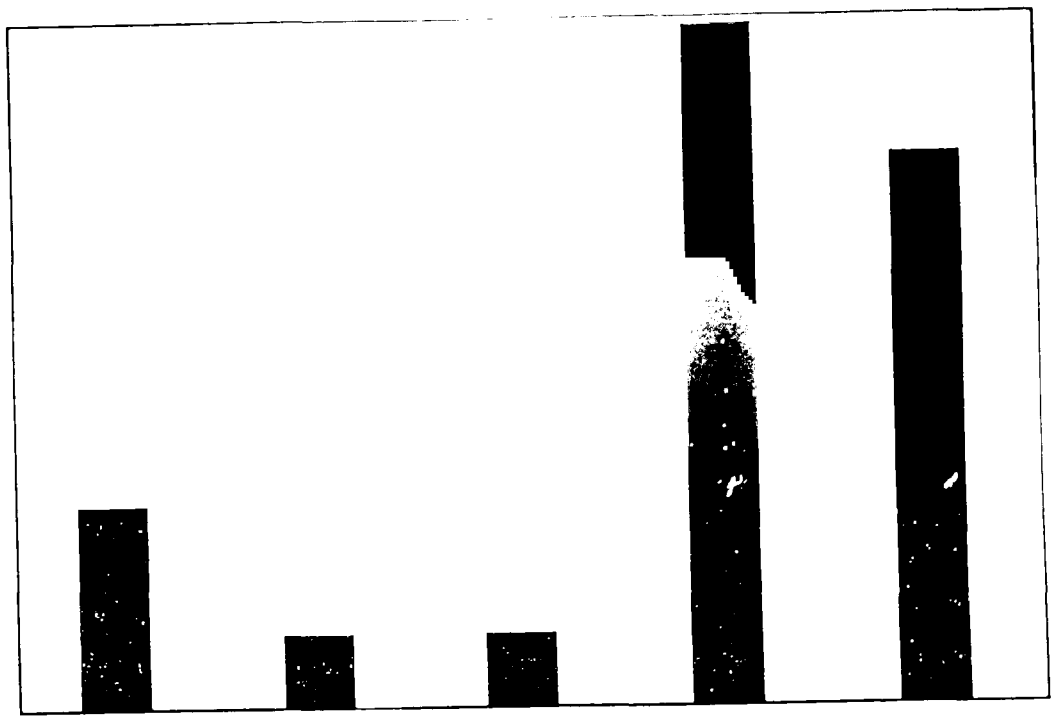

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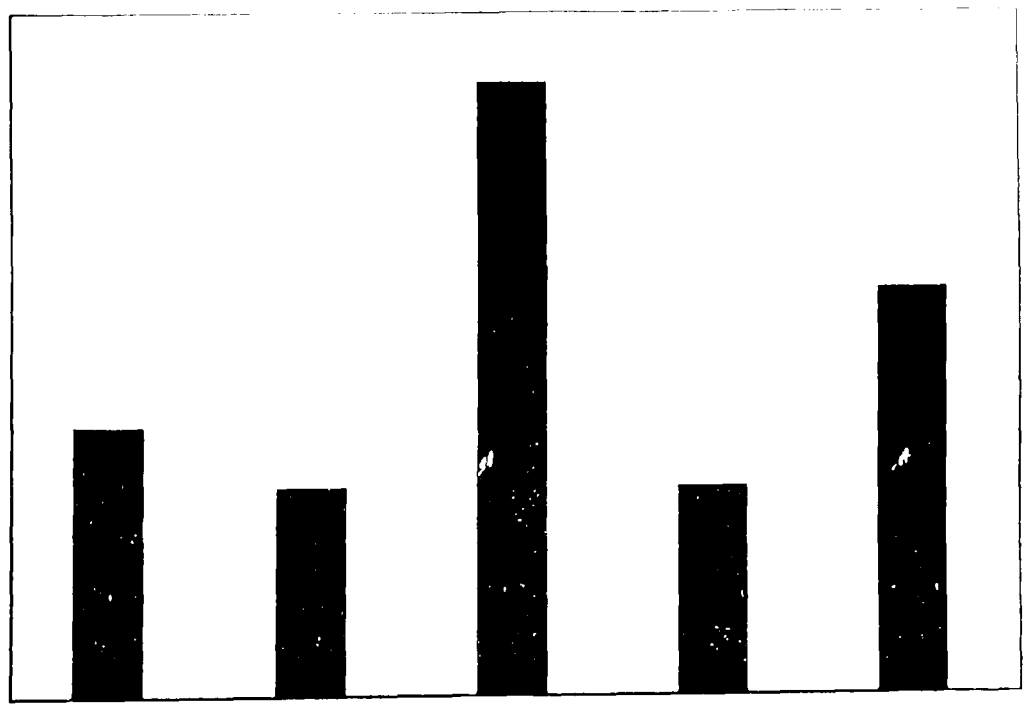

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(vi) The SEIQoL Index

The SEIQoL is intended primarily as an individual measure. Where group comparisons are required, a global index can be calculated which may be used in within-subject or between-subject study designs. As the index is a continuous measure ranging from 0 to 100 it can be analysed using parametric statistical methods. Having obtained levels and weights for each of the five cues, as described previously, the SEIQoL index is calculated as follows:

- For each cue multiply the level by the weight, then sum these products across the five cues: **SEIQoL Index $=\Sigma$(levels x weights)**

Care should always be taken in interpreting the index, as it is the sum of the products of individual cue levels by cue weights, each of which may vary independently. The index should be interpreted in the context of the pattern of levels and weights generated for each respondent.

