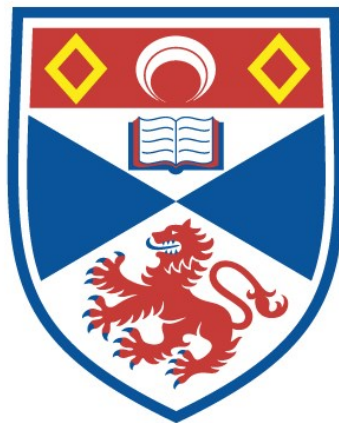# CARDIAC REHABILITATION IN THE ACUTE POST-MYOCARDIAL INFARCTION PERIOD

Joan Foulkes

A Thesis Submitted for the Degree of MPhil
at the
University of St Andrews

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CARDIAC REHABILITATION IN THE ACUTE

POST-MYOCARDIAL INFARCTION PERIOD

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SUBMITTED FOR THE DEGREE OF MASTER OF PHILOSOPHY
UNIVERSITY OF ST ANDREWS, SCHOOL OF PSYCHOLOGY

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PREFACE

Joan Foulkes died on 15th November 1993.

She was admitted to the University as a part-time postgraduate student in 1991 and registered as a student for the Degree of Doctor of Philosophy in 1992. Her tragic death ended a very promising research career. She had fulfilled the regulations for her course of study up to that date and had documented a substantial proportion of her work.

The documents enclosed were assembled by her postgraduate supervisor, Professor Marie Johnston and endorsed by her second supervisor, Dr Catherine Robertson.

These documents have been examined by Professor Derek W Johnston (University of St Andrews) and Professor Jennifer Wilson-Barnett (University of London) who have recommended the posthumous award of Master of Philosophy.

It is recommended that access to the thesis in the University Library be unrestricted.

Signed

Marie Johnston   Catherine Robertson

Jennifer Wilson-Barnett   Derek W Johnston

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SECTION I

POSTGRADUATE REPORT

CARDIAC REHABILITATION IN THE ACUTE POST-MYOCARDIAL INFARCTION PERIOD

PROGRESS REPORT. AUGUST 1993.

Joan Foulkes
School of Psychology
St. Andrews University
St. Andrews
Fife.

DECLARATION: I declare that this report has been composed
solely by myself and that it has not been submitted for any previous degree
application.

Contents

CHAPTER 1

INTRODUCTION

1.1. Epidemiology of Cardiovascular disease.

Cardiovascular diseases (CVD) are the major cause of premature death in industrialised society and account for almost 50% of all deaths among the population aged 35- 64 [1]. A major contributant of CVD is coronary heart disease (CHD) which occurs when the coronary arteries are narrowed, resulting in a reduced blood supply to the heart muscle. A myocardial infarction (MI), or heart attack, occurs when the coronary blood supply is suddenly interrupted, resulting in injury and death of the myocardial cells.

There are major geographical variations in the incidence of CHD. Death rates for men aged 35-74 vary from 62 per 100,000 in Japan to 625 per 100,000 in Scotland, a tenfold difference in the range. The figures for women are lower: the comparable range is from 26 to 262 [2]. Even within the UK there are large variations [3]. Scotland has the highest death rate from CHD for both men and women, the Southeast of England has the lowest incidence with the rates being approximately 50% lower than in Scotland [4]. An inverse relationship between CHD and social class has been demonstrated, with CHD being more common in social class IV and V [5].

1.2. Risk Factors.

Prospective primary prevention and epidemiological studies have shown that the incidence of CHD can be altered within a population and when individuals move to different locations they adopt the risk of their new environment [6.7.8.]. When Japanese moved to America their risk rose to equate with American rates [9]. These findings add strength to the argument that a large component of the disease can be attributed to lifestyle. Although the exact causes of CHD are not yet fully understood, there is strong evidence that the development of the disease is associated with a number of "risk factors".

Cardiovascular risk factors are characteristics or conditions that cause people to be more likely to develop heart disease. Risk factors are synergistic in nature, i.e. they produce an effect greater than the sum of their individual contribution [10]. Some risk factors are immutable but others are potentially modifiable. Non -modifiable risk factors include age, male gender, family history of

CHD, and pre-existing CHD. Although these factors are not susceptible to modification, it is important to assess and acknowledge them so that greater attention can be given to coexistent modifiable factors.

Other risk factors have been identified which are classified as being modifiable. The three generally accepted as having the strongest association are; cigarette smoking, high cholesterol and hypertension. Diabetes is a strong risk factor which although its presence is unalterable, controlling its effects are largely under behavioural influences. The behavioural nature of risk factors is also demonstrated in physical inactivity, obesity, taking synthetic oestrogens (the contraceptive pill), stress, type A behaviour pattern and heavy alcohol usage [11].

Whilst all of these factors have been implicated, they are not without counter indication; for example, the Japanese are known to be heavy smokers and yet they have one of the world's lowest incidence of heart disease.

1.3. *Secondary Prevention*

Secondary prevention is aimed at preventing the complications, reoccurrence or progression of cardiovascular disease. The major risk factors for the progression of heart disease are virtually the same as those implicated in its development [12.13]. Studies have demonstrated that a reduction of risk factors can influence the progression of CHD and recently there is evidence to show that risk factor modification may actually lead to plaque regression [14.15].

Traditionally, clinicians have tended to focus more on pharmacological agents and surgical interventions as demonstrating the greatest potential value in secondary prevention. At times this has been to the detriment of the importance of risk reduction, which should be seen as an equally valid, complementary strategy. Following a myocardial infarction, patients may be highly motivated to make lifestyle change. Spouses may also be particularly receptive to the need for their own lifestyle change thus affording an opportune potential for primary prevention [16.17].

1.4. *Impact of Myocardial Infarction.*

It is widely acknowledged that a myocardial infarction can produce immediate and long-term effects that are both physical and psychological in nature and affect the patient and family [18.19.20.21]. Assessing the impact of illness is problematical as is reflected by the difficulties in defining recovery and the wide range of outcomes that can be measured [22].

Physical outcomes in CR studies have included mortality, morbidity, hospital re-admissions, physical complaints, levels of activity and exercise tolerance. Biological assessments have focused on blood lipid levels, weight and blood pressure. Examples of psychological measures are anxiety, depression, denial, irritability, self-esteem and understanding & satisfaction with medical advice. Behavioural outcomes are reflected by resumption of sexual activity, change of type A behaviour pattern, reduction in risk factors and levels of compliance with medical treatment. Finally social measures have incorporated, return to work, levels of social support, social interaction, uptake of leisure pursuits, and occasionally socio-economic costs. The diversity of these outcomes highlights the difficulty in evaluating the efficacy of interventions that seek to minimise the impact of the disease.

There are indeed several interrelated potential contributants to the degree of disability in each individual. Physical condition is only one such factor. Additional contributants include co-morbidity, physical deconditioning following the acute illness, psychological effects of heart disease, environmental factors including social support, lifestyle behaviours such as smoking and diet. Some of these contributants to disability are potentially reversible.

1.5. *Cardiac Rehabilitation*

Cardiac Rehabilitation (CR) was defined by the WHO in 1967 as "the sum of activities required to ensure cardiac patients the best possible physical, mental and social conditions, so that they may, by their own efforts, regain a normal place in the community and lead an active life."[23].

CR programmes have been shown to be effective in reducing fears and anxieties, reducing disability and facilitating return to normal activities, reducing reoccurrence as well as producing positive effects such as increased confidence and long-term risk factor modification [24-29]. CR consists of several components including:

- providing information about heart disease, medical treatments, individual recovery plan and modifying risk factors,
- training in managing stress,
- training in physical activity,
- enabling the patient to take appropriate control over their own recovery.

The main objective of CR is to provide the patient and family with the information, skills and coping strategies necessary to take appropriate control over their own rehabilitation programme.

Despite the potential benefits of CR, facilities in this country are relatively few [30]. This contrasts with countries such as the USA and West Germany where over 80% of patients are admitted to some form of CR following an MI [31].

This introduction has given a very condensed outline of the incidence of CHD and reflected how many of the risk factors may be amenable to change. The role of CR programmes has been briefly explained. Chapter 2 will review the effects of structured educational programmes for post-infarction patients and their families. In Chapter 3 the current study, Cardiac Rehabilitation: Evaluation of an inpatient and extended programme will be introduced. Chapter 4 will describe the results of initial cross sectional analysis that investigates the emotional state, knowledge and misconceptions in patients and partners that may subsequently be important in understanding the impact of CR programmes. Finally I will discuss the findings and highlight the plan for future development of the study.

CHAPTER 2

CARDIAC REHABILITATION PROGRAMMES: A REVIEW.

2.1. *Background*

Cardiac rehabilitation programmes can largely be classified by two modalities:- physical training and psychological interventions. Less frequently a more comprehensive, combined approach has been taken.

The aim of exercise programmes is primarily to reduce the heart rate response to sub maximal exercise and achieve an increase in cardiac performance. Frequently outcomes have been measured by an increase in physical fitness and a reduction in morbidity and mortality. Less commonly exercise programmes have been evaluated in terms of risk factor modification and psychosocial outcomes. Some of the programmes have included other components such as counselling and health education, although these inputs to the interventions are often poorly described.

The Royal College of Physicians reported in 1975 that the results of the studies on physical conditioning were inconclusive, particularly in terms of the hard end-points of morbidity and mortality to which many of the trials sought to achieve [32]. Two more recent metanalysis have however reported that CR programmes may impact on mortality for appropriately selected patients [28.29]. O'Connor recommends however that it would need a study with at least 4000 patients in order to have the power to demonstrate these outcomes conclusively [28].

Exercise programmes are usually held in the physiotherapy departments. The uptake and adherence with these programmes are often affected by extraneous factors such as difficulty in travelling regularly to hospital or the fact that many people, especially women, do not relate to formal exercise in a gymnasium. At the present site, of the 446 patients admitted with an MI over the period of the current study (see chapter 3), 217 were screened by the physiotherapists for inclusion into the exercise training class, and only 78 patients actually participated in the exercise programme

A review of all the interventions post-infarction is outwith the scope of this particular paper and a degree of selectivity has been utilised. The primary emphasis of this review is on psychological interventions for patients following a myocardial infarction and does not include

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programmes that are exclusively exercise based. As the main focus is on recovery following MI, studies with populations of other CHD e.g. hypertensives, anginal patients or patients post cardiac surgery (CABG) are not reviewed, with the exception of two studies, Dracup [33] and Elderen [34] who reported on a mixed population.

In accordance with the WHO definition (pg 3) CR is seen as the *sum of activities* required. Unifactorial interventions e.g. smoking cessation, dietary interventions, stress management or type A behaviour modification programmes cannot therefore be classified as CR per sa. Accordingly these strategies are not the concern of this review, although they play a valuable role in providing a specialist resource to which the patient may be referred.

Traditionally CR has been classified by an arbitrary division of 4 phases, on the basis of timing of the intervention [35] (see Table 1). Each phase may demand that the intervention be targeted at different aims, dependant on the stage of the patients' recovery. This review will be organised by examining firstly interventions begun in, or solely conducted during, the inpatient stage and will then focus on programmes commenced in subsequent phases.

Table 1   Phases of Cardiac Rehabilitation.

Phase	Type of Programme	Duration
I	Inpatient	Days
II	Outpatient - immediately after hospitalisation.	2 - 12 weeks
III	Late recovery period	Minimum 6 mth beyond phase II
IV	Maintenance	Indefinite

The aim of this chapter is to critically review the effectiveness of interventions that have been targeted to either a) modify cardiovascular risk factors or b) moderate the emotional impact of an MI. Selection criteria were fairly broad. Studies are included if the research design was clearly described, outcome measures were suitable for the objectives and empirical results were presented. Table 2 summarises the studies in terms of; author and date, design, description and duration of intervention, outcomes (incl. measures used) and effect size.

2.2. *In-patient Programmes. Phase 1.*

There are very few studies reporting on psychological intervention in the in-patient phase. One of the early studies was in 1968 when, in a small sample, Klein et al [36] demonstrated that the provision of additional information and counselling resulted in a reduction of cardiac complications and significantly lowered emotional distress. Gruen [37] randomised 70 men post MI to either receive 30 min of daily individual psychotherapy or to a control group receiving standard medical care. The intervention, provided by a psychologist, was commenced the day after admission and continued throughout the inpatient stay. The aim was to provide information, address feelings of fear, anxiety and depression and encourage patients to cope with stressful conditions. Control patients had longer hospital stay (24.9 v 22.5), suffered more symptoms and were significantly more anxious and depressed. The experimental group also had a more positive social orientation and returned sooner to normal levels of activity. Due largely to the use of thrombolytics, the average length of hospital stay, post infarct, is currently 7-10 days and is affected by extraneous factors including pressure for hospital beds. Accordingly the effect on duration of hospital stay is unlikely to be as apparent in recent studies.

Cromwell et al [38] used a 2x2x2 factorial design to compare three different psychological treatments for 183 men post MI. The conditions manipulated were:-
1. Level of information - the high information group were given information on the nature and severity of infarct and advice on their recovery and risk factors. The low information group received standard explanation of the hospital stay.
2. Level of participation - the high participation group were encouraged to be actively involved in their recovery process. They were given exercises to perform and switched on their ECG machine if they experienced symptoms. The low participation group received the conventional treatment of complete bedrest.
3. Level of diversion - the high diversion group had windows in their rooms, television, plenty of reading materials in their rooms and a liberal visiting hours. The low diversion group had restrictions in these facilities.
 Each patient was assigned either a 'high' or 'low' risk condition in each of these variables. All patients received the same level of nursing care. At the time of the study that equated with the low category in all three conditions, so people assigned to this group could not ethically be considered deprived. There was no between group effect on either mortality or reoccurrence at 12 weeks. The group receiving high information and either high participation *or* high diversion (but not both) had significantly shorter length of hospital stay,.(mean 20.9, 19.5 days

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respectively) than those who received high information alone (mean 28.0 days). Those receiving high levels in all categories had intermediate lengths of stay. This finding supports the evidence that information alone is not sufficient and is more effective if combined with a positive coping strategy.

Young et al [39] randomised 200 first MIs to either a treatment or control group. Randomisation was time determined, so the control group were recruited before the intervention group commenced. The intervention consisted of a) education of patient and spouse by a multidisciplinary team on risk factor modification and recovery from illness, b) graduated physical activity and exercise prescription, and c) consultation about returning to work. At discharge the intervention group had significantly higher scores on the knowledge test. Outcome measures were performed at three months and one year. At three months the intervention group demonstrated greater weight reduction, adherence to diet with lower cholesterol levels. They were more active with less angina. There was no effect noted on smoking or exercise capacity. They also reported no effect on morbidity or mortality; indeed it could be questioned that these outcomes are realistic in such a time frame. At one year the only detectable difference was a significantly lower cholesterol in the treated group. As the study includes exercise training and health education, it is not possible to determine which component was responsible for this finding as both exercise and diet can effect cholesterol levels.