3.5 Presenting data

The data from each individual respondent can be presented in tabular form giving the elicited cues, the levels, the weights and internal reliability (r) and internal validity ($R^{2)}$. For grouping data SEIQoL Index scores may be presented (cf. McGee et al., 1991, O'Boyle et al., 1992).

SECTION 4: RELIABILITY OF THE SEIQoL

4.1 Cue elicitation

Individually defined QoL can change in a number of ways. The areas which are considered important by the individual may change, their levels may change and/or the relative importance of cues to each other may change. The stability of elicited cues over time was examined by calculating the mean number of cue changes for the samples in whom no intervention occurred between interviews. The important question is whether individuals nominate the same cues after an elapsed period of time.

For a healthy adult sample (Study 6.4: control group), the mean number of cue changes was 1.1 (sd: 0.94; range = 0-3) over 7.5 months and 1.3 (sd: 0.83; range = 0-3) over 24 months. For a healthy elderly sample (Study 6.3) the mean number of cue changes was 1.1 (sd: 0.76; range = 0-3) over 12 months. These results indicate that the domains which individuals judge to be important to their QoL are likely to remain relatively constant over periods as long as two years. However, they may change and, consequently, if the SEIQoL is being used in a repeated measures design it will be necessary to decide in advance whether to elicit cues again on repeated testing or to require respondents to rate the previously elicited cues. We suggest that both should be done. The full SEIQoL should be administered at the repeat testing and if new cues are found these should be rated. Following this, the JA task can be re-presented using cues from the first test time.

As the cues elicited are easily remembered over a short period of time, measures of inter-rater agreement by serial elicitation of cues is precluded. At present, no research has been completed on inter-rater reliability for cue elicitation. Test-retest reliability of cue elicitation over short periods is also precluded by recall effects.

4.2 Cue levels

(i) Test-retest reliability: before and after JA

In study 6.3, elderly respondents were required to rate their cue levels before and after JA, in order to assess the reliability of these ratings. This procedure was carried out at baseline and 12 months later. Correlations between levels at different times cannot be calculated due to the small number of levels (five) to be correlated. The mean absolute difference between cue levels before and after JA was calculated for each respondent and then averaged across respondents to give the mean distance between ratings for a sample. At baseline, the average mean difference between cue levels before and after JA was 7.0 (sd: 5.2; range = 0-21). At 12 months the average mean difference was 10.7 (sd: 6.2; range = 0-24.2).

(ii) Stability over longer periods
In study 6.4, a control sample of healthy adults received no intervention and cue levels for the same cues were measured at baseline, 7.5 months and 24 months. The average mean difference in cue levels was 12.9 (sd: 6.3; range = 4-26) from baseline to 7.5 months and 12.2 (sd: 4.8; range = 5-22) from baseline to 24 months.

4.3 Judgment analysis of weights

(i) Internal reliability

Table 1. *Internal reliability of judgment analysis in studies to date*

Study No.	Sample	Mean r
6.1	Healthy adults (n=42)	0.74
6.2	Healthy adults (n=40)	0.73 (baseline) 0.75 (7-10 days)
6.3	Healthy elderly community residents (n=56)	0.66 (baseline) 0.73 (12 months)
6.4	Osteoarthritis patients undergoing total hip replacement (n=20)	0.64 (pre-op) 0.49 (7.5 months) 0.62 (24 months)
	Healthy matched adult controls (n=20) for the hip replacement sample	0.71 (baseline) 0.62 (7.5 months) 0.66 (24 months)
6.5	Irritable Bowel Syndrome patients (n=28)	0.62
	Peptic Ulcer Disease patients (n=28)	0.70

Standard 30-case Judgment Analysis contains ten repeat cases which allow calculation of the internal reliability of the procedure. Mean Pearson's r correlations for these ten repeat cases are presented in table 1 for the various samples studied to date.

(ii) Test-retest reliability of JA weights
In study 6.2 a sample of healthy adults provided weights for the same cues at baseline and 7-10 days later. The average mean change in JA weights over this period was 8.44 (sd: 3.8; range = 1.6-16.8).

(iiI) Stability of JA weights over time
In study 6.4, a sample of healthy adults received no intervention and provided weights for the same cues at baseline, 7.5 months and 24 months later. Because the Policy PC programme constrains the weights to sum to a total of 1.0, the relative weights cannot be considered as independent observatio.ıs for the purposes of statistical analysis. Thus the same procedure used to estimate the stability of cue levels was performed. Average mean difference in weights was 10.3 (sd: 5.2; range: 3.6-22.8) from baseline to 7.5 months and 8.0 (sd: 4.0; range: 3.0-16.8) from baseline to 24 months.

4.4. The SEIQoL Index

The SEIQoL is designed to measure QoL at a particular point in time and should therefore be responsive to change. One would expect that QoL is a state type construct which should vary over time. Changes were examined by correlating SEIQoL Index scores recorded over time in populations receiving no intervention. For a healthy adult population (study 6.4), Pearson's r = 0.33 between scores at baseline and at 7.5 months later. For the same population, Pearson's r = 0.18 between QoL scores at baseline and QoL scores 24 months later. For a healthy aged population, (study 6.3) Pearson's r =

0.45 between QoL scores at baseline and 12 months later. These findings indicate that the scores do fluctuate with time in normal healthy populations as would be expected.

SECTION 5: VALIDITY OF THE SEIQoL

The key concern in assessing the validity of a measure is whether it measures what it purports to measure - in this case individual QoL. According to Anastasi (1988 p.164) the 'validation process begins with the formulation of detailed trait or construct definitions, derived from psychological theory, prior research or systematic observation and analysis of the relevant behaviour domain' We have outlined the assumptions underlying our definition of QoL in section 1.3 above.

5.1 Content validity

Does the SEIQoL include a representative sample of the behaviour domain under measurement and exclude irrelevant factors? The structure of the SEIQoL is such that individuals themselves generate the sample of items (cues) for inclusion in the QoL assessment.

The number of cues to be elicited was set at five for a number of reasons. Firstly, research indicates that most individuals experience difficulty in making judgments requiring the combination of information from a large number of cues and studies of decision making have made use of relatively few cues (Stewart, 1988b). The number of cases which the individual must judge increases in direct proportion to the number of cues on which the judgments must be made. Ten cases are required for three cues and a further 5 cases for each additional cue (Policy PC Manual) thus giving a requirement of 20 cases for 5 cues. In the SEIQoL, 10 replicates are also included to calculate internal reliability. This gives a total requirement of 30 cases.

A variety of cues has been elicited in SEIQoL studies to date. Table 2 outlines the general nature of cues obtained from a sample of healthy young adults (study 6.1) and a sample of the healthy elderly subjects (study 6.3). The particular cues elicited from participants have been arranged in broad categories for the purposes of summarising results. However, the actual cues and range of combinations of cues are many. For example, only two of forty-two healthy adults in study 6.1 named five similar cues.

Table 2. *Percentage of healthy elderly and healthy young adults nominating particular cues as relevant to their quality of life.*

	% Healthy Elderly (n=56)		% Healthy young adults (n=42)
Cue Category	Baseline	12 months	
Family	89	89	62**
Social and leisure activities	95	59	38*
Health	91	87	83
Living conditions	80	89	21**
Religion	75	84	7**
Independence	16	14	19
Finances	25	43	60*
Relationships	18	21	86**
Work	5	7	38**
Happiness	5	5	48**

* $p < 0.05$ for chi-square comparisons between healthy young adults and the elderly sample at baseline.

** $p < 0.05$ for chi-square comparisons indicating differences between the young adults and the elderly at both baseline and also at 12 months.

Internal validity

The extent to which judgment policies derived from JA explain the overall judgments of QoL made by the individual may be assessed from the variance (R^2) estimate provided by Policy PC. Higher variance scores indicate that the combination of cues elicited is in fact that used by the individual in making overall QoL judgments. All but one of the study samples have provided acceptable mean internal validity scores exceeding 0.70 (Table 3). In the case of patients with osteoarthritis, R^2 was somewhat lower.

Table 3. *Internal validity (R^2) of judgment analysis in SEIQoL studies to date.*

Study No.	Sample	Mean R^2
6.1	Healthy adults (n=42)	0.75
6.2	Healthy adults (n=40)	0.78 (baseline) 0.79 (7-10 days)
6.3	Healthy elderly community residents (n=56)	0.72 (baseline) 0.78 (12 months)
6.4	Osteoarthritis patients undergoing total hip replacement (n=20)	0.62 (pre-op) 0.65 (7.5 months) 0.64 (24 months)
	Healthy matched adult controls (n=20) for the hip replacement sample	0.76 (baseline) 0.72 (7.5 months) 0.71 (24 months)
6.5	Irritable Bowel Syndrome patients (n=28) Peptic Ulcer Disease patients (n=28)	0.73 0.79

5.2 Construct validity

Does the measure assess the theoretical construct of individual QoL? Two fundamental aspects of the measure; individual cue generation and individual weighting of cues can be assessed.

(i) Evidence of need for an individual approach: cues

Most traditional measures purporting to measure QoL provide the individual with a pre-determined list of items which are previously weighted on the basis of grouped data. Our studies show that, while a number of cues frequently assessed by such instruments were often elicited using the SEIQoL (e.g. health, family and work), other cues such as religion, finance and education were also nominated. Cues unique to a single study participant (e.g. politics, aesthetics) were also elicited regularly.

Can cues be provided?

In a number of studies we have provided participants with cues derived from more traditional health status questionnaires. QoL assessment using these cues was possible and provided acceptable internal validity scores, e.g. $R^2 = 0.79$ in a sample of healthy adults (Study 6.1) and $R^2 = 0.74$ in a sample of patients undergoing hip replacement (Study 6.1). However, the correlation between elicited cues QoL and provided cues QoL was moderate (Pearson $r = 0.49$) for the healthy adult sample. SEIQoL index scores based on provided cues were not sensitive to surgical intervention. Scores did not show significant improvement following total hip replacement (change from 66.1 to 70.6 over 7.5 months; n.s.) while SEIQoL index scores derived using an elicited cues format were sensitive to the surgery (change from 61.6 to 70.7 over 7.5 months; $p<0.02$).

Does age have an effect?
Different cues might be expected to be important to individuals at different stages in the life-cycle. A comparison of a healthy younger adults (Study 6.1) and a healthy older group (Study 6.3) showed that areas such as religion and social and leisure activities were nominated significantly more often by the older group (Table 2). Areas such as work and relationships (as distinct from family) were more often identified by the younger group. These differences are what might be expected in Western society and are consistent with theoretical models of the life-cycle such as that proposed by Erikson (1963).

SEIQoL in health and disease.
QoL as defined by SEIQoL is not equivalent to health status. Health was not the most commonly mentioned cue in most studies to date, including studies where the sample was defined on the basis of health problems and interviewed in a medical context (e.g. hip replacement, irritable bowel syndrome, peptic ulcer disease).

In patients with severe osteoarthritis, for example, (Study 6.4) health was not nominated as an important cue by all participants. In fact, only 10/20 patients and 14/20 controls respectively, mentioned health. Patients with osteoarthritis accorded lower weights on average to the provided cue 'general health' than did controls (Table 6).