Oldenburg [40] examined the effects of in-hospital education counselling and relaxation in 46 first MI patients (male) aged 70 or less. Sixteen patients were randomised to relaxation plus education. This group received education (provided by a cassette tape) covering impact if MI on sexual functioning and risk factor modification skills, with a particular emphasis in Type A behaviour. This group also received tapes on progressive muscle relaxation. The counselling group (n=16) received relaxation and educational tapes but in addition had individual counselling, from a psychiatrist & psychologist, on strategies for risk reduction and targeting patients' anxieties and concerns. Control group (n=14) received routine care. Follow up at 3, 6 & 12 months demonstrated significantly improved results for both treatment groups on psychological outcomes:- anxiety, type A behaviour and negative approach to illness and activity. Maintenance of lifestyle change was significant only for the counselling group at 12 month. The other groups no longer maintained earlier improvements. This study confirms that early psychological interventions can result in sustained beneficial effects.

Thompson [41] stated his aim as "to monitor and compare levels of anxiety, depression, satisfaction and knowledge " for 60 male patients, aged less than 66, following a first MI.

Patients, who had to be living with a spouse, were allocated to either treatment group receiving a systematic programme of "supportive- educational counselling" or a normal care control group. Patients were asked to participate following randomisation, but as no patient refused to participate a potential methodological problem was avoided. The educational component targeted the nature and subsequent management of the heart attack, risk factor modification and the impact of MI on sexual, social, work and leisure activity. Counselling focused on reactions and feelings towards the heart attack. Outcomes include anxiety, depression, personality data, knowledge, satisfaction, symptomatology, return to work, levels of activity, blood pressure, body mass, tobacco consumption and re-admission and mortality. Assessments of various measures were conducted at 24, 48, & 72 hrs at 5 day the 1, 3 and 6 month after admission. The 6 month assessment was by interview, the previous evaluations were by postal questionnaire. No reported assessment was made to see if this design created a response effect. Significantly lower anxiety and depression were reported for the patient treatment group on all but the 6 month depression score. However mean scores were within the normal range except for the initial anxiety measures where patients exhibited borderline anxiety score; accordingly the reported improvements were small and could therefore be considered of marginal clinical importance for the group as a whole. It may be that within this group there are subgroups with high distress levels for whom the intervention could be profitably targeted. The levels of distress were higher for wives and similar beneficial effects were reported for the treatment group. The additional use of visual analogue scales enabled an exploration of particular sources of distress. Significant improvement was also found in treatment group in lower BP, increased knowledge scores and increased levels of satisfaction. No significant effects were found on levels of activity, change in weight or smoking, return to work or symtomatology.

2.3. *Programmes performed in Phase 1 and Phase 2.*

Prozen et al [42] categorised 313 men into either high risk or low risk groups based on medical criteria. Randomisation then assigned each type of category to either experimental or control conditions - resulting in four groups. Patients in the two experimental conditions received individual health education and counselling provided by a nurse; the aim being to provide information about treatment and the importance of compliance with medical advice, and to offer social support. After discharge contact was maintained over the telephone or in person. Outcome was determined in terms of increase in knowledge, anxiety and self reports of weight reduction & smoking cessation, return to work was also noted. At discharge both experimental groups demonstrated greater knowledge although by six months this group difference was no longer significant. At six months smoking cessation was greater in the experimental groups. The high

risk experimental group had significantly more people returning to work than the high risk control group. The lower risk intervention group demonstrated quicker return to work although in terms of actual number the difference was not significant. No treatment effect was noted for either weight reduction or lower levels of anxiety, although perhaps the later finding is not remarkable as the study laid emphasis on promoting healthy lifestyle rather than reduction in emotional distress. This focusing on risk factor modification without combining it with a counselling approach, emphasises the patients responsibility and perhaps inhibits the mechanism of avoidant coping which may be adaptive in the acute phase.

Naismith et al [43] compared 68 male MIs who received individual education and counselling by a nurse & physician with 75 control patients who received normal care (including advice and leaflets on risk factors and recovery advice). Intervention commenced the third day post infarct and continued as required for a maximum of 6 mth post discharge. Spouses were included in the treatment. At six months the intervention group had returned earlier to work and were deemed to be more socially independent. The effect was stronger in those that the authors identified as 'introverted neurotics'. No results for wives were presented. No pre-test was carried out in this study therefore making it impossible to establish if differences existed between groups prior to the intervention that would confound the results.

Scalzi et al [44] used a time criterion to randomise patients. During the first 6 months, 13 patients (2 female, 11 male) were allocated to control group receiving usual care. Over the subsequent 6 month period, 19 patients (2 women ,19 men) were allocated to receive a structured educational programme designed to increase knowledge of CHD and enhance risk modification. The advice was supplemented with printed material and cassette tapes. The programme was initiated in phase I and continued at clinic appointments throughout the 2 year follow up period. Outcome evaluations occurred in hospital, and at 1, 3, 6, 12 and 24 month follow up. Assessment was in terms of knowledge, compliance, psychological measures of depression, denial and coronary prone behaviour and reports of breathlessness and angina. Experimental group had higher depression and lower denial than the control, again supporting the evidence that strategies focusing on the illness without complimentary counselling may increase attention coping which is associated with greater distress in the early stages. However depression scores were not high for either group. No differences between groups were found in knowledge scores or in return to work rates. Although the intervention group demonstrated a reduction in coronary prone behaviour initially, this was not maintained in the longer term. This study illustrates several methodological problems common to other studies. Firstly small sample size, 4 additional patients had actually been recruited to each group but dropped out in the first

month - no information was given for their discontinuing and no analysis reported to investigate whether they differed from the other patients. Randomisation was problematical as the experimental group were significantly "sicker" (as demonstrated by higher score on the Norris prognostic index). Several of the scales were not validated and there was no attempt to validate self reports of behavioural change.

In a small study by Raleigh & Odtohan [45] 18 pts were randomised to either an individualised education programme, whilst in hospital and following discharge, or a control group who received an equal number of placebo sessions. Outcome was measured at discharge and at two months in terms of knowledge and anxiety levels, an activity checklist was completed at two months. The experimental group demonstrated benefit in reduced distress improved knowledge and resumption of greater levels of activity. The study has to be seen in terms of the limitations that the small sample size imposes on the power of the findings.

Maeland J.G & Havik O.E. [46] conducted a time series quasi-experimental design comprising of 383 MI patients. In phase 1; 100 consecutive patients were recruited over an eleven month period and received no intervention although 66 were participating in a concurrent drug trial that involved regular medical and compliance checks. Phases 2 consisted of 252 patients allocated to treatment or control based on a time series design. The intervention was in the form of an audio-visual education programme provided whilst the patient was in hospital. Phase 3 contained 31 patients who received post discharge, group education sessions to which spouses were invited. The programme was held weekly for four weeks, and the audio-visual slides were used as the basis for further information and discussion. Follow-up was assessed two and six weeks post discharge, then at a six month, three and five year period by postal questionnaire. Several of the measures were designed and validated in the study. Significant effect was noted in favour of the education group in increased knowledge, fewer misconceptions, earlier return to normal activity, regular exercising and medical consolation; although the later two findings were not sustained over the long-term. The programme was not successful in terms of reduction of emotional distress, smoking cessation, return to work, hospital re admissions or mortality. Phase 3 analysis was not reported in this supplement. The investigators concluded that inpatient education was useful in promoting short-term coping but not lifestyle change.

In a second study by Oldenburg [47] 177 MI patients were randomised to either an 'educational', 'behavioural' or control group. The educational group received a structured, standardised education programme consisting of a cassette tape and 3 sessions with a social worker or occupational therapist, they also received relaxation training. The behavioural group received the

same educational intervention whilst in hospital, but in addition they received frequent group meetings of behavioural strategies that commenced one month post discharge and continued for two months. As the primary aim was for long term behavioural change, patients were encouraged to continue with follow up sessions on a weekly or fortnightly basis. The control group received written information during the inpatient phase. The study was assessed in terms of psychological effect:- anxiety, depression & score of type A and hostility. The physical outcomes that were measured were symtomatology, re-occurance and re-admission to hospital. Behavioural effects included levels of smoking, exercise capacity and weight. Blood lipids were monitored. Assessments were performed within the 1st month post infarct and again at 4, 8 & 12 months. The behavioural group demonstrated beneficial effect in lower levels of anxiety, depression; they also had lower scores on type A & hostility, increased activity and smoking cessation levels; and improvements in symptomatology and reduced medication usage throughout the follow-up period. Difference in weight reduction was maintained up to the 8 month assessment. No differences were demonstrated on lipid levels, re-occurrence or re-admission rates. Whilst this study demonstrated sustained change in lifestyle over the assessment period, the duration and frequency of the programme may be difficult to accommodate in many clinical situations.

Elderen van [34] randomised 60 patients (male=49, female=11) to an education or control condition. The experimental programme consisted of two individual and two group counselling sessions on an inpatient basis followed by six weekly telephone contacts after discharge. The programme aimed to encourage a rapport to be established in which patients could question and express emotions. Secondary prevention was emphasised, emotional reactions were addressed as were uncertainties and misconceptions. During telephone follow-up psychosocial problems were discussed and resolutions to adopt lifestyle change was confirmed. The main research questions were evaluating changes in health promoting behaviour and emotional distress and to assess if partner participation had a positive influence on patient outcome. Assessment was performed as a pre-test then pre-discharge, at two months and 1 year. No significant effects were found on smoking cessation or emotional distress although the presence of partners positively influenced attempts to stop smoking. There was a short term difference in activity levels for the treated group who also showed significant improvement in dietary habits both in the short and long term.

A second study by the same researcher [34] utilised Rational Emotive therapy as a framework to alter irrational beliefs which may inhibit behavioural change and psychosocial recovery. This study is only briefly mentioned as a mixed population of coronary artery patients (post MI, post

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CABG and PTCA) were recruited. Patients were therefore more heterogeneous than other studies in this review. Randomisation allocated 217 patients, and spouses, to either experimental or control group. Short term benefit was reported in dietary improvement, smoking cessation, increased understanding of the illness and recovery plan, and a reduction in health care contact. The only effect noted in the longer term however was in smoking cessation.

2.4. Outpatient Programmes. (Phase 2).

In one of the earlier studies Ibrahim et al [48] compared a normal care control group (n=60) to a group (n=58) who received a year long psychotherapy programme. The intervention focused on encouraging the exploration of emotions and attitudes and their physical and social conditions. No significant effects were found on blood pressure levels, blood lipids or psychological change of mood. The authors reported that there was a trend towards increased survival, particularly in the more seriously ill intervention group.

Rahe et al [49] carried out a small study of 44 men to assess the effect of brief group therapy post MI. Patients were randomised to either receive 6 fortnightly sessions focusing on life stress and onset of MI, secondary prevention, coronary prone behaviour and problems of returning home and resuming work. Control group received standard follow-up from their doctors. No difference was reported in risk factor behaviour or emotional distress. Favourable effects were claimed in terms of morbidity (angina, reinfarctions and hospital re admissions) and the authors noted a tendency towards reduced mortality in 3-4 yr follow up, although this finding must be questioned in the light of the small sample size. Indeed this study suffers from several other methodological problems. There was no pre-test to determine differences between groups, and there was considerable attrition in the control patients many of whom failed to return the questionnaires which could have significantly biased the results.

Kallio et al [50] evaluated a comprehensive programme of health education combined with an exercise training course that commenced two weeks post discharge and continued for three months. The educational input targeted secondary prevention and copying with psychosocial problems. Randomisation of 373 patients resulted in equal numbers between the experimental and control in both number and demographic characteristics. Follow up was assessed annually for three years. Significant treatment effect was found in reduced weight, lower blood pressure and lipids. The authors reported a cumulative coronary mortality rate as lower in the intervention group although this was not due to rates of re-infarction that was similar in both groups. Nor was the programme effective in smoking cessation, symptomatology or rates of return to work.

Mayou et al [26] randomised 129 male patients post infarct to receive either exercise, advice or control conditions. The biweekly supervised exercise programme commenced 1 month post infarct and continued for 4 weeks, they also received written material. In the advice group couples met with a physician to discuss problems and they were encouraged to keep an activity diary. Discussions commenced 2 weeks post discharge and consisted of 3-4 sessions. Control group received written information. At 3 months there was no significant, between group difference in terms of psychological outcome, "keep fit" exercise activity or satisfaction; but the exercise tolerance test was superior in the exercise group. At 18 months the advice group reported higher number hours worked, greater sexual activity and higher overall satisfaction rates. No other significant differences were reported at this time.

Bengtsson [51] randomised 171 MI patients to either a comprehensive programme of exercise, education and counselling or a control group receiving standard care. The rehabilitation group received the psychological input at both outpatient attendance, exercise classes and in group sessions. Counselling sessions focused on reasons for and treatment of MI, risk factor modification, resumption of normal activity and work. Follow-up at 14 month revealed significantly lowered blood pressure levels for the rehabilitation group but no differences were found in terms of anxiety, work capacity, return to work, levels of activity, diet, smoking cessation or increased knowledge scores. Unlike many other studies, the intervention in this programme took the format solely of informal discussions which may have had an effect on the outcomes.

Silvarajan et al [52] studied the effects of three groups on risk factor modification. Randomisation of 258 patients (male, & female) allocated to either normal care control group (Group A) ; or an exercise only group (Group B) or a comprehensive programme of exercise + teaching + counselling (Group C). The exercise component commenced in hospital and continued for 3 months post discharge. The teaching/counselling component was on an outpatient group format. It focused on development of MI and reactions to it, risk factor modification, resumption of normal activity and stress and relaxation training. The only reported significant finding was in group c who had a reduction of salt and caffeine intake. At six months no other differences were found with respects to consumption of other food items, smoking cessation or weight loss. Although this study included both male and female patients, the proportions were not reported, limiting the generalisation to women that could have been made.

In a subsequent paper by Ott et al [53] the use of the Sickness Impact Profile (SIP) questionnaire was reported, based on its use in the above study by Silvarajan et al. Significant difference in favour of Group C was found in both the physical and psychosocial dimensions of the SIP. As this improvement was significantly different from the exercise group it is reasonable to assume that it can be attributed to the teaching/counselling component. This also illustrates the use of validated measures to assess outcome. Whilst only limited effects were reported in the previous study, this paper is an interesting demonstration of how findings can be biased by what is actually reported. It is suprising however that the bias was in favour of the null hypothesis.