(ii) Evidence of need for individual approach: weights
Weights may change over time. For example, patients who had received a hip replacement 7.5 months previously gave significantly greater weighting to the 'general health' cue post-operatively while controls did not change their weighting as a group (table 6). Average weights for the provided cue 'physical functioning', emotional functioning, social functioning and living conditions did not change with time.

Table 4. *Average weights assigned by patients and controls to the provided cue 'General health'.*

	Baseline	**7.5 months post-op**	
	Mean (sd)	Mean (sd)	
Hip replacement patients	0.28 (0.10)	0.35 (0.13)	($p < 0.01$)
Controls	0.33 (0.13)	0.35 (0.14)	(ns)

Respondents are also able to recognise weighting policies that have been captured through JA, establishing the criterion validity of the procedure. In study 6.2 a sample of healthy adults provided a weighting policy (5 weights summing to 1.0) for five elicited cues via JA. 7-10 days later they were presented with 10 weighting policies for the five elicited cues, and asked to rank order them in terms of how well they fitted their own current policy for those cues. Unknown to the subjects, one of the weighting policies was the JA policy they had previously provided. The mean rank given to their own policy was 2.87, with 62.5% of subjects placing their policy within the first three ranks, and all subjects placing it within the first five.

In patients with gastrointestinal disorders (Study 6.5), the SEIQoL index was more sensitive to differences between the groups than a summary score based on mean cue levels alone. When patients with irritable bowel syndrome (IBS) were compared with those who had peptic ulcer disease (PUD) the differences between the groups were just significant for scores based on mean levels alone. However, Index scores incorportaing weights clearly discriminated between the groups. Incorporating weights dramatically changed individual scores. Paired t-tests between SEIQoL index scores and scores based solely on mean cue levels showed highly significant differences for the two groups ($p<.001$ for PUD and $p<.0004$ for IBS.

5.3 Relationship with other measures

QoL, as measured by SEIQoL, is related to health measures in the expected direction but is not sufficiently similar to any measure yet assessed to negate its unique contribution to the measurement of QoL.

(i) Hip Replacement Study (6.4)

This study compared global SEIQoL scores with those derived from a general measure of health status: the McMaster Health Index Questionnaire (MHIQ; Chambers et al., 1982). The MHIQ is derived from the World Health Organisation definition of health as comprising physical, social and emotional well-being. The questionnaire comprises three subscales corresponding to these 3 components of well-being. The correlation between SEIQoL index scores and total MHIQ scores was $r = 0.21$. Both measures were sensitive to hip replacement surgery but the sensitivity of the MHIQ reflected changes only on the physical functioning subscale.

The SEIQoL was also compared with the Arthritis Impact Measurement Scales (AIMS; Meenan et al., 1980) a disease-specific measure of QoL for arthritis. SEIQoL index scores correlated only moderately ($r = -0.25$; $p < 0.05$) with those of the AIMS. The mean correlation between the SEIQoL index scores and the Harris Hip Rating, a physical functioning scale (Harris, 1969) was $r = 0.12$. This indicates that the SEIQoL is measuring something other than physical functioning.

Appendix 4

Semi-Structured Interview 1

Questions

Self / Health Event

- How do you feel now about having had a heart attack?
- Are you still aware of your condition?
- What effect has your heart attack had on your life?

Precipitants to Change

- What aspects in your life have you changed and why?
  Prompt if necessary, e.g., diet, smoking, exercise, and coping with stress.

Forces Influencing the Change

- What actions have you taken to bring about this change?
- How would you describe this process of change?
  Prompt if necessary, e.g., easy / challenging, barriers / benefits, enabling / disabling.
- Have family / friends been part of this process?
  Prompt e.g., how have your family / friends felt about your heart attack – have they supported you or you them?
- What have been the positive and the negative effects of your experience so far?

Re-patterning Lifestyle

- Have you changed the way you think about yourself or your life since your heart attack?
- Do you feel that your lifestyle has changed?
- If yes, in what way?
- Are there further changes you would like to make?
- How would you describe the quality of your life?

Yoga / Exercise Programme

- Why did you decide to attend the Yoga classes?
- What do you hope to achieve by attending these classes?

Semi-structured Interview 2

Questions

Self / Health Event

- Are you still aware of your condition?

Precipitants to Change

- Are you maintaining the lifestyle changes you reported at the last interview?
- Have you attended the classes regularly?
- Do you find any benefit in regular practice?
- Do you find the Yoga / Exercise useful? If so in what way?
- Do you practice outside of the classes?
- Is Yoga / Exercise important to you in your lifestyle?

Re-patterning Lifestyle

- Do you feel in control of your life? Is Yoga / Exercise a factor in this?
- Has the quality of your life changed in any way?

Yoga / Exercise Programme

- Has the Yoga / Exercise influenced your life?
- How did/do you find the classes in respect of content, level, venue, and personal appropriateness?
- Do you have any further comments about the classes?
- How did you find the group aspect of the Yoga / Exercise class ?
- Any other comments or observations overall which you think are important to include?

Interviewing Guidelines: Researcher

- Prepare environment, privacy, and chairs, set up and check function of audio equipment. Insert audiotape, connect microphone.
- Interview duration 30-40 minutes. (Monitor timescale carefully)
- Welcome participant, and help them feel comfortable.
- Introduction to study, overview of purpose and format of the study.
- Provide opportunity to raise questions.
- Discuss consent, anonymity, and data protection.
- Obtain consent, signing of consent form.
- Provide information regarding interview format, audio-recording.
- Conduct interview following the schedule of questions.
- Clarification or prompting may be used to help the participant provide their answer. Otherwise do not respond to, or discuss with participant any issues, which arise during interview.
- Conclude interview, thank participant and inform them of the timescale for next stage of the project.
- Label audiocassette.
- If for any reason the participant feels unable to continue with the interview, discontinue the interview and provide appropriate support and reassurance.
- The Cardiac Rehabilitation Staff are available in the near vicinity should any assistance be required.