Stern et al [54] randomised 106 MI patients (91 male, 15 female) who met conditional inclusion criteria (presence of reduced exercise tolerance and/or who were assessed as anxious or depressed) to either an exercise only or group counselling programme or control condition. Both interventions lasted for 12 weeks. The exercise group met three times a week, the counselling group on a weekly basis. The counselling group included both didactic education sessions and counselling on Type A modification, relaxation and stress management. Evaluation was performed at a 3, 6 and 12 month period., in terms of ETT, physical activity questionnaire and psychological measures of anxiety, depression, mood and adjustment scales. At 3 month the exercise group had a significantly higher exercise capacity than both other groups, and reported lower anxiety & depression, decreased fatigue and were more sociable than were the controls. The counselling group had significantly less depression, more sociable and less interpersonal friction. At later follow-up, the exercise group maintained their increase exercise capacity, the counselling group were significantly less anxious and depressed than were the controls and they also were more sociable than either other group. No significant effects were found in terms of return to work, sexual adjustment or morbidity. Sub group analysis showed that the results could not be applied to either female or black patients. The study shows face validity in that the exercise group resulted in superior exercise capacity whilst the counselling group achieved its aim of minimising psychological impact.

Unlike the other studies in this review, which reported on MI patients exclusively, the programme by Dracup et al [33] also included patients post CABG who are normally phase III or IV (if indeed they have actually had a previous infarct). They are therefore more heterogeneous, in terms of both physical and psychological state from patients in the acute phase. As half of the men (MI=28, CABG=30) did however have recent MIs the study will be briefly reported. In the first group couples received programme based on "symbolic interactionist role theory"; the second group received the same programme but this group consisted of patients exclusively. A control group received usual care. Follow-up was for six months, both

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experimental groups had significantly lower blood pressures and reduced body fat. There was no group difference on either smoking or physical activity levels. The authors noted that the presence of wives did not contribute significantly to positive outcome measures.

Horlick et al [55] randomised 106 male and 10 female MI patients to receive either an educational programme (n=83) or normal care control (n=33). Normal care consisted of a standardised inpatient educational programme providing information on CHD and risk factor modification. The experimental group attended additional post-discharge sessions. The extended programme was in two sections: a) a formal educational component of 6 sessions to which spouses were invited, b) a discussion group for patients only. Drop out rate was 14.5% in the treatment group and 9.1% for controls - these patients were not included in the analysis. The authors do not report if they differed from other participants. Outcome variables were evaluated at 3 & 6 months in terms of smoking, psychological indicators of health, social and recreational involvement, family satisfaction and work status. The only effect noted between groups was that the control group had significantly higher rates of return to work. The authors explain that this finding possibly resulted from the fact that treatment group were found to receive more state compensation and therefore perhaps being less likely to return to work than those receiving less support. The authors also note that both groups perceived their health status and potential for recovery as high, allowing little room for improvement As no actual baseline levels are reported one is unable to see if this explanation also holds true for psychological status. This strengthens the argument for the need for stratification, targeting the interventions towards those who would obtain maximal benefit. The control group received an extensive inpatient programme, indicating that an effective minimal intervention may be sufficient to promote recovery.

Hedbäck et al [56] investigated an extensive programme for 143 MI patients and compared them with a reference group of 154 who received an inpatient programme similar to the first group but had no post-discharge intervention. The experimental programme included both physical training and an educational and counselling component. The later was conducted both on an inpatient and outpatient basis. Group sessions began 2 week post discharge and included a one day course on dietary advice. The exercise training started six weeks post-infarct and continued for two years, at which time exercise could be maintained via a self help group. At one year follow-up the intervention group had significantly fewer re-infarctions, less medication usage, improved hypertensive control and increased levels of smoking cessation. There was no significant effect on mortality, re admissions or rates of return to work.

Miller et al [57] used Fishbein's model of reasoned action (Ajzen and Fishbein 1980) to develop the intervention and measures used in their study. Randomisation allocated 115 men to either an experimental or control group. The intervention consisted of one visit, 30 days post discharge, at which the nurse followed a protocol consisting of three components; assessment, problem identification and development of a health plan. The study utilised the concept of action research in that the nurse researcher administered the intervention according to the results of the interview. Outcomes were measured in terms of behavioural change (diet, smoking, activity, stress and medication adherence). Intentions in hospital, attitude towards regimen and perceived belief in others were assessed as predictors. Interviews were carried out at 30 and 60 day then at 1 and 2 years post infarct. The only significant effect in favour of the experimental group was for changes in diet. The *control* group reported significantly greater improvement in smoking cessation. Regression analysis identified perceived belief in others as a predictor for each of the outcomes, attitude accounted for additional variance for diet, smoking and stress regimens. Intention was selected as a variable for smoking only. These findings differ from Ajzen and Fishbein where intentions were said to predict behaviour. This study suffered from problems out attrition (only 51 patients completed the 2 year follow up). The delay in administering the intervention may have accounted for its non effectiveness, as patients may have already developed their adjustment pattern by this time.

Olderidge et al [58] randomised 201 low-risk MI patients who had evidence of anxiety, depression or both, to either an 8 bi-weekly sessions of exercise conditioning and weekly behavioural counselling or to conventional care. Spouses were also invited to participate. The main objective of the intervention was to increase confidence in resuming normal activity, to provide an opportunity to identify and manage emotional reactions and to enhance self-control. It included training in progressive muscle relaxation. Outcome measures were obtained at baseline, 8 weeks, 4, 8 and 12 months post discharge. In the short term there was a significant improvement in exercise tolerance, in the emotional dimension of the quality of life questionnaire and a reduction in anxiety; but these between group difference's were not maintained in the longer term. The authors discuss the fact that the behavioural counselling was performed by personnel trained especially for the study, having limited experience in the technique, possibly therefore having an impact on the results. Although patients were stratified to include only those with moderate levels of distress the authors note that their criteria may not have successfully identified those at high risk for poor quality of life.

In the final study to be included in this review, Lewin et al [59] randomly allocated 190 patients, and spouses, to either receive a self help rehabilitation programme (the heart manual) or to

receive an extensive package of standard written leaflets and informal placebo counselling. Prior to the first follow-up 14 patients(7%) withdrew; accordingly results were reported for 176 patients (126 male, 50 female). The manual consisted of six weekly sections of educational, taped relaxation and stress management, and a home based exercise programme. A major objective was to address psychological issues, including intrusive and distressing thoughts, which have commonly been found to be problematical post infarct. The manual was given to the patient on discharge, by a nurse facilitator who maintained contact on the phone or in brief home visits, three times over the subsequent 6 weeks. At these times she checked progress, encouraged compliance and discussed any problems of using the manual. Follow-up was at 6 week, 6 month and 1 year period. The total attrition rate was 39%; the 12 month assessment being completed by 110 patients. Both anxiety and depression were significantly reduced in the short term (6 week) in the experimental group who also maintained the treatment effect on anxiety at 1 year. Caseness was significantly reduced for the treatment group at all evaluations, however this was not measured at baseline and thus has to be interpreted with caution. The author reported that whilst in hospital, 52% of subjects were found to have significant levels of anxiety or depression. The use of the 8 point cut off for significance could be considered quite liberal, the original authors of the measure [60] suggested that a score of 8-10 indicated borderline presence. Subgroup analysis showed the treatment effect was more marked in the distressed group, although this finding is hardly suprising as levels in the non-distressed group allowed little room for improvement. The intervention also had a significant effect in the reduction of health care contact and in fewer hospital re admissions over the first 6 months.

2.5. Discussion

There is now an impressive body of evidence to demonstrate the benefits of cardiac rehabilitation however, as has been shown, studies frequently suffer from methodological problems that detract from their impact. The benefits of several interventions in this review could be considered to be limited, but this may be due to the intervention strategies or the research design that was employed.

The aims of the intervention were seldom stated, limiting the evaluation of success. Programmes frequently were evaluated in terms of outcomes not necessarily appropriate to their design; health educational strategies focusing on the need for lifestyle change may not be beneficial in terms of psychological effect, exercise training may not be the most efficacious strategy for risk reduction.

The interventions are not always clearly described making assessment difficult and replication impossible. Impairment of memory has been reported in a high proportion of CR patients with resulting effect of limiting the impact of the intervention particularly in minimalist programmes. Many interventions have included the provision of written information, usually without adequate description. The provision of written information is problematical in that much of the standard material is of too high a reading level for many people, functional illiteracy may be difficult to assess because of embarrassment. When health educational programmes have been used without accompanying coping strategies, psychological impact has not been moderated. These programmes encourage the patient to use attention focused coping which may account for these effects. Combined strategies are therefore beneficial to achieve wider aims.

Most of the studies reviewed have included patients with previous MIs, analysis is seldom performed to investigate if this affected outcome measures. Frequently no account is taken of other variables including severity of MI, gender, social class, social support, all of which may influence outcome. The effects of CR for women is difficult to assess as most studies have been limited to male patients, or have a low proportion of females. Many of the studies failed to obtain pre-test measures, this limits an assessment of the effect of the intervention and makes it difficult to attribute the sequelae directly to the MI rather than to the pre-morbid state.

Frequently partners have not been included despite there being evidence to suggest that they are often strongly affected and can play an important role in the recovery process. The paper by Dracup [33] contrasted with other studies, demonstrating the possible detrimental effect of partners, however the intervention design led to the discussion focus on psychological problems, possibly accounting for this effect.

Studies have used different outcomes making comparisons impossible. Traditionally hard end points such as mortality, morbidity or return to work are used as outcome criteria; it could be seriously questioned that these are appropriate measures considering the nature of the interventions and the power required to demonstrate these effects. Reliance solely on outcomes such as return to work are unsatisfactory and they are often governed by extraneous variables such as macro and micro-economic factors. There is a need for more studies to assess interventions on a more comprehensive range of outcomes including, psychosocial, behavioural and physical effect.

In many instances the measures used were not described. Methods of data collection and coding, which can influence the results, are seldom reported. The use of non-standardised measures can

be problematical in that comparability between studies is limited and the reliability and validity of some questionnaires have not been assessed. Frequently there is a reliance purely on self report measures of behavioural change introducing possible bias into the results.

The issue of attrition requires to be addressed, compliance with CR programmes is problematical. Whilst some work has been performed in this area [61] many studies either do not report or discuss the drop out rates.

2.6. *Rationale for present study.*

Cardiovascular disorders pose a major health problem in developed countries of the western world in terms of mortality and also in the resulting morbidity. CR has been shown to be effective in reducing the impact of the illness and in facilitating recovery.

CR is not exclusively the remit of any one health professional. Whilst a multidisciplinary approach is vital, it is essential that one person takes responsibility for co-ordinating each patients' programme. An adequate assessment is crucial to ensure that the patient and family understand the programme, and are actively involved.

CR programmes have not been sufficiently evaluated to demonstrate the minimal efficacious input. In the current climate of cost consciousness, there may be a reluctance to adopt a comprehensive approach but an effective minimal intervention might be acceptable. Although several researchers have recommended that interventions should be targeted at those who potentially would benefit most, these predictors are not yet clear. There is a need to identify subgroups who would demonstrate this effect.

Whilst some interventions have been performed, many have been criticised for small sample size, lack of randomisation and reliance on poorly validated measures [62]. There is therefore a need to conduct a rigorous evaluation of the efficacy of a minimal CR programme and contrasting it with a more extensive approach. The following chapter describes the protocol for the study that is currently being conducted.

CHAPTER 3 : EVALUATION OF AN INPATIENT AND EXTENDED PROGRAMME.

3.1. *Aim.*

The aim is to evaluate the benefits of structured CR programmes, provided by a nurse counsellor for patients following a first MI (and their families) .

3.2. *Hypotheses*

I. Patients following a first MI who receive a minimal programme of inpatient CR will demonstrate a) equal benefit to those receiving an extended programme with additional post discharge sessions and b) greater benefit than those receiving normal care.

Benefits are defined as: 1. greater understanding of their illness and recovery plan, 2) less psychological disturbance and greater well being, 3) reduced disability and faster return to normal activities, 4) fuller participation in their recovery plan, 5) greater lifestyle change and risk-factor modification, 6) less morbidity and 7) reduced health care use.

II. Partners (of patients following a first MI) who receive a minimal programme of CR while the patient is in hospital will demonstrate a) equal benefit to those receiving an extended programme with additional post-discharge sessions and b) greater benefit than those receiving normal care.

Benefits are defined as: 1) greater understanding of the illness and recovery plan, 2)less psychological disturbance and greater well being, 3) greater lifestyle change and risk-factor modification, 4) reduced health care use.

III. It will be possible to identify sub-groups of people (patients and partners) who do not benefit from the minimal programme but do benefit from the extended programme.

3.3. *Method*

3.3.1.Design

Inpatient CR, following a first MI, is being compared with an extended programme involving additional post-discharge sessions given in the first two months and with normal cardiac care with randomisation to treatments.

Follow-up continues for a one year period. While the assessment of the effect in terms of recurrence or mortality is not powerful within the period of the study; factors (risk factor behaviour and medication adherence) mediating these outcomes are being assessed. Processes mediating the outcomes, including both patients' and their partners' knowledge and perceived control are also determined. Distress and duration of disability are assessed as outcomes in their own right.

3.3.2. Subjects

The study group consists of consecutive patients admitted to the coronary care unit (CCU), Ninewells Hospital Dundee, between January 1992 and February 1993. Inclusion criteria: Presence of first MI (WHO criteria), aged under 71, able to speak English and to participate in the study procedures, able and willing to give informed consent to participate in the study within 72 hrs of admission. Partners (defined as the person the patient identifies as being most involved in their recovery) were also invited to participate.

During the recruitment period; 1274 patients were admitted to CCU; 446 were diagnosed as MI; 271 were eligible for inclusion to the study; 135 were approached to participate (the remaining either died before recruitment, were too ill to participate, or were unable to be recruited within the 72hr criteria) 13 patients refused to participate in the study, 6 were excluded when diagnosis was subsequently changed (MI not confirmed by cardiac enzymes and/or angiography). Accordingly 116 patients were randomly allocated to one of the three study conditions after giving informed consent.[1] {see appendix 1 for copy of information sheet} The characteristics of the sample are shown in Table 1.

Table 1

	Patients (n = 116)	Partners (n = 84)
Male	76	22
Female	40	62
Mean Age (range)	56(38-70)	52(28-72)

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[1] These figures are based on provisional analysis. Numbers will be confirmed.