INTERVIEWING GUIDELINES

Documentation : Interview pack 1 (first interview)
Interview pack 2 (final interview)

Equipment : audio recorder, cassette, microphone
NB : pre-check recording and volume prior to interview

Interview :
Duration : 40-45 minutes

Time: 5-10 minutes

1. explain purpose of interview, time span, recording, interaction.

2. provide opportunity for questions & answers.

3. for interview 1 only, obtain and sign consent from.

4. audio-tape on

Time : 15-20 minutes

5. **Interview**
   - follow set questions, utilise prompts
   - avoid digression
   - avoid any discussion during interview
   - on completion label tape

Time : 15 minutes approx

6. **Administer SEIQUoL**
   - explain questionnaire & procedure
   - support initial completion
   - ensure all items are scored, name on document

7. provide questionnaire pack to take away, explain return procedure and next input to project

8. thank participant for their contribution

Appendix 5

PARTICIPANT INFORMATION SHEET. 1.

Research Project:

Comparison of Individuals Following a Yoga or Exercise Programme as part of a Continuing Cardiac Rehabilitation Programme.

I would like to ask for your help in the above study which is designed to follow the progress, over one year, of individuals who participate in yoga programme following their heart attack compared with individuals on the exercise programme. If you agree to take part in the study you will participate in your choice of programme either yoga or exercise.

- You will be asked to complete **3 questionnaires** and participate in an **interview** with the researcher at the beginning of the study and on completion of the study at 12 months.
- At your interview **audiotape recording** will be used.
- All information either written, recorded or stored data will be **confidential** and when publication of results takes place all personal information will be anonymous.
- All contributions you make to this project will take place, through prior arrangement with the researcher and when you normally attend the Heart Support Centre, this will avoid you having any additional expense.

If you decide not to take part in the study or withdraw during the study this will not affect your future participation in the yoga classes / heart support group / centre.

You will be able to continue attending the yoga classes/ heart support group when your participation in the study ends.

I am happy to discuss any questions, which you may have regarding the study. I can be contacted at the office number below during office hours.

Please keep this sheet for future reference.

Researcher:
Telephone:
Tel:

Appendix 6

Title of Research Project:

The participant should complete the whole of this sheet her/himself.

Please delete as necessary

Have you read the participant information sheet? Yes/No

Have you had the opportunity to discuss this study
And ask questions? Yes/No

Have you received enough information about the
Study? Yes/No

Have your questions all been answered satisfactorily? Yes/No

Do you understand that you are free to withdraw from the study? Yes/No

- At any time
- Without having to give a reason for withdrawing
- That this will not effect your ongoing participation in the yoga classes/ heart support group/centre Yes/No.

Do you understand that the information you provide
during the study is completely confidential? Yes/No

Do you agree to take part in the study? Yes/No

SIGNED.....Date.....

(NAME in block capitals).....

SIGNED(Researcher).....Date.....

Appendix 7

Research Project
Summary Form.

Name:..... Date of birth:.....

Address:.....

.....Post Code:.....

Telephone :..... Sex:..... Marital status:.....

Occupation :..... Children:.....

Height :..... Weight:..... Do you smoke?.....

Health: Do you have any of the following conditions?

Please circle those which are relevant to you and give dates as appropriate.

Heart attack. Date:.....

Bypass surgery. Date:.....

High blood pressure.

Angina.

Other.*(Please give details)*.....

Date completed cardiac rehabilitation programme .....

Which continuing classes do you attend? (please circle)

Exercise. Look after yourself. Meditation.

Heart support group. Yoga.

Other (please specify).....

Thank-You, for completing this questionnaire.

Researcher
Address
Tel:

Research Project :

Dear

I would like to thank you for the time and effort that you have chosen to contribute to this research project.

The enclosed questionnaires will help in the collection of information relating to various aspects of your self and your life as you commence your Yoga, Exercise, or Heart Support groups.

I would be most grateful if you could complete the questionnaires, remembering that there are no right or wrong answers. Your first reaction is often the most accurate answer. **Please ensure that you answer all the questions.** Again, can I assure you that the information that you provide is entirely confidential.

When you have completed the questionnaires, please return them to the office clerk at the reception desk, in the Cardiac Rehabilitation Centre. I will contact you by telephone to arrange to interview you on return of your questionnaires.

Once again, thank you for your help, it is a very valuable and essential component of the research project.

Kind regards

Yours sincerely

Researcher

Research Project:

Comparison of Individuals Followinga Yoga or Exercise Programme as part of a Continuing Cardiac Rehabilitation Programme.

Dear.....

As part of the above project you have very kindly agreed to be interviewed by the researcher at the Cardiac Rehabilitation Centre.

The **Date** of the interview is.....**Time**.....
Place.....

Please report to reception prior to your interview, and you will be directed to the the interview room.

The interview should last about **30minutes** and will be **tape-recorded** by the researcher. Once again please be assured that the information you provide is entirely confidential .

If you require to contact me, I am available at the number below.

Yours Sincerely

Researcher
Tel:

Research Project:

Comparison of Individuals Following a Yoga or Exercise Programme as part of a continuing Cardiac Rehabilitation Programme.

Dear.....

I would like to thank-you for the time and effort that you have chosen to contribute to this research project.

The enclosed questionnaires will help in the collection of information about how you feel now that your have completed the cardiac rehabilitation programme.

I would be most grateful if you could complete the questionnaires , remembering that there are no right or wrong answers and that it is important to try and answer **ALL** the questions with **YOUR OWN** answers.
Again, can I assure you that the information you provide is entirely confidential.

When you have completed the questionnaires, can you please return them in the stamped addressed envelope provided.

Once again thank-you for your help, it is a very valuable and essential component of the research project.

Researcher
Tel:

Appendix 8

Appendix 8a

Table: Yoga Group Correlations 1

YOGA GROUP 2. DOMAIN	Statistical Test	GSW 1	Stress 1	Soc 1	Job 1	Nurt 1	Ath 1	Phys 1	Prov 1	Mor 1	Hous 1	Reln 1	Intell 1	SHum 1
Global Self Worth 1	Pearson Correlation	1.000	-.231	.693	.575	.531	-.032	.224	.415	.338	.323	.329	.455	.122
	Sig. (2-tailed)	.	.289	.000	.004	.009	.885	.304	.049	.115	.132	.125	.029	.578
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Stress 1	Pearson Correlation	-.231	1.000	-.149	-.462	-.396	-.072	.365	-.073	.008	-.264	-.209	-.053	-.064
	Sig. (2-tailed)	.289	.	.498	.026	.061	.742	.086	.740	.971	.224	.339	.811	.772
	N	23	25	23	23	23	23	23	23	23	23	23	23	23
Sociability1	Pearson Correlation	.693	-.149	1.000	.707	.551	.109	.289	.540	.110	.702	.578	.657	.328
	Sig. (2-tailed)	.000	.498	.	.000	.006	.621	.181	.008	.617	.000	.004	.001	.126
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
JOB 1	Pearson Correlation	.575	-.462	.707	1.000	.618	-.070	-.169	.394	.148	.633	.491	.409	.380
	Sig. (2-tailed)	.004	.026	.000	.	.002	.752	.440	.063	.500	.001	.017	.053	.074
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Nurturance 1	Pearson Correlation	.531	-.396	.551	.618	1.000	-.170	-.215	.341	.169	.356	.346	.126	.047
	Sig. (2-tailed)	.009	.061	.006	.002	.	.438	.326	.112	.441	.096	.106	.566	.832
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Athletic Ability1	Pearson Correlation	-.032	-.072	.109	-.070	-.170	1.000	.258	.027	-.152	.013	.185	.145	.179
	Sig. (2-tailed)	.885	.742	.621	.752	.438	.	.234	.901	.490	.952	.398	.510	.415
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Physical 1	Pearson Correlation	.224	.365	.289	-.169	-.215	.258	1.000	.221	-.082	-.065	.142	.272	.038
	Sig. (2-tailed)	.304	.086	.181	.440	.326	.234	.	.311	.708	.768	.518	.210	.864
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Provider 1	Pearson Correlation	.415	-.073	.540	.394	.341	.027	.221	1.000	.028	.555	.333	.322	.378
	Sig. (2-tailed)	.049	.740	.008	.063	.112	.901	.311	.	.900	.006	.121	.134	.076
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Morality 1	Pearson Correlation	.338	.008	.110	.148	.169	-.152	-.082	.028	1.000	.155	.327	.028	-.121
	Sig. (2-tailed)	.115	.971	.617	.500	.441	.490	.708	.900	.	.479	.128	.898	.582
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Householder1	Pearson Correlation	.323	-.264	.702	.633	.356	.013	-.065	.555	.155	1.000	.722	.285	.475
	Sig. (2-tailed)	.132	.224	.000	.001	.096	.952	.768	.006	.479	.	.000	.188	.022
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Relationships1	Pearson Correlation	.329	-.209	.578	.491	.346	.185	.142	.333	.327	.722	1.000	.245	.412
	Sig. (2-tailed)	.125	.339	.004	.017	.106	.398	.518	.121	.128	.000	.	.259	.051
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Intelligence1	Pearson Correlation	.455	-.053	.657	.409	.126	.145	.272	.322	.028	.285	.245	1.000	.386
	Sig. (2-tailed)	.029	.811	.001	.053	.566	.510	.210	.134	.898	.188	.259	.	.069
	N	23	23	23	23	23	23	23	23	23	23	23	23	23
Sense Humour1	Pearson Correlation	.122	-.064	.328	.380	.047	.179	.038	.378	-.121	.475	.412	.386	1.000
	Sig. (2-tailed)	.578	.772	.126	.074	.832	.415	.864	.076	.582	.022	.051	.069	.
	N	23	23	23	23	23	23	23	23	23	23	23	23	23

* Correlation is significant at the 0.05 level (2-tailed).
Correlation is significant at the 0.01 level (2-tailed).