As described above, partners were also invited to participate. The majority (78) were spouses, but also included are 1 son, 2 daughters and 3 girlfriends, all of whom live with or nearby the patient.

3.3.3. Procedure

Patients were recruited within 72 hrs of admission. The nature of the study was explained, the content and timing of the CR programmes was described and subjects were told that the programmes were additional to normal care. Their confidentiality was assured. All subjects were asked to sign a consent form. Subjects then underwent initial assessment (see measures section). The patients' GPs were informed of the patients participation in the study.

3.3.4. Randomisation

Simple randomisation to CR and control groups was not possible because of the possibility of contamination effects and perceived "deprivation" of the control patients mixing with the CR patients on the same ward. Patients were therefore allocated to wards in accordance with the current practice (i.e. by sex and by day of the week) and the six wards were randomly allocated to have one of the two CR programmes or to the control group.

In order to minimise the confounding of groups with particular wards and to ensure the interviewer was kept as blind as possible to the subject's allocation, the ward allocation was changed periodically. Each random change involved a clearance period, during which time the patients on the earlier regime were discharged. Randomisation was conducted to achieve approximately one third of the subjects in the control with the remainder equally allocated to the two interventions, it also ensured that every ward was included under each CR and control condition.. The nurse counsellor co-ordinated the randomisations[2] and kept records of all the counselling sessions offered and attended. Interviewers were blind to the randomisation.

3.3.5. Normal Care

The care that the control group received (which was also the basic care for the experimental group) was in accordance with current practice at the time of the study. It consisted of admission

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[2]The randomisation protocol will be included when the study is unblinded.

to the CCU, followed about 48 hrs later by transfer to one of 6 general medical wards (3 female, 3 male). Normal length of hospital stay was 7-10 days in total. No formal educational/counselling CR programme existed at the time of the study, patient education was dependant on the interests and availability of individual medical and nursing staff. After discharge, outpatient care was variable; some patients being referred to the cardiology outpatient clinic, some receiving a special physiotherapy exercise programme and some being followed up solely by their GP. No formal stratification was made as it was anticipated that these variations would be equally distributed among the three groups, but these variables were noted and will be controlled for in the analysis. Consideration was given to the inclusion of a placebo group in order to minimise the effect of increased staff attention. However as Wilson-Barnett [63] has highlighted, there may be problems sustaining an unstructured conversation for the required time and there could be ethical issues involved in requiring a patient to participate in this design.

3.3.6. The Cardiac Rehabilitation Programmes

The CR groups were offered a programme of education and counselling by a nurse counsellor that began within 3 days of admission. The Minimal Programme involved counselling, both in individual and group sessions, while the patient was in hospital. The Extended Programme continued the intervention for a further 6 weeks post discharge. A telephone help line was available to both intervention groups.

Aims of the intervention.

The general aims of the programme were :
- To provide accurate information regarding the patient's illness, hospitalisation and post-discharge recovery.
- To provide a relationship that enables the imparting of facts, correction of misconceptions and dispels fear-inducing myths.
- To offer emotional support to the patient and partner during the acute and recovery phase of the illness.
- To assist the patient in the planning and implementation of realistic goals related to their future health behaviour.

The goals of the programme were:

- To provide a programme that will increase the patient and partner's awareness and understanding of cardiovascular disease, their hospitalisation and post-discharge recovery.
- To provide a programme that will assist the patient (and partner) in identifying his/her individual risk factors and necessary lifestyle modifications.
- To facilitate a safe return to each individual's optimal activity level.
- To provide a source of emotional support for both the patient and partner through the various emotional stages of the patient's illness.
- To assist in the development of effective coping strategies to facilitate recovery.
- To co-ordinate various health care professionals through resource referrals as required (i.e. Medical Social Worker, GP, Physiotherapy).

A manual, to be used for the intervention, was designed. The first section describes the philosophy, purpose and goals of the programme. A chapter on the role of the nurse as an educator and counsellor incorporates the principles of learning on which the programme is based. The main sections describe the topics that are covered during the programme including information on; CHD, treatment and investigations, personal risk factors and necessary strategies for modifying them (including relaxation training), resumption of normal activities, potential problems on returning home and to work and how to manage future symptoms. Although a standard core of information was provided, the timing and content were individualised, based on the needs of each patient and the time available for the intervention. The extended programme enhanced the possibility of targeting the input to complement the particular coping style of the patient. {see Appendix 2 for contents page. The manual is available as Volume 2 of this report.} Subjects were provided with written information tailored to their individual situation and needs, in addition to the standard material (BHF leaflets) which is frequently part of normal care provision.

The nurse counsellor was changed during the study in order to control for effects specific to the individual counsellor. To ensure the replicability of the manual its value was tested in the induction of the second counsellor.

3.4. *Measures*

All assessments were collected by interview using pre-structured questions. Initial assessment involved collecting demographic data and a baseline pre-test for outcome variables. Follow-up measures included assessments of processes mediating crucial outcomes as well as the outcomes themselves.[3] {See appendix 3 for interview schedule.}

1. *Demographic data*
Demographic data included: Age, race, level of formal education, marital status, social class, duration of hospital stay.

2. *Severity of MI.*
An assessment of the severity of MI used the Coronary Prognostic Index developed by Norris et al [64]. The index, which is well validated and widely used, is constructed from weightings given to six factors associated with high mortality post infarct:

a) Age   b) Systolic blood pressure on admission.   c) Heart size.

d) ECG assessment of site and extent of MI.   e) History of previous ischaemia.

f) Degree of lung congestion as assessed by chest x-ray.

3. *Distress.*
Distress was measured using the Hospital Anxiety and Depression (HAD) scale [Zigmond & Snaith 1983]. A well-validated assessment of anxiety and depression designed for use with patients with physical illness. It is brief and somatic items likely to be derived from physical illness are as far as possible excluded. It provides separate measures of anxiety and depression in two subscales, each of which contain seven items with a four-point response scale. The authors described the score ranges on the HAD scale as "normal" (0 to 7), "borderline" (8 to 10), "morbid" (11 to 21).

4. *Knowledge *.*
The knowledge questionnaire was constructed for the current study to elicit beliefs and misconceptions about a heart attack and resumption of normal activity. It was validated by an independent expert panel. On recruitment (administered as a pre-intervention test) it consists of 19 items to which the response was ;- True, False or Don't Know. Three separate scores were computed; a correct score, a misconception score and an uncertain score. The internal

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[3] Measures donated by a * are the ones that have been modified or developed for this study.

consistency of the scores were reasonable, the chronbach alphas were 0.71, 0.69 and 0.76 respectively. Three additional items examine perceived causal factors and one item asks anticipated healing times after MI. On subsequent administration of the questionnaire, 2 additional questions pertain to knowledge of prescribed medication and action to be taken in case of future symptoms. These items will be subject to validity checks during the analysis phase.

5. *Risk-factor Modification.**

An assessment of behavioural change in terms of previous behaviour and clinician's recommendation has been measured by using an adaptation of the measure used by the Scottish Heart Health Study [65]. Six additional items were included to investigate attitudes to smoking cessation; these items were used by Social & Community Planning Research [66]. Body mass index, total cholesterol, blood pressure and carbon monoxide levels have been monitored and diabetic control is being monitored if applicable.

6. *Perceived Control over Recovery.*

Is being assessed using the Recovery Locus of Control (RLOC) scale [67] which has been shown to be internally consistent and to have a predictive validity for patients receiving rehabilitation in other settings.

7. *Powerful Others.** (PO)

Belief in control by health professionals and 'powerful others', has been found to be important in other locus of control measures, such as the Health Locus of Control [68]. Studies being carried out by our research group at St Andrews University have designed, validated and checked the internal consistency of 3 items investigating this aspect of control. Inclusion of these items will also allow for comparisons to be made with patients suffering from other illnesses

7 *Health Value.** (HV)

Research has shown that the value placed upon health is pertinent to examinations of health locus of control and recovery. Four items designed by Lau, Hartman and Ware [69] have therefore been included. This will also allow comparisons to be made with other studies within our research group.

8. *Disability and resumption of normal activity.*

The Functional Limitations Profile (FLP) [70] is being used to measure a wide range of activities as it addresses limitations and handicaps as well as disability. It is the British version of the

Sickness Impact Profile. It is important to this study to use a sensitive measure of the impact of MI on a wide range of functions.

9. *Medication adherence.*
Is being assessed by comparing patient reports with clinician recommendation.

10. *Morbidity.*
Subsequent re-infarction or cardiac re-admissions are being noted from hospital records at the 1 year follow-up period.

11. *Use of health services.*
Investigations, surgical procedures, hospitalisations and GP contact are being noted at the 1 year follow-up, from hospital records and GP enquiry.

12. *Confidence/ Recovery.*
Two items included by Lewin et al [71] in the evaluation of a self-help heart manual measured the confidence people held in their future recovery and the perception of how their recovery was progressing. The items have been included to allow comparisons between the two studies.

13. *Information received and satisfaction with advice.**
Open ended questions have been developed to investigate whether the content and timing of information was suitable for subjects and whether their perceived needs were met. Satisfaction with advice was rated.

14. *Partner assessment.*
Partners are assessed as above, although the measures of disability and medication adherence are used to validate patient reports. Risk factor modification is measured both for the partner themself and also to verify patient assessment.

3.5. *Analysis*

At this stage no data relevant to the evaluation of the different interventions can be reported. Analysis between groups has not yet been performed as this would entail breaking the blind nature of the study design. However the study allows for examination of important questions about the immediate of MI, and these data can be reported whilst remaining blind. These

analyses point to the emotional states, knowledge and misconceptions in patients and partners that may subsequently be found important in understanding the impact of CR programmes. The results of this early, cross-sectional analyses are the subject on the following chapter.

CHAPTER 4.

IMMEDIATE IMPACT OF MI: EMOTIONAL STATE, BELIEFS AND MISCONCEPTIONS.

4.1. *Introduction*

Previous research suggested that both patients and partners would have high levels of distress [72], and that women would have higher levels of anxiety [73]. The psychological symptoms most commonly reported in the post infarct period were anxiety and depression. The patient and partner may undergo a period of intense anxiety at the outset, at which time the emotional climate and problems with how people perceive their situation may influence their learning ability.

Knowledge has frequently been measured in order to evaluate the impact of patient teaching. Indeed some CR patient educational studies appear to measure knowledge as an outcome in its own right [74.75.76]. However a change of behaviour does not automatically result from increased knowledge of risk factors and knowledge should therefore be seen rather as a process, mediating a change in life-style.

Even patients who are quite knowledgeable in some areas, may have misconceptions that not only influence their post MI behaviour, but may be a source of confusion and distress. It is against this background that Phase I, CR programmes have to work.

Analysis of baseline data was performed to look at the early levels of distress among patients and partners, to elicit their beliefs and misconceptions about a heart attack and to investigate any association between cognitions and distress.

The specific research questions were:

I. What is the pre-existing level of information?
II What misconceptions are commonly held to be true?
III. What is the level and nature of distress?
IV Are misconceptions related to distress.

4.2. *Method*

4.2.1. *Subjects*

The subjects were the 116 patients and partners recruited as described in the previous chapter. Three of the partners were unavailable for baseline interview, accordingly the following analyses were performed on 116 patients and 81 partners.

4.2.2. *Procedure.*

Patients were interviewed within 72 hrs of admission following a first MI (mean 40 hrs. range 6-70 hrs). Partners were recruited as soon as possible after the patient granted informed consent . The procedure was as previously described

4.3 *Results*

4.3.1. *Emotional state*

As detailed in the measures section (Page 26) subjects were screened using the **Hospital Anxiety and Depression (HAD) scale** to assess the levels of anxiety and depression that are the psychological symptoms most commonly encountered in the post infarct period. Previous research has generally reported high levels of distress in both patients and their partners; most of the work relating to male patients and their wives.

Anxiety

The mean HAD score for patients' anxiety was 5.17 and the mean score for partners was 11.96 [Fig 1]. A t-test revealed a significant difference (t = 12.29, df = 80, p <0.001) between patients and partners. The results for patients showed they were well below the cut off point for disorder (score of 11) with only 13% of the patients being above this level, in contrast to 59% of the partners.

Depression

The mean score for patients was 4.4 and the mean score for partner's depression was 7.12 [Fig 2]. A t-test again showed significant difference between patients and partners (t = 6.23, df= 80, p<0.001) The frequency distribution revealed that only 7 patients (6%) could be described as 'clinically depressed' whereas 16 partners (16%) were above this level.

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Fig.1. FREQUENCY OF ANXIETY FOR PATIENTS AND PARTNERS.

ANXIETY
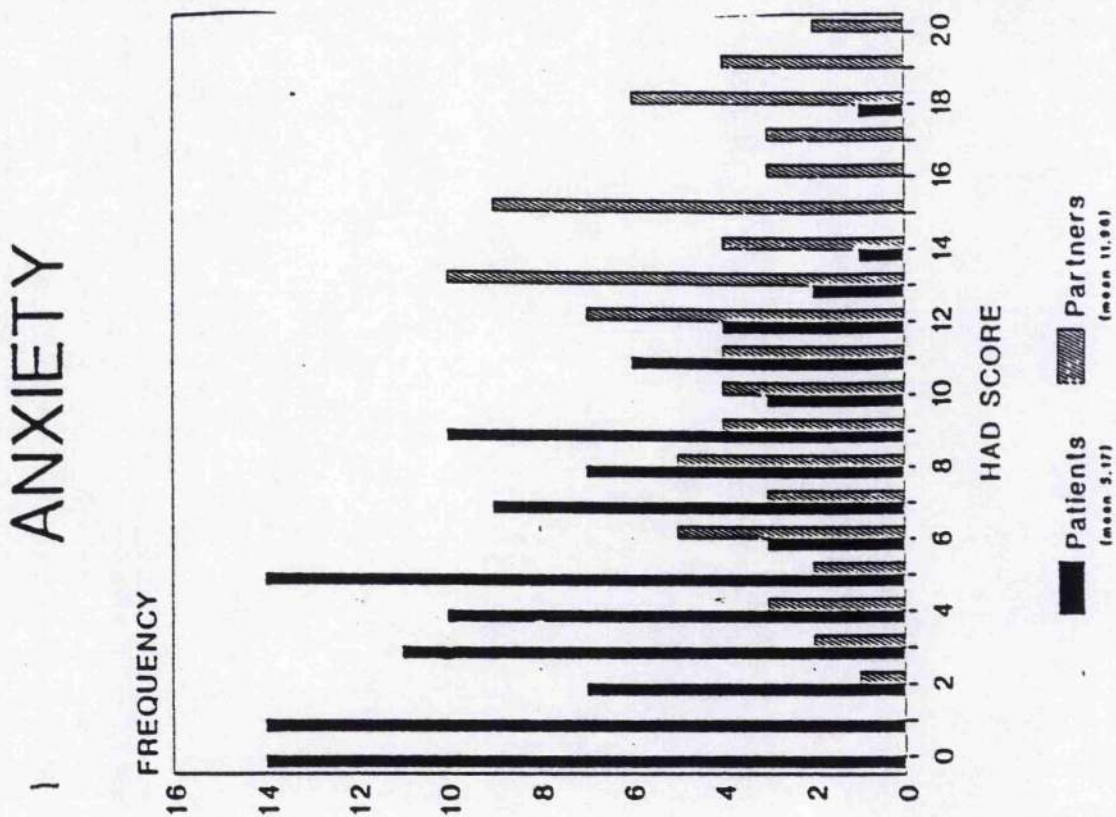
t = 12.29, df 80, p<0.001

Fig 2.FREQUENCY OF DEPRESSION FOR PATIENTS AND PARTNERS
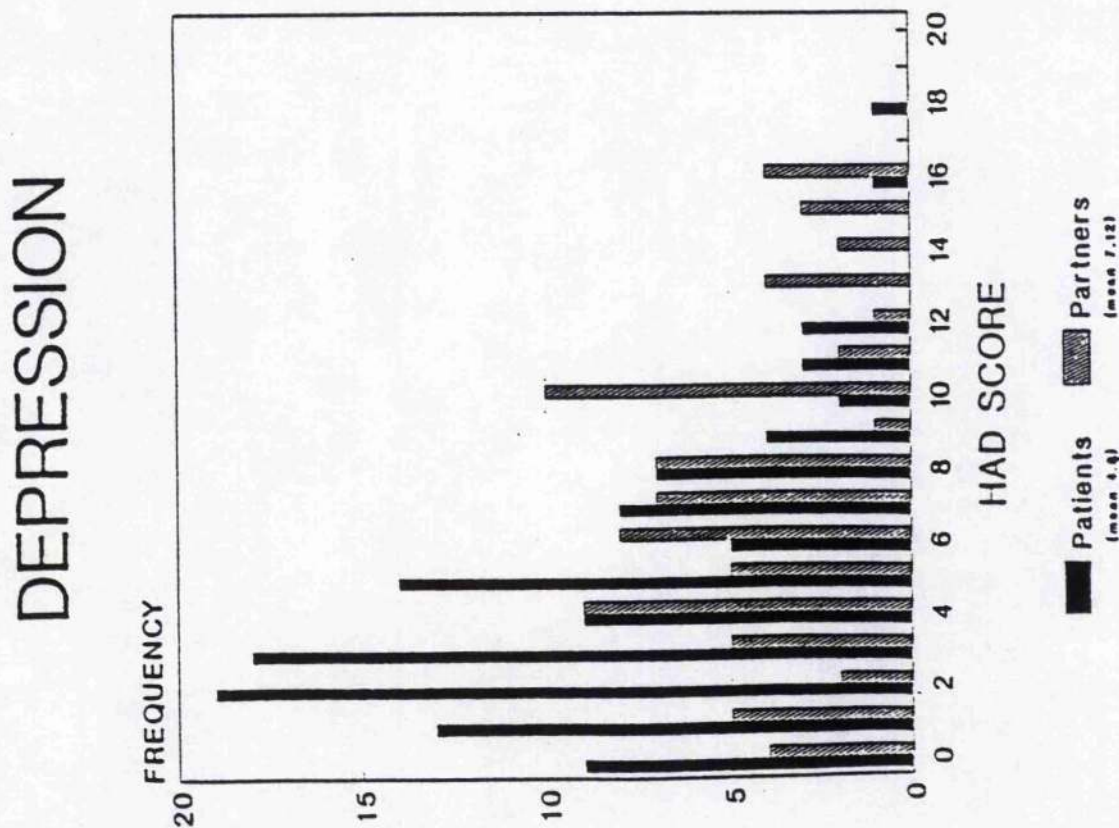
DEPRESSION

t.= 6.23, df 80,p<0.001

Effect of Gender

It was possible that partners were more distressed as a group because they were predominantly female (male =22, female = 59). Results however revealed no significant sex difference for either anxiety or depression. Male partners were equally as distressed as female partners. There was however a significant difference between male and female patients with women reporting more anxiety. ($t = 2.5$, df = 115, $p < 0.05$)

Correlation between couples.

Having established a significant difference between patients' and partners' distress it was plausible to ask if couples shared their distress. Did distress in one predict distress in the other? Results showed a significant correlation ($r = 0.23$, $p = < 0.05$) for their anxiety score but not on their depression ($r=0.19$, ns).

4.3.2. *Cognitions*

The **knowledge** questionnaire was constructed (see measures section. Page 26.) to elicit beliefs and misconceptions about a heart attack and advised resumption of normal activity.

No significant difference was found between patients and partners on either their total levels of knowledge or misconceptions, however partners were significantly more uncertain than were patients ($p = < 0.001$).

Association between cognitions and distress

Whilst several separate knowledge items showed some association with anxiety or depression, no association was found between total levels of knowledge, misconceptions or uncertainty and distress.

Misconceptions

Several of the misconceptions which people held may well have implications for future recovery. Eleven percent thought that the pain in a heart attack was known as heart burn, this incorrect belief may well result in either not reporting symptoms or in trying inappropriate analgesia. Sixty-seven percent thought that the pain always results in more actual damage to the heart; future anginal episodes may well cause distress for these people. Eleven percent believed that it was important to avoid laughing too hard after a heart attack!

Other misconceptions that may impede resumption of normal activity included the belief that a heart attack means the heart was worn out (47%), that after a heart attack most people never return to their previous level of activity (29%) and that sex life had to be modified forever after a heart attack (16%)..

Some misconceptions could result in an ill-advised recovery plan; 10% thought that they should return to normal activity immediately on discharge, 9% were uncertain about this. Three percent thought it was alright to drive during the first week at home and 8% were unsure. Nine percent either disbelieved or were unsure that the chances of another heart attack were less if they made necessary changes to their lifestyle.

4.4. *Discussion*

The results from this early analysis have shown that partners, both male and female, have significantly higher distress than patients. The previous work within this area has predominantly studied male patients and their wives, so the findings that male partners are equally affected are of clinical importance. Partners often receive less attention from health care professionals, yet they play an important role in the patient's readjustment and recovery and in moderating the impact of the illness upon the family.

Patients generally showed lower levels of distress than might have been expected from several previous studies. The evaluation of findings in this area are confounded by methodological problems such as variations in methods of assessment and the different timings of assessments. It has been suggested that for a subgroup of patients, prolonged emotional distress may have a delayed onset and that reactions should be monitored over the convalescent period to evaluate any evolving pattern. This is being carried out in the ongoing study.

Although, as in several previous studies, women patients were found to have higher levels of anxiety compared with male patients, the group mean could not be considered clinically significant (mean = 6.42). Low levels of distress have also been found by several other authors such as Sykes [79] who also argues that to focus on the means of the group may be inappropriate as there are individuals within this whose levels are high.

Most studies have investigated men. When studies have included both men and women in the population, the ratio commonly yields an unbalanced sample affecting the reliability of the

analysis. Gender is rarely taken into account in the analysis, potentially obscuring differences in the distribution of important variable.

People in the present sample held a varying range of beliefs and misconceptions that may have implications for their future recovery. It is important to assess and address these cognitions in order that successful rehabilitation can be implemented.

4.5. *Future plans*.

Data collection will continue until February 1994, when the final, one year follow-up interview will be completed.

Further work will be carried out on the measures used in the study, comparing their performance with other populations. Further work will be performed to validate the knowledge questionnaire. Factor analysis will investigate whether items measure the same construct.
Item analysis of the knowledge questionnaire will be carried out to investigate which areas are learned preferentially. There is some evidence to suggest that for example self-care information is assimilated more readily than other types of information such as anatomy and physiology [74.80.81].

A comprehensive plan of analyses will be formulated to investigate the following;
1. Demographic characteristics e.g. sex, social class, patient/partner, marital status, race etc.
2. Between group analysis. (minimal group, extended group, control).
Between group analyses will be performed when the study is unblinded.

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APPENDIX 1.   <u>PATIENT INFORMATION SHEET</u>

You have recently suffered a heart attack, and you may have several questions about how this may affect you. The nursing staff are involved in a study which is designed to compare different methods of giving information and advice.

Before deciding to participate in the study you should read, or have read to you, this information sheet and consider it carefully. Any questions that you may have will be answered by the research staff.

Purpose of the study

The purpose of the study is to evaluate the effects of information and counselling, provided for patients following a heart attack. If you agree to participate you will be allocated at random into <u>one</u> of two groups:

1. The first group will receive standard recovery advice as currently practised.

2. The second group will also receive a "self -help" book with instructions to guide you through a programme of recovery.

If you agree to participate, you will receive a follow up interview/questionnaire at a 6 week, 6 month and 1 year period. We will also monitor your weight and cholesterol - which will require a "finger-prick" sample of blood.

Consent and Withdrawal.

You are free to refuse to take part, or to withdraw from, the study at any time without having to give a reason, and without this affecting your future medical care.

Confidentiality

Only the research staff will have access to your confidential patient records. You will not be identified personally in any reports or publication resulting from the study

Appendix 2 Contents of Cardiac Rehabilitation Research Programme Manual.

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Appendix 3 .INTERVIEW SCHEDULE

	T1	T2	T3	T4	T5
Distress (HAD)	+	+	+	+	+
Disability (FLP)			+	+	+
Risk Profile	+		+2	+2	+2
BP/weight/CO monoxide		+	+	+	+
Cholesterol	+			+	+
Perceived Control (RLOC/PO/HV)		+	+		+
Knowledge	+	+2	+2		
Medication		+	+	+	+
Confidence/Recovery		+	+	+	+
Information/Satisfaction		+	+	+	+
Health Care Contact					
1. Self report			+	+	+
2. GP					+
Morbidity					+
Mortality					+

T1 = On Recruitment
T2 = within 2 weeks discharge
T3 = 2 month since admission
T4 = 6 month since admission
T5 = 1 year since admission
2 - Measures include additional items not incorporated at recruitment interview.

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SECTION II

RESEARCH MANUAL

Cardiac Rehabilitation Research Programme Manual

Contents of Cardiac Rehabilitation Research Programme Manual.

CARDIAC REHABILITATION RESEARCH PROGRAMME MANUAL

PREFACE

This manual is designed to describe the educational and counselling programme used during the Cardiac Rehabilitation Research project. It provides a guide to each teaching session based on individually applicable topics. A reference of various teaching materials is also provided. The philosophy, purpose, and goals of the programme are clearly identified as well as behavioural objectives for each topic. The role of the nurse as both educator and counsellor is explained as well as the application of the nursing process.

The patients and partners involved in the Cardiac Rehabilitation Programme have been randomly assigned to one of three groups. The first group, known as the minimum group will receive education and counselling provided by the Cardiac Rehabilitation Nurse on an in-patient basis only. The second group, known as the extended group will participate in the programme not only as in-patients but on an outpatient basis for 6 weeks post discharge. Lastly, those participants randomized to the control group will receive the standard rehabilitation information and advice as is currently practiced. Patients and partners in the control group will not receive any information or counselling from the Cardiac Rehabilitation Nurse. The partners involved in the programme have been identified as both a source of support for the patient and as clients in their own right and will be assessed accordingly.

The manual will be used as a guide to standardize the information given to both treatment groups. Although a standard core of information will be provided, the timing and content will be individualized based on the needs of each patient. The topics identified as applicable will be discussed, however the depth and detail of subject matter may be effected by available time based on patient randomization. The approach of the nurse as counsellor providing emotional support will remain constant regardless of group placement.

CARDIAC REHABILITATION PROGRAMME

PHILOSOPHY

The Cardiac Rehabilitation Programme is based on the belief that clients are holistic complex individuals with intrinsic worth and basic physiological, psychological, sociological, and spiritual need. They have the ability to create that which is beneficial for themselves (and society) and cope with the dynamic processes of life. Each client has ethical and moral rights as well as the right to develop to their maximum potential to realize their individual goals.

Health is a state of physical, psychological, social, and spiritual balance that exists within a continuum from peak wellness to states of extreme illness.

Nursing is a creative and caring process in which the nurse actively assists the client to achieve and maintain his optimal state of health. The Programme's concept of nursing parallels Orem's self-care model of nursing. Orem views the primary concern of nursing as the client's need for self-care action in order to "sustain life and health, recover from disease or injury, and cope with their effects" (Orem, 1980, p.6). Self-care is defined as those activities a client performs for himself that contribute to his health (Leddy, 1989,p.182). Using the Orem model, assessment is made of each patient's self-care deficits in the areas of knowledge, skills, motivation, and orientation. One of Orem's identifed methods of "assisting" primarily used in this programme is teaching.

PURPOSE

The Cardiac Rehabilitation Programme is a comprehensive educational/counselling programme involving patients who have experienced a myocardial infarction for the first time and their partners. Its purpose is three-fold:

1. To provide accurate information regarding the patient's illness, hospitalization and post-discharge recovery.
2. To offer emotional support to the patient and partner during the acute and rehabilitative phase of illness (up to 6 weeks post discharge).
3. To assist the patient in the planning and implementation of realistic goals related to their future health behaviours.

GOALS

The goals of the Cardiac Rehabilitation Programme are as follows:

1. Provide a programme that will increase the patient and partner's awareness and understanding of cardiovascular disease, their hospitalization, and post discharge recovery.
2. Provide a programme that will assist the patient in identifying his/her individual risk factors and necessary lifestyle modifications.
3. To facilitate a safe return to each individual's optimal activity level.
4. To provide a source of emotional support for both patient and partner through the various emotional stages of the patient's illness.
5. To coordinate various health care professionals through resource referrals as needed. (i.e. Medical Social Worker, GP, Physiotherapy).

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IMPLEMENTATION

Role of the Nurse

Cardiac rehabilitation has been defined as the process
of actively assisting the client to achieve and maintain his
optimal state of health (Comoss, 1979). It is important to
understand that rehabilitation is accomplished by the
patient, not administered by the nurse. However, the
patient and nurse can collaborate to identify problems and
plan solutions to reach mutual goals.