Table: Exercise Group Correlations Time 1

Exercise DOMAIN	Group Statistical Test	GSW	Stress 1	Soc 1	Job 1	Nurt 1	Ath 1	Phys 1	Prov 1	Mor 1	Hous 1	Reln 1	Intell 1	S Hum 1
Global Self Worth 1	Pearson Correlation	1.000	-.455	.505	.578	.312	.161	.664	.549	.577	.585	.509	.425	.230
	Sig. (2-tailed)	.	.007	.002	.000	.072	.362	.000	.001	.000	.000	.002	.012	.191
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Stress 1	Pearson Correlation	-.455	1.000	-.193	-.303	-.037	-.063	-.400	-.521	-.128	-.446	-.271	-.270	-.361
	Sig. (2-tailed)	.007	.	.275	.081	.833	.723	.019	.002	.469	.008	.121	.123	.036
	N	34	35	34	34	34	34	34	34	34	34	34	34	34
Sociability1	Pearson Correlation	.505	-.193	1.000	.216	.374	.031	.320	.195	.221	.190	.491	.351	.337
	Sig. (2-tailed)	.002	.275	.	.221	.029	.862	.065	.268	.210	.281	.003	.042	.051
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Job 1	Pearson Correlation	.578	-.303	.216	1.000	.260	.053	.461	.237	.459	.516	.150	.422	.109
	Sig.(2-tailed)	.000	.081	.221	.	.137	.767	.006	.176	.006	.002	.398	.013	.539
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Nurturance 1	Pearson Correlation	.312	-.037	.374	.260	1.000	.109	.463	.097	.179	.020	.463	.400	-.033
	Sig. (2-tailed)	.072	.833	.029	.137	.	.539	.006	.584	.310	.910	.006	.019	.853
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Athletic Ability 1	Pearson Correlation	.161	-.063	.031	.053	.109	1.000	.238	.104	.196	-.145	.046	.202	.194
	Sig. (2-tailed)	.362	.723	.862	.767	.539	.	.175	.560	.267	.414	.797	.252	.271
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Physical 1	Pearson Correlation	.664	-.400	.320	.461	.463	.238	1.000	.509	.489	.436	.456	.201	.176
	Sig. (2-tailed)	.000	.019	.065	.006	.006	.175	.	.002	.003	.010	.007	.254	.319
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Provider 1	Pearson Correlation	.549	-.521	.195	.237	.097	.104	.509	1.000	.444	.531	.437	.341	.511
	Sig. (2-tailed)	.001	.002	.268	.176	.584	.560	.002	.	.009	.001	.010	.048	.002
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Morality 1	Pearson Correlation	.577	-.128	.221	.459	.179	.196	.489	.444	1.000	.505	.234	.365	.196
	Sig. (2-tailed)	.000	.469	.210	.006	.310	.267	.003	.009	.	.002	.184	.034	.268
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Householder 1	Pearson Correlation	.585	-.446	.190	.516	.020	-.145	.436	.531	.505	1.000	.251	.270	.057
	Sig. (2-tailed)	.000	.008	.281	.002	.910	.414	.010	.001	.002	.	.152	.122	.749
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Relationships1	Pearson Correlation	.509	-.271	.491	.150	.463	.046	.456	.437	.234	.251	1.000	.256	.395
	Sig. (2-tailed)	.002	.121	.003	.398	.006	.797	.007	.010	.184	.152	.	.144	.021
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Intelligence 1	Pearson Correlation	.425	-.270	.351	.422	.400	.202	.201	.341	.365	.270	.256	1.000	.385
	Sig. (2-tailed)	.012	.123	.042	.013	.019	.252	.254	.048	.034	.122	.144	.	.025
	N	34	34	34	34	34	34	34	34	34	34	34	34	34
Sense Humour1	Pearson Correlation	.230	-.361	.337	.109	-.033	.194	.176	.511	.196	.057	.395	.385	1.000
	Sig. (2-tailed)	.191	.036	.051	.539	.853	.271	.319	.002	.268	.749	.021	.025	.
	N	34	34	34	34	34	34	34	34	34	34	34	34	34

* Correlation is significant at the 0.05 level (2-tailed).
Correlation is significant at the 0.01 level (2-tailed).

Table: Yoga Group Correlations Time 2.

Yoga Group		GSW2	Stress 2	Soc2	Job B2	Nurt 2	Ath 2	Phys 2	Prov 2	Mor 2	Hous 2	Reln 2	Intell 2	Shum 2
Global Self Worth	Pearson Correlation	1.000	-.445	.584	.458	.162	.024	.743	.525	.113	.217	.322	.163	.265
	Sig. (2-tailed)	.	.049	.009	.049	.507	.923	.000	.021	.644	.373	.178	.506	.288
	N	20	20	19	19	19	19	19	19	19	19	19	19	18
Stress2	Pearson Correlation	-.445	1.000	-.337	-.048	.011	.316	-.235	-.418	.048	-.134	-.153	.218	.039
	Sig. (2-tailed)	.049	.	.158	.845	.965	.188	.334	.075	.844	.585	.532	.370	.878
	N	20	20	19	19	19	19	19	19	19	19	19	19	18
Sociability2	Pearson Correlation	.584	-.337	1.000	.629	.697	-.105	.466	.460	-.090	.527	.322	.228	.494
	Sig. (2-tailed)	.009	.158	.	.004	.001	.667	.044	.048	.715	.020	.179	.349	.037
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Job2	Pearson Correlation	.458	-.048	.629	1.000	.516	.362	.227	.256	.102	.329	-.053	.325	.619
	Sig. (2-tailed)	.049	.845	.004	.	.024	.128	.350	.290	.677	.169	.830	.174	.006
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Nurturance2	Pearson Correlation	.162	.011	.697	.516	1.000	-.159	.082	.309	.014	.232	.155	.217	.459
	Sig. (2-tailed)	.507	.965	.001	.024	.	.516	.740	.197	.956	.340	.527	.373	.056
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Athletic ability2	Pearson Correlation	.024	.316	-.105	.362	-.159	1.000	.162	-.102	.211	.210	-.111	.000	.259
	Sig. (2-tailed)	.923	.188	.667	.128	.516	.	.506	.678	.385	.389	.650	1.000	.299
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Physical appearance2	Pearson Correlation	.743	-.235	.466	.227	.082	.162	1.000	.297	.311	.297	.570	.046	-.027
	Sig. (2-tailed)	.000	.334	.044	.350	.740	.506	.	.216	.195	.217	.011	.852	.915
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Provider2	Pearson Correlation	.525	-.418	.460	.256	.309	-.102	.297	1.000	.146	.374	.150	.075	.316
	Sig. (2-tailed)	.021	.075	.048	.290	.197	.678	.216	.	.551	.114	.541	.760	.202
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Morality2	Pearson Correlation	.113	.048	-.090	.102	.014	.211	.311	.146	1.000	-.193	.368	-.298	-.040
	Sig. (2-tailed)	.644	.844	.715	.677	.956	.385	.195	.551	.	.429	.121	.215	.875
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Household management 2	Pearson Correlation	.217	-.134	.527	.329	.232	.210	.297	.374	-.193	1.000	.231	.292	.182
	Sig. (2-tailed)	.373	.585	.020	.169	.340	.389	.217	.114	.429	.	.340	.226	.470
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Intimate Relationships2	Pearson Correlation	.322	-.153	.322	-.053	.155	-.111	.570	.150	.368	.231	1.000	-.084	-.187
	Sig. (2-tailed)	.178	.532	.179	.830	.527	.650	.011	.541	.121	.340	.	.733	.458
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Intelligence2	Pearson Correlation	.163	.218	.228	.325	.217	.000	.046	.075	-.298	.292	-.084	1.000	.406
	Sig. (2-tailed)	.506	.370	.349	.174	.373	1.000	.852	.760	.215	.226	.733	.	.095
	N	19	19	19	19	19	19	19	19	19	19	19	19	18
Sense Humour 2	Pearson Correlation	.265	.039	.494	.619	.459	.259	-.027	.316	-.040	.182	-.187	.406	1.000
	Sig. (2-tailed)	.288	.878	.037	.006	.056	.299	.915	.202	.875	.470	.458	.095	.
	N	18	18	18	18	18	18	18	18	18	18	18	18	18