The primary nursing goal in the cardiac rehabilitation
programme is to increase client behaviours that promote
health and decrease those behaviours that are detrimental to
his/her health by affecting client attitudes and knowledge
through teaching and counselling. The Cardiac Rehab. Nurse
fulfills a dual role to actively assist these patients; that
of nurse educator and nurse counsellor.

Nurse-Educator

Effective teaching is an essential part of nursing
practice and regardless of the setting the principles of
teaching and learning apply. The folowing are several
principles that directly relate to the Cardiac Rehab.
setting.

Principle 1. Good Nurse-Learner Rapport is Important in
             Teaching.
The ability to establish a comfortable relationship
with another person is important in any kind of cooperative
effort and particularly in the rehab. setting because
cooperation enhances the teaching-learning process. By
establishing a positive, constructive relationship with the
patient, the nurse will have taken the first step toward
creating a climate that will encourage the patient's
cooperation.

From the very first meeting the cardiac rehab.nurse has
the opportunity to establish a trusting nurse/patient
relationship, which is the basis for good rapport. It is
important to convey not only a caring attitude, but honesty
and professionalism. The patient will take the teaching
more seriously if he feels that the rehab. nurse has an
honest concern for his recovery and also credibility as a
professional. Another aspect of establishing a trusting
nurse/patient relationship is that of respect for the
patient as an individual and use of a nonjudgemental
approach. Each patient in the rehab. programme is a unique
human being with individual physical and emotional needs and
varying social circumstances. It is important that each
patient is treated with respect and dignity and that
confidentiality is maintained. The use of a nonjudgemental

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approach is particulary applicable when discussing personal risk factor reduction. The role of the rehab. nurse in this situation is to assist the patient in planning and implementing lifestyle modification, not to judge his or her past behaviour.

Establishing a trusting nurse/patient relationship makes it possible to get to know the patient as a person so that an assessment of specific elements can be made. Accurate assessment of the patient's knowledge and understanding of his disease, perception of his illness, past experiences, health concepts and beliefs, emotional readiness for learning and motivation will provide the basis for planning future teaching sessions.

Although the nurse/patient relationship in the rehab. setting has a beginning and a termination point, it is dynamic within those boundaries. Rapport and trust should continually be re-established and enhanced with each meeting of nurse and patient. The importance of accurate and timely follow-up of any questions the patient may have cannot be over emphasized. Questions should be addressed in a clear, concise manner in terms the patient can understand. If good rapport has been established the nurse will be able to assess the patient's level of understanding and use appropriate explanations when answering. It is not imperative that the rehab. nurse know every answer to every question, however an honest answer to every question should be provided. If a topic that she cannot accurately address is brought up by the patient, the nurse should answer as honestly as possible, then provide a resource referral or research the question herself to provide an answer at the next session.

Good rapport will not in itself guarantee successful teaching as many other factors can influence learning. However, it is a condition that facilitates teaching and is a factor that the cardiac rehab. nurse can to a large extent control.

Principle 2. Perception is Necessary for Learning.

Perception is the process by which an individual becomes aware of the physical environment. It involves a mental grasp of objects and qualities by means of the senses. Without this awareness or mental grasp learning is not possible.

Problems in perception occur because of individual differences among observers and actual errors in the way one perceives. It is important that the cardiac rehab. nurse can identify potential perceptual error and its causes in her patients. Obviously, such errors will occur if the sensory apparatus is not functioning adequately. This inadequate functioning may be a result of the drugs used to treat the patient during the acute phase of hospitalization; particularly analgesics. There may be temporary perceptual difficulties of varying degrees in patients recovering from unconsciousness, as in the patient who has suffered a

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cardiac arrest. Another source of perceptual error is deterioration in the patient's overall physical condition. It is very common for the MI patient to experience extreme exhaustion and difficulty in concentration during the early phases of recovery.

Perceptual errors can also occur in those patients whose sensory apparatus is functioning normally. Anxiety and fear may be the cause of many errors in perception. An individual in the grip of an intense emotion like fear or in a general state of anxiety may perceive sensory stimuli incorrectly or may not be capable of perceiving them at all. When the patient is first admitted to the hospital he is likely to be anxious simply because of the illness that caused his hospitalization. He may also be experiencing intense fear; fear of death, fear of pain, fear of incapacitation, fear of future financial loss, etc. Adding to his stress is the exposure to many strange and potentially frightening stimuli that constitute the "normal" hospital environment. The routine of the Coronary Care Unit with its cardiac monitors, intravenous drips, and invasive monitoring equipment can provide both the patient and partner with an environment made up of completely unfamiliar sights, sounds, and smells.

Accurate assessment of each patient's perceptual ability is important in the planning and timing of rehab. sessions. If the cardiac rehab. nurse assesses that the patient is experiencing temporary perceptual difficulties she may alter, shorten or postpone the rehab. sessions. It may be necesary to simply give the patient time to get his emotions under control and to experience and become accustom to his new environment. It is also possible that perceptual errors occur as a result of misconceptions held by the patient. Assessment and clarification of any misconceptions should be ongoing throughout the rehab. process. The rehab. nurse must take the initiative in offering as much explanation as the patient may need as often as needed to correct any errors in perception.

Principle 3.   An Individual Must be Motivated in Order to Learn.

Motivation is a force or drive which makes an individual take action. It can be aroused by a physical need, an emotion, or an idea. It may be a fleeting impulse or a prolonged, sustained force. For an individual to be moved in the direction of learning, the motivation must persist throughout the learning process. However, motivation takes place within the individual and cannot be superimposed by someone else. It is important for the cardiac rehab. nurse to understand that she can treat the patient in ways that will enourage the desire to learn and present the material in ways that will make learning easier, but that it is the patient who must develop the motivation.

Another aspect that must be understood is that the patient's motivation will automatically be directed toward

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the most pressing need at the moment. If the patient's
physical needs are dominant, as may be the case during the
acute phase of recovery after an MI, the patient will be
motivated toward relieving these stresses. At this time,
certain topics of discussion will be more appropriate than
others. For example, the patient may need to know what
physical symptoms to report to the nursing staff, how to use
the GTN spray to relieve pain, and how to gradually increase
his activity level and pace his energy. It may not be
appropriate to discuss a low-fat healthy eating diet when
the patient's most pressing need is relief of sporadic chest
pain and safe increase in mobilization. On the other hand,
if emotional needs are dominant, the patient will try to get
relief from these pressures. In this situation it may be
appropriate for the nurse to take a counselling approach
rather than an educational approach. It is also important
for the rehab. nurse to understand that even when the
patient wants to learn, his energies may suddenly be
directed into different channels when other needs become
dominant. This requires flexibility on the part of the
nurse to be able to direct the rehab. session toward the
needs of the patient at that time, regardless of her
teaching plan.

Because they have experienced illness (an MI) and want
to get well and stay well, a large percentage of patients in
the cardiac rehab. program, by definition, are already
motivated to learn. However, sustaining this motivation
over time as the memory of the initial experience fades
presents a challenge to the cardiac rehab. nurse. Making
consistent efforts to encourage motivation in learning is
particularly important when teaching patients. The rehab.
nurse must get to know each patient and assess the reason
for their decrease in motivation or lack of interest. The
cause is often the pressures of their illness or their
emotional state, in which case the teaching may have to be
delayed or altered until the illness or emotional stress has
been alleviated. Another problem may be that the patient
sees no reason for learning what the nurse wants to teach.
In this situation the rehab. nurse may have to help the
patient see the need by appealing to his desire to get well
and stay well to avoid a future complication or
reinfarction. It may also be helpful if the rehab. nurse
includes the reasoning behind the various treatments and
advice given the patient. If the patient understands the
full benefit of adhering to a prescribed treatment or
programme, he may be more inclined to do so. Sometimes
patients may lack motivation because they feel there is no
point in trying to learn because no one cares or will
notice. In this situation support from the patient's
partner and family can prove to be very instrumental in his
rehab. Positive reinforcement and consistent encouragement
should be on-going through out the patient's recovery. The
topic of motivation will also be addressed when discussing
the role of nurse-counsellor.

Principle 4. <u>Emotional Climate Affects Learning.</u>

The influence of emotions on sensory perception and motivation has already been discussed. An intense negative emotion such as fear can affect rational behaviour. Similarly, strong emotions can influence learning behaviour.

Strong emotional overtones are likely to be present in the situation of the cardiac patient. Consider the possibilities from the point of view of the MI patient in the hospital: the fact of the myocardial infarction itself with its pain, discomfort, and temporary debilitating effects; the strangeness of the hospital setting; the removal from family, familiar surroundings and normal habits of life; the worry of unemployment for the primary wage earner or concern about the children's welfare for the parent; the loss of control of one's environment in the most basic functions such as sleeping and eating; the fear of death or disability and the multitude of other worries or fears individual to each patient's circumstance. At the same time the patient's partner and family are also suffering many of these fears and must make readjustments caused by the patient's absence from the functioning family unit.

It is very important that the cardiac rehab. nurse makes an accurate assessment of the emotional climate which includes both the response of the patient and partner or family to his illness. The nurse may be able to assist the cardiac patient and the family to handle their emotions by providing a time and place to ventilate their feelings. By encouraging them to talk about their emotions to a receptive listener; the rehab. nurse may assist in the relieving of tension and clarifying of problems. This situation requires the nurse to assume the role of counsellor rather than educator. It is imperative that the nurse does not deny the patient the opportunity to express his fears and concerns. The offering of mundane platitudes such as "It'll be alright" or "You don't have anything to worry about" and the denying of the reality of the patient's fears is belittling and may cause him to conceal his feelings in the future. If this is the case, resolution of his problems may not occur.

In the cardiac rehab. setting, if the emotional climate is neutral, which is not the norm, or if it is just negative or positive enough to produce motivation; effective learning will be possible. If on the other hand, the emotional climate is extreme, little if any effective learning can take place. This is a significant consideration in the planning of timing and content of rehab. sessions.

Principle 5. <u>Reinforcement Influences Learning.</u>

To reinforce learning simply means to strengthen it. The usual methods of psychological reinforcement are based on reward and punishment which can be applied through the verbal means of praise and blame.

Praise and blame used judiciously are often effective in reinforcing learning, however overuse of either weakens its

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effectiveness. The approach of the cardiac rehab. program
is one of positive reinforcement rather than negative
reinforcement (blame). The offering of praise at
appropriate times can encourage the patient throughout the
learning process. The nurse educator must be sure the
praise is deserved and that it is serving to reinforce
correct learning. This is particularly applicable as the
patient attempts to implement lifestyle changes, but has yet
to see tangible results.

Awareness of one's progress in learning is called
"feedback"; appropriately named because such awareness is
based on information that is "fed-back" to the learner. It
is the responsibility of the rehab. nurse to provide
feedback, particularly at the start of a new learning
experience when there may be some confusion. The purpose of
feedback in patient teaching is to encourage the patient to
continue when "on-course" and to correct errors as soon as
possible.

Satisfaction also reinforces learning and is closely
related to the concept of motivation. Most people tend to
want to do again the things that they enjoy doing.
Sometimes a sense of satisfaction from learning comes
entirely from within the patient because of a feeling of
accomplishment, because his curiosity about something has
been satisfied, because he sees how the learning benefits
him, or because the learning experience was a pleasant one.
All these factors must be considered throughout the rehab.
process. For example, the patient may feel a sense of
accomplishment when his adherence to a low-fat diet has
resulted in weight loss or a decrease in his cholesterol
level. He may adhere to a progressive walking program
simply because he enjoys walking and can see its benefits.
Sometimes external factors serve to provide rewards, such as
approval and encouragement from people whose opinions the
patient values. Once again, the support of the patient's
partner and family can provide reinforcement and
encouragement throughout the rehab. process. Whatever the
source, satisfaction reinforces learning in the present
situation and can encourage and motivate the patient to want
to learn more.

On the other hand, dissatisfaction can also affect
learning. Moderate amounts of dissatisfaction can stimulate
learning. For example, if a patient does poorly in his
exercise tolerance test, not because of acutual physical
limitations, but because he is not involved in an exercise
programme and is not taking his medication properly; his
poor performance may serve to motivate him to put forth more
effort to adhere to his treatment. However, if failure is
too great or too consistent, the result may be
discouragement of any further attempts to try to succeed in
an area where so much failure has been experienced. The
cardiac rehab. nurse must keep this in mind, particularly
when assisting the patient in planning lifestyle changes.
The nurse should assist the patient in setting realistic and

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attainable goals thus providing a situation in which the
patient can succeed and gain a sense of satisfaction. This
sense of satisfaction may serve as encouragement for the
patient to not only continue to learn, but move on to more
difficult challenges.

The cardiac rehab. nurse has a responsibility to provide
reinforcement and feedback. Until the rehab. patient has
progressed far enough to get satisfaction from the learning
in and of itself; she must provide words of encouragement,
feedback, constructive suggestions and praise that is truly
deserved.

Although discussion of the most significant principles
of teaching and learning has been provided; there remains a
number of principles that may pertain to cardiac
rehabilitaion. The following is a list of those principles:
Conditioning is a process of learning.
Learning may occur through imitation.
Problem solving is a method of learning.
The development of concepts is part of the learning
process.
Physical and mental readiness are necessary for
learning.
Effective learning requires active participation.
New learning must be based on previous knowledge and
experience.
Repetition strengthens learning (Pohl, 1981)

Role of the nurse-counsellor

The role of the nurse counsellor often overlaps that of the nurse educator and the cardiac rehab. nurse must be prepared to switch roles at will. As one of the goals of the programme is to provide a source of emotional support for both patient and partner, it is equally important for the rehab. nurse to be aware of emotional needs as well as learning needs. This is done through accurate assessment not only at the onset of rehab., but continually as the patient and partner progress through the programme.

It is important for the rehab. nurse to assess the patient and partner's psychological response to the patient's illness. There are several common responses that can be recognized. Denial is one of the most common defense reactions to stress. It is defined as the "conscious or unconscious repudiation of part or all of the total available meaning of an event in order to allay fear, anxiety, or other unpleasant effects" (Sanne, 1988). It is simply the negation of personal danger and can be manifested in the most obvious form of the patient simply stating, "This can't be happening to me." Sometimes it is detected in more subtle nuances. The patient may adopt an attitude of "nothing's happened' and act inappropriately cheerful, making jokes and avoiding the subject of his MI. Denial is usually seen in the acute stages of illness and the early phase of recovery, but can linger in lesser degrees in the rehab. phase. The patient may be experiencing intense emotions like fear and anxiety. He may have a fear of dieing, fear of pain or disability, fear of financial loss, or simply a fear of the unknown as he feels his future is threatened. The cardiac patient may be experiencing a great deal of anxiety related not only to fear but to the unfamiliar setting of the hospital itself. This anxiety usually presents itself early in the acute phase and diminishes as the patient begins to recover. It may be replaced by depression as the reality of the situation begins to "sink in". Depression may be detected by the patient simply stating he feels depressed or in more subtle behaviors. He may experience loss of appetite, insomnia, or diminished motor and cognitive behavior. The patient may simply feel "sad, down or weepy". It is important to remember that in most cases the patient is experiencing reactive depression which occurs as a response to a situational stressor, his MI. This type of depression usually responds well to counselling and environmental changes.

Application of the grief process may prove helpful in understanding the patient's response to his disease. Grieving is defined as "the state in which an individual or family experiences an actual or perceived loss (person, object, function, status, relationship), or the state in which an individual or family responds to the realization of

a future loss (anticipatory grief). (Carpenito, 1989). The patient that has suffered an MI has experienced a temporary loss of function, status, and possibly relationship. His family may be experiencing anticipatory grieving, related to an actual or perceived loss. The grief process consists of the following stages: denial/shock, anger, bargaining, and acceptance. Denial and shock is usually seen first as was previously mentioned. Anger and bargaining do not occur in any particular order and the timing of each stage varies with individuals. Anger may manifest itself in the patient's response to the nursing staff. He may be abrupt and irritable or completely rude and uncooperative. It is important for the rehab. nurse to communicate with the nursing staff to be made aware of the patient's response when she is not there. Bargaining is the stage in which the patient "barters" for restoration of his loss with a "greater power". It is a thought process based on the theme: "If I _____ , then will You _____ ?. Many conditions can be used to fill in the blanks. If I am good, then will You let me live? If I stop smoking, then will you keep me from having another heart attack? To a certain degree, causal attribution becomes a factor in the bargaining stage. If the patient sincerely believes his heart attack is a punishment for his past behavior he may have a prolonged bargaining stage. The final stage of the grief process is acceptance. In the acceptance stage the patient not only accepts the diagnosis and treatment of his MI, but begins to come to terms emotionally with the meaning it has for him. It is at this time that constructive problem solving is initiated and the illness becomes integrated into the balance of the patient's life.

Accurate assessment of the patient and partner's emotional responses is necessary if the rehab. nurse is to conduct sessions that will meet their needs. Recognizing the need for both education and counselling will bring a balance to the patient's rehabilitation in both the minimum and extended groups.

When conducting a counselling session some basic principles of communication can be applied. As mentioned earlier, establishing a trusting nurse/patient relationship is the base upon which future sessions are built. The rehab. nurse should create a climate in which the patient feels comfortable to communicate. There are several techniques, both verbal and nonverbal which can assist in effective communication. Asking open-ended questions which require more than a yes/no or one word answer may encourage the patient to feel he is participating in a discussion or conversation rather than an inquisition. Restating may provide the encouragement the patient needs to continue communicating his feelings. (eg: You felt scared when your chest pain didn't go away.) Clarifying can not only affirm to the patient that the nurse understands what he's communicated, but encourages further ventilation. (eg.: Are you saying that you feel angry with yourself?) At times

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silence is appropriate as the patient may need time to
gather his thoughts or express his emotions. The
rehab.nurse may also use the approach of active listening to
encourage communication. An attentive look and appropriate
body language can communicate interest and caring to the
patient. An occasional nod and affirmation of understanding
can also provide encouragement. Empathetic sharing
communicates acknowledgement of how the patient or partner
feels whether its grief, anxiety, or worry. (eg.: It must be
very difficult.) Reassurance should be offered by the nurse
throughout the rehab. process as the patient may be
experiencing varying degrees of motivation, anxiety, and
depression.

    The cardidac rehab. nurse must also attempt to gain an
understanding of the patient's perception of his disease,
support systems and coping strategies. Each patient who
suffers an MI may respond differently to his illness,
however the common self-perception is one of being injured
and not whole. This perception includes a decreased
potential for earning and decreased effectiveness as a
spouse, parent or other role previously assumed. This
concept of "damaged self" may be reinforced by the
recommended restrictions related to diet, activity, etc...
It is important for the rehab. nurse to understand how the
patient perceives the effect of the heart attack and its
consequences on his life. For example, the patient who's
job involves heavy physical labour may see his entire
financial future threatened, as well as his ability to
provide for his family. If he views these roles as the
primary contributing factors to his identity, he may
perceive his heart atack to be a threat to the very basis of
his personality. If the cardiac rehab. nurse understands
each patient's perception of his or her illness, she will be
able to enhance the patient's coping ability by providing
accurate information to prevent any misconceptions and offer
support as the patient attempts to cope with this new
situation.

    The cardiac rehab. nurse should also understand and
assess each patient's coping strategies. Coping refers to
psychological and behavioural activities made to master,
tolerate, or minimize external or internal demands and
conflicts (Lazarus, 1984). There is no one way to cope with
all situations, however certain basic types of coping
behaviour have been identified. They can be categorized as
problem-focused; manipulation of the persons and
environmental factors inducing stress; and emotion-focused,
the management of stress-related emotions. Denial or
avoidance coping can be useful by minimizing distress in the
early phase of recovery, however can impede coping in later
phases of recovery. Avoidance coping can be illustrated by
the patient who delayed seeking medical assistance and
continued working despite increasing chest pain. Often this
patient will state later that he wanted to believe he was
experiencing anything but a heart attack. If denial or

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avoidance extends into the rehabilitative phase it may
prevent the patient from seeking necessary medical attention
once home or from following any of the recommended
treatments. Another coping response that can be identified
is the seeking of social support for either instrumental
reasons such as advice, assistance or information or for
emotional reasons such as moral support, sympathy, or
understanding. In either case, the patient who uses this
coping response may be very receptive to the rehab. program
as it provides for all of these needs. The patient who
utilizes problem-focused coping may be involved in several
distinct activities: planning, taking direct action, seeking
assistance, and screeening out other activities. This
patient may want to take a very active part in the planning
of his rehab. He may take the initiative himself to plan
any lifestyle modifications once presented with accurate
information of its benefits. This style of coping is
similar to active coping in that it involves the taking of
active steps to try to circumvent or remove the stressor or
to ameliorate its effects (Carver, 1989). If the cardiac
rehab. nurse understands each patient's coping strategies,
she will be better equipped to individualize the approach of
each session and enhance the patient's productive coping
abilities.
    Another factor the cardiac rehab. nurse should consider
is the presence of patient social support systems. During a
stressful period, like hospitalizaiton, social support
systems will be relied on heavily. It is important to
identify each patient and partner's support systems and to
utilize them during the rehab. process. For most patients,
his or her partner along with other family members or
friends will provide a network of support. However it may
be easy to overlook the partner's need for support. The
rehab. nurse can assist the partner in identifying those
persons who constitute his or her support system. The
partner should be encouraged to ventilate her feelings not
only during specific rehab. sessions, but to a trusted
friend or family member. Not only can this relieve a degree
of emotional tension, but it can assist in clarifying
problems. The partner may be experiencing not only a myriad
of emotions already mentioned, but may carry additional
responsibilities created by the patient's absence. Having a
means of support outside the hospital setting will assist
the partner in providing the patient support within the
hospital and at home.
    Within the role of nurse-counsellor the cardiac rehab.
nurse also acts as a change-agent. This aspect of rehab.
nursing is particularly apparent when risk factor reduction
and lifeslyte modification are addressed. Change theory is
based on the premise that behavioural change is brought
about by three distinct but related conditions experienced
by an individual (Certo, 1989). The first condition,
unfreezing, is the state in which individuals become ready
to acquire or learn new behaviours. It is the state in which

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a person is ready to change usually because they have
experienced the ineffectiveness of their present behaviour
and are ready to attempt to learn a new behaviour. If an
individual associates positive attitudes with their past
behaviour, it may be difficult for them to "thaw-out". For
example, the patient who views the "good life" as consisting
of fast paced living, smoking the best cigars on the market,
and eating and drinking heavily may have difficulty "thawing
out" to prepare them to learn the new behaviours of healthy
eating, smoking cessation and relaxation techniques. The
second condition, changing, is the state in which
individuals, now unfrozen, begin experimenting with new
behaviours. It may involve identification, the process by
which the patient attempting new behaviours patterns himself
after someone who has already mastered the behaviour.
Another aspect of change involves internalization, the
process by which the patient attempts to use these new
behaviours as part of their normal behavioural pattern or
attempt to make the new behaviours useful over an extended
period of time. This process can be seen in the patient who
is attempting an exercise program of daily walking by
changing from useing his car, to walking to town to meet his
household needs. Refreezing is the third condition of
change theory and refers to the state in which an individual
sees the new behaviour that they experimented with during
"change" as now a part of themselves. They have developed
attitudes consistent with performing the new behaviour and
see it as part of their normal mode of operations. The
rewards the individual receives as a result of his new
behavior are particularly instrumental during refreezing.
Throughout the rehab. process the nurse can identify each
patient's stage of "change" and individualize her approach
accordingly.

     The element of patient choice and control should also be
considered by the rehab. nurse when attempting to act as a
change-agent. Although the nurse can present accurate
information in an interesting manner, establish good
rapport, and support and encourage the patient throughout
recovery; the choice to actually change his behaviour
through lifestyle modification remains solely the patient's.
This fact should be established early on in rehabilitation
to create a climate in which the patient can take
responsibility for his recovery. This new responsibility
involves the concept of self-efficacy; the belief the
patient has regarding mastery of the skills needed for
change (Maes, 1989). If the rehab. nurse can equip the
patient with the necessary skills for change, he will then
be prepared to make the choice to change and implement and
maintain the change himself. It is important to teach skills
that are relatively independent of others along with the
recogniton of problems which may require the patient to seek
advice or assistance. When the patient attributes the
responsibility for change to his own doing rather than an
outside force, self-efficacy increases along with the

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expectation of maintainence of change. The patient will
experience an element of control over his illness if he
feels he has chosen an activity that will protect his future
health. When the rehab. process is begun early in recovery,
a certain degree of autonomy is returned to the patient that
hospitalization inately threatens.

The concepts of control and choice also involve the
elements of self-management and self-regulation.
Self-management begins in the early stages of rehab. during
the planning phase. Part of the patient taking
responsibility for his recovery involves his active
participation in the setting of goals. The rehab. nurse can
provide guidance and assistance during the planning stage
based on her expertise, but the goals are set by the
patient. In the extended group, self-regulation becomes an
important factor once the patient has been discharged home.
This can be seen in the patient who is attempting to
implement a home-exercise program. His long term goal may
be to return to his level of activity prior to the heart
attack. However, the recommendation of a gradually
increasing walking programme may have been made.
Self-regulation then becomes his responsibility as he plans
where and when he will walk, measures the time and distance
he has walked, monitors his pulse, and keeps track of his
weekly progress.

It should be remembered that the patient does not exist
in a complete vacumm and they may receive input regarding
related topics from a variety of other sources. Mass media
sources such as television and newspapers often report on
health-related topics and can prove to be a positive
influence, providing reinforcement, if the information is
accurate. Occasionally, the information presented can be
misleading and will require discussion and explanation from
the rehab. nurse. Neighbours, friends and family may serve
as another source of input and may affect the patient's
motivation to implement change. It may be useful for the
rehab. nurse to gain insight into the value that the patient
places on these sources.

The combination of education and counseling provides the
basis for the cardiac rehabilitation program. It is the
responsibility of the nurse to recognize each patient's
needs and implement a balanced approach. With the provision
of accurate information through education and the support of
counselling the patient can be empowered to make informed
decisions and lifestyle modifications and thereby take
control of his recovery.

DISCUSSION TOPICS

The following is a description of topics which may be discussed by the Cardiac Rehabilitation Nurse with both patient and partner during the course of the programme. Although they have been presented in a narrative form, they do not represent the actual sessions. The topic descriptions provide a teaching plan or discussion guide which can be used to standardize the information given to both the in-patient and extended groups. Although a standard core of information will be discussed, the timing and sequence of sessions are flexible and will be tailored to meet the needs of each individual patient based on an on-going assessment. As patient and partner's learning needs and expressed concerns are identified, it may be necessary for the Rehab. Nurse to prioritize those topics which should be discussed within the time limitations of the client's group placement. This is particularly applicable to the in-patient group. Each description includes learner behavioral objectives and a brief summary of the mandatory discussion topics. The philosophy of the Cardiac Rehabilitation Programme and the principles of teaching and learning have been fully incorporated into each topic description.

Session 1. Introduction and Assessment.

Introduction.

Hello my name is ..... I am the Cardiac Recovery Sister. I believe you have already met........., who told you about the research project which is being carried out to compare the ways we give information to people after their heart attack.
Do you understand the explanation of the study and what will happen?.....[Clarify if necessary].

a) Control
You are to be in the standard group, that means you will receive the normal advice from the nursing and medical staff both here in coronary care and in upstairs in the medical ward. You will be followed up by the research staff who will keep in contact with you and arrange to see you and your partner when you go home. We will really be interested in your input and will value your comments. Thank you for your assistance and participation.

b) Minimal
You are to be in the second group which means that I will meet with you and your partner several times whilst you are in hospital and we can talk about your recovery..
.[continue as below]

c) Extended
You are to be in the third group which means that I will meet with you and your partner whilst you are in hospital and for 6 weeks after you go home. When you go home I will phone and make appointments that are convenient for you both..[continue as below]

I am here to work with you and to help you and your partner get back to normal. I am not here to lecture you into what to do or not to do, but to work with you so that you can have the information to allow you to make choices about your recovery.

I will suggest and guide and try and make the advice fit in with your lifestyle as much as possible but this depends on your participation - so if I say something that you do not understand or if I suggest something that would be difficult for you, please say so right away.

Our aims together are to look at any worries you may have and plan for the future. We can discuss your illness and the recovery period; we can look at the emotional effects of a heart attack for you and your partner; we can review the risk factors involved and discuss how to try and reduce your chances of having another heart attack. Does that sound comfortable to you?.........

Assessment.

Goals - To obtain data of pertinent health beliefs, risk factors etc.
To co-ordinate the teaching with the readiness of patient and family to receive it.
To formulate an individual teaching plan from the core framework. (see summary at end of each section)
To identify sequence of topics (as chosen by the client from the menu card) and teaching methods to be used.
To initiate the development of a good nurse/ client rapport.

Assessment is initiated at this session however it is an ongoing and dynamic process throughout the programme and will not therefore necessarily be completed at this first meeting.