* Correlation is significant at the 0.05 level (2-tailed).
Correlation is significant at the 0.01 level (2-tailed).

Table: Exercise Group Correlations Time 2.

Exercise Group		GSW 2	Stress 2	Soc 2	Job 2	Nurt 2	Ath 2	Phys 2	Prov 2	Mor 2	Hous 2	Reln 2	Intell 2	SHum 2
Global Self Worth 2	Pearson Correlation	1.000	-.342	.407	.618	.479	.227	.421	.538	.400	.574	.599	.159	.574
	Sig. (2-tailed)	.	.102	.048	.001	.018	.286	.040	.007	.053	.003	.002	.458	.003
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Stress 2	Pearson Correlation	-.342	1.000	-.236	-.461	-.171	-.372	-.428	-.506	.087	-.139	-.248	-.413	-.289
	Sig. (2-tailed)	.102	.	.266	.023	.425	.074	.037	.012	.687	.517	.242	.045	.172
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Sociability 2	Pearson Correlation	.407	-.236	1.000	.498	.383	-.024	.301	.419	.297	.248	.681	.474	.467
	Sig. (2-tailed)	.048	.266	.	.013	.064	.913	.153	.041	.159	.243	.000	.019	.021
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Job 2	Pearson Correlation	.618	-.461	.498	1.000	.709	.181	.604	.567	.520	.500	.482	.083	.789
	Sig. (2-tailed)	.001	.023	.013	.	.000	.399	.002	.004	.009	.013	.017	.700	.000
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Nurt 2	Pearson Correlation	.479	-.171	.383	.709	1.000	.101	.583	.419	.748	.589	.485	.012	.574
	Sig. (2-tailed)	.018	.425	.064	.000	.	.639	.003	.041	.000	.002	.016	.954	.003
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Athletic Ability2	Pearson Correlation	.227	-.372	-.024	.181	.101	1.000	.539	.132	.085	-.017	.121	-.088	.022
	Sig. (2-tailed)	.286	.074	.913	.399	.639	.	.007	.538	.692	.939	.575	.681	.920
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Physical Appearance 2	Pearson Correlation	.421	-.428	.301	.604	.583	.539	1.000	.474	.626	.495	.642	-.211	.401
	Sig. (2-tailed)	.040	.037	.153	.002	.003	.007	.	.019	.001	.014	.001	.322	.052
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Provider 2	Pearson Correlation	.538	-.506	.419	.567	.419	.132	.474	1.000	.360	.639	.552	.133	.519
	Sig. (2-tailed)	.007	.012	.041	.004	.041	.538	.019	.	.084	.001	.005	.536	.009
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Morality 2	Pearson Correlation	.400	.087	.297	.520	.748	.085	.626	.360	1.000	.710	.591	-.336	.373
	Sig. (2-tailed)	.053	.687	.159	.009	.000	.692	.001	.084	.	.000	.002	.108	.072
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Householder 2	Pearson Correlation	.574	-.139	.248	.500	.589	-.017	.495	.639	.710	1.000	.550	-.152	.260
	Sig. (2-tailed)	.003	.517	.243	.013	.002	.939	.014	.001	.000	.	.005	.478	.220
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Relationships 2	Pearson Correlation	.599	-.248	.681	.482	.485	.121	.642	.552	.591	.550	1.000	.159	.374
	Sig. (2-tailed)	.002	.242	.000	.017	.016	.575	.001	.005	.002	.005	.	.458	.072
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Intelligence 2	Pearson Correlation	.159	-.413	.474	.083	.012	-.088	-.211	.133	-.336	-.152	.159	1.000	.151
	Sig. (2-tailed)	.458	.045	.019	.700	.954	.681	.322	.536	.108	.478	.458	.	.481
	N	24	24	24	24	24	24	24	24	24	24	24	24	24
Sense of Humour 2	Pearson Correlation	.574	-.289	.467	.789	.574	.022	.401	.519	.373	.260	.374	.151	1.000
	Sig. (2-tailed)	.003	.172	.021	.000	.003	.920	.052	.009	.072	.220	.072	.481	.
	N	24	24	24	24	24	24	24	24	24	24	24	24	24

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).