The following information should be obtained and the assessment sheet completed for all clients:-

a) Demographic data and lifestyle profile : age, marital status, social class and reading level (marital and economic status may begin to provide insight into home life, emotional support and financial resources available. Age and reading level may influence choice of written information that is made available.) Client's religious and cultural beliefs, which may also influence his attitude to illness should also be noted.

A lifestyle profile will also include salient points:- social support as identified by the client (family, friends etc); normal level of physical activity; occupation (job description rather than occupational title); dietary assessment, alcohol consumption, leisure activities, hobbies pets etc.

b) Client's pre-existing health beliefs and knowledge of heart disease, own diagnosis and the causes, and expectations of recovery should be elicited. (Ask patient what happened to cause admission etc) If client expresses guilt at not reporting symptoms or at the precipitating event, explain CHD is a long process and therefore unlikely to be due to one event. This is important for those who associate the MI with such activities as strenuous activity, argument, intercourse etc.

c) The presence of risk factors for CHD should be identified - family history, gender, smoking, elevated lipids, hypertension, obesity, lack of exercise, stress, diabetes, anaemia. (see assessment card)

d) Client's readiness to learn should be sought. An indication to this may be client asking questions about disease process, prognosis etc. To facilitate this client should be told that we welcome their questions and remind them that it is common for the concentration to be affected whilst in hospital so it is a good idea to jot down questions as they occur.

e) An ongoing assessment of clients major concerns or problems should be made in order to determine sequence of content that is provided. For example patient may be concerned with his recovery period (return to work, driving etc. whereas partner may be concerned with his risk factors and how to modify them)
Ask what they feel is important to know about their illness and treatment.

Summary of 1st session

At end of 1st session the counsellor will have :-

Introduced:- self and reinforced the purpose of the research project. Informed which group allocated to and how the programme will be carried out. Explained the non judgemental approach of the programme. Emphasized the client's responsibility in their care plan. Solicited the client's co-operation and initiated the process whereby they are able to take control of their own recovery.

Assessment:- Commenced assessment as described and ensured documentation on assessment card. Identified client's current learning need and assessed their readiness to receive information.

Review:- At the end of this and every preceding session recap and review salient points. Ask client to establish commitment and assess understanding of the session.

Arranged next session. - Arrange time and place with client / partner for next session.

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[Assess client's readiness and if appropriate continue and complete one topic.]

Elicit clients current concerns:- Patients report lots of fears and worries - what are your main concerns at the moment?.......

(In order to facilitate the client taking control and to identify their current learning need):-

There are a lot of things that people want to know after a heart attack that I can try to explain [Show menu card]

1. Explanation of a heart attack, how healing takes place and the rationale for treatment given in hospital.

2. Risk factors and their modification.

3. The emotional effects following a heart attack. The effects of stress and how to manage it.

4. The recovery period. (Resumption of activities when you get home.)

5.Further investigations and/or treatments.

Where would you like to start?

Future sessions.

At the beginning of each future session.

Be aware of the patients physical condition and any recent occurrences. Reassess their emotional status and acceptance of the present situation.

Review content of preceding meeting. Reinforce & clarify as required. What have you thought about how it fits in with your life?... What problems do you think you may have?....
Continue by completing a topic as chosen by client.

At the end of each session.
Ask client to establish commitment and assess understanding
How do you feel about what we have just talked about?..
What do you think are the main points of what we have discussed?... Do you want to write them down as we review them so that you can keep them in your file that you can take home?.

Review and recap salient points clarify information as necessary.

Arrange time and place for next session.

Complete documentation.

As previously mentioned the following descriptions of the topics to be covered obviously do not represent the actual sessions. They are intended merely to highlight the areas for discussion and suggest an approach which may be used. The aim is to incorporate the philosophy of the programme and the principles of learning as fully as possible.

At the end of each section is a summary; this represents the mandatory information which should be covered. It is recognized that the limitations of a short inpatient stay for the minimal programme will place restrictions on what can be achieved, this will also be partially determined by the clients condition and needs.

Topic - <u>Explanation of Heart Attack and Early Recovery Period.</u>

<u>Objectives</u>

1. The client will be able to define a heart attack in lay terms.

2 The client will be able to identify 3 causes of a heart attack.

3. The client will be able to explain in lay terms the cause of the pain.

4. The client will be able to explain the rationale for the limitations and gradual resumption of activity.

<u>Information content.</u>

Education initiated at this session is to help client understand what has happened, what is being done and what is likely to happen during recovery period.

<u>What is a heart attack?</u> (Coronary thrombosis, Myocardial infarction)

Elicit clients existing beliefs and knowledge: - What do you know about a heart attack and its causes?...

The heart is a strong muscle which pumps the blood around the body. Oxygen is carried to all the areas of the body; carbon dioxide and other waste products are removed.

The heart is divided into four chambers:- the 2 right chambers pump blood to the lungs to receive the oxygen and the two left chambers pump the blood around the rest of the body. The blood supply to nourish the heart itself is provided by the coronary arteries which lie on the outside of the heart.[show diagram] There are two main coronary arteries each of which divides into many branches which feed the muscle.

In a heart attack one of the coronary arteries becomes blocked by a blood clot. This blood clot is more likely to occur in an area in which the artery has furred up and become narrow.

The part of the muscle the artery supplies is unable to receive an adequate blood supply and therefore is starved of oxygen. Muscle requires oxygen to function properly ; when there is a shortage of oxygen it initially results in pain.

Pain from the heart is called angina - it is a similar process to one of the reasons you get cramp in the legs when you exercise hard. (exercising muscle needs more oxygen)

Patients with angina often take tablets/spray which open the arteries up again before the damage can occur. However when the oxygen is stopped for a longer period the heart muscle is damaged permanently. This is what happens in a heart attack.
<u>It doesn't mean the heart is worn out</u>
Fortunately the heart is so strong that once the healing process is completed the person usually returns to normal activities.

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Rationale for treatment. (Discuss if appropriate)

You may remember having a infusion (drip) when you were admitted. This drug was given to try and dissolve the clot. Your ECGs and blood tests show that the drug has had a good (some) effect. You will probably be given aspirin and advised to continue to continue to take it when you get home as it helps to thin the blood and prevent further clots.

I believe you are getting injections into your stomach which sometimes can cause bruising? The drug is called Heparin which thins the blood and helps to prevent further blood clots, but it sometimes therefore also causes bruising.

[If still in CCU may discuss equipment, routine etc. If in ward it still may be applicable to explain the use of the monitor etc.]

Early Recovery Period.

After the heart attack the damaged muscle (which is similar to a bruise) is replaced by a scar. This process takes several weeks to be completed at which time the heart is usually working as well as before.

Whilst this healing is occurring the initial treatment is bed rest and then a gradual increasing of activity. The aim is to rest the workload of the heart and allow it the best chance of recovery.

What have you been told about how long you will be in hospital? and off work?..... What do you think about that?...
[This will facilitate the client's monitoring of their own feelings and assess what information they have been given and retained.]

(You will be in hospital for approximately 7 - 10 days and after discharge it takes 2-3 months to recover completely, so you should be off your work for that time and concentrate on gradually building up your strength at a steady pace.) [Whilst some patients can be surprised and depressed by the news of lengthy recovery period it may sow the seed of a normal future at a time when fear of death may be high]

Whilst the heart is early in the healing period it is common to get 'twinges' of pain, periods of breathlessness etc. It is important that you report any symptoms to the nursing/ medical staff without delay so that you can be checked and given the appropriate treatment if necessary. Do not think the staff are too busy or that you are bothering them; it often takes longer to give you treatment if you delay and the problem becomes more serious.

Have you been shown deep breathing and leg exercises?....It is a good idea to continue these regularly whilst you are in bed.
Generally we encourage you to move freely in bed and lie whichever way you find most comfortable; however in the early recovery period it is **important** that you don't do anything that causes you to strain, or go like this (demonstrate valsalva) ,this can cause a reflex action which may effect your heart rate . Let's think when you might do this.... If you have to stretch to reach your locker or place a urinal on the floor whilst you are in bed ..or if you are constipated and have to strain.... This is why it is important to tell the nurses if you feel constipated.

Whilst in hospital your activity levels will gradually be increased depending on your symptoms and your Consultants regimen. To a large extent you will be looking after yourself in that whilst initially you may have had some assistance with washing, you will soon be allowed to shower etc. It is important to get enough rest and try not to achieve too much too soon. Be honest with yourself and listen to what your body is telling you.

Would you say that you are normally take note of how you feel or do you tend to 'work through' general aches and feelings of tiredness?...........

You should also be honest with your family and visitors and if you feel tired you should say so; many visitors feel they have to stay for long periods and you are not yet ready for this.

One of the problems is that in a heart attack the illness is inside and therefore invisible. There is nothing to see to remind yourself and other people that you have not yet recovered, indeed after the initial event you can look and feel quite healthy. That is why it is important to be honest with yourself and others so that you do not overtire yourself in the early days.

In some ways it is similar to a severe bruise inside, in that initially it hurts constantly therefore you protect it and often think about it. As it heals you can go for long periods when you forget the wound until it occasionally catches you - reminding you that the healing process has not yet finished.

Recovery from a heart attack is not always a smooth process. There may be good days and bad days. On some days you may feel great and think that you have recovered, then the next day you may feel 'wabbit'. Don't despair, have a good rest, the following day you may feel more refreshed again. This is the normal pattern of recovery. You are not getting worse.

Some patients can feel afraid to go to sleep as they feel they will not wake up again. Whilst this is understandable the fear is unfounded. Restful sleep promotes recovery.

What are your main worries at the moment? If you feel any fears or worries it is a good idea to try and discuss them.

Following a heart attack, particularly during the early days, you may find you concentration and short term memory are affected. This is common and will soon recover. As I have said it is a good idea to jot down questions as you think of them so that you can ask when someone is available. Please remember we welcome your questions no matter how difficult or how small they seem to be. We are all working to speed your recovery.

For some a heart attack can have positive effects - it often puts your life in perspective. Many patients report that it took the heart attack to make them value their health and after the recovery they made some lifestyle adjustments and now feel fitter than they have ever done before!

(Deal with any other immediate questions patient identifies)

Information to spouse.

As above. Discuss visiting hours and explain that it is important that they use their commonsense and not overstay visit if patient feels tired, they may also be valuable in explaining this restriction to other family members and friends.

Summary

1. Basic anatomy and physiology of cardiovascular system including cause of pain.

2. Rationale for in-hospital treatment and importance of reporting symptoms.

3. Recovery period - Healing process, length of hospital stay and length of convalescence. Importance of energy conservation. Resumption of activity.

4. Introduce possible psychological and cognitive effects

5. Review and clarify salient points as required.

6. Arrange time and place for next session.

7 Complete documentation.

<u>**Topic : - Risk Factors.**</u>

<u>Objectives</u>

1. The client will be able to identify risk factors associated with heart disease.

2. The client will be able to identify own risk factors and demonstrate an understanding of behavioural changes required to minimise these.

<u>Information Content.</u>

You have been told that you have had a heart attack. Probably
one of the questions to cross your mind was "why me?" or "could I have avoided it and what can I do in to stay well in the future?" Are these questions that have gone through your mind?...

Well we still do not really know the answer to those questions. Right now we can't predict who will have a heart attack nor do we know exactly why certain people have a heart attack and others don't. However research has proved that people with certain habits and styles of living have an increased risk of having a heart attack. These are known as Coronary Risk Factors.

Risk factors are not absolute - some can have several factors and have no symptoms whilst others may have no apparent risk factors yet have a heart attack. However in the vast majority the two are associated.

You may be thinking " I have had a heart attack now so what difference does it make"
Well yes you now know that you have a tendency towards heart disease so NOW is the time to look at you risk factors and see how you can take steps to reduce or eliminate them. The goal now is to reduce your chance of having another heart attack.

Changing your lifestyle , even after years of the habit, can make a real difference. It is important however that the change is maintained long-term in order for it to have any effect on the arteries. A heart attack is a sudden event but the changes in the arteries that caused it is a long process and lifestyle changes have to be long-term also.
 I'm not saying that it will be easy to change what may be a long-term practise, but would you be interested in trying to make these changes?

Remember too I am not here to judge you - we all have our own ways. I am here to work with you, so that together we can try and ensure your recovery and reduce the chances of it happening again.

Perhaps we could now look at your lifestyle and try and discover what factors are relevant to you so that we can talk a little more about them.

"What do you feel caused your heart attack?"
(? Discuss that first.)

Risk factors include -
 family history, age , male sex,
 high blood pressure, diabetes, anaemia,
 smoking, high cholesterol, overweight, stress, lack of exercise, oral contraceptives.
[Take note of relevant factors and only include if they apply]

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"What do you feel are your risk factors?...Do you feel you want to make any changes?"

You cannot change your family history, age or the fact that you are male - but if you are in these high risk groups you may wish to pay more attention to the factors that you can modify. If you suffer from high blood pressure, diabetes or anaemia for example you can greatly reduce your risk by adhering to the treatment regimen that your doctor prescribes to keep your condition under control.

Risk factors are more dangerous in combination. The more risk factors you have the greater the chance of your having another heart attack. (If you are a female taking oral contraceptives and a smoker you should try some other form of birth control)
The fewer your risk factors then the greater you reduce you chances of it happening again.

Summary

1. Introduction of risk factors -
   a) Address emotional questions - Why me? Could I have avoided this?
   b) Explanation of risk factors and long-term nature of lifestyle change.

2. Identification of clients personal risk factors -

3. Review and clarify salient points as required

Smoking.

Objectives

1. Client will be able to explain how smoking effects the heart and coronary arteries.

2. Client will verbalise his own perceived barriers and benefits of stopping smoking.

2. Will be able to identify the 4 steps to stopping smoking

Information content

Elicit client's beliefs re smoking eg.
What do you feel about smoking?...Do you feel that smoking affects your health?....Have you ever tried to stop smoking?
What about not having smoked since you have been in hospital?...Do you want to stop?...
How long have you smoked for and how many do you smoke?...

At present research has shown that the single most important thing you can do to reduce your chances of having another heart attack is to stop smoking.
We advise your family to do the same, not just for their own sake but for yours too.

Most people know that smoking can cause lung cancer and bronchitis but many are unaware of the increased risk of heart disease and stroke. Smoking is one of the main factors causing heart disease.

Smoking 20 per day **trebles** your risk of dying of heart disease.

Carbon Monoxide and Nicotine are probably the most dangerous substances in tobacco. Nicotine stimulates the body to produce adrenaline, which makes the heart beat faster and narrows the blood vessels; this puts the arteries to your heart at greater risk and also increases your blood pressure.
This narrowing occurs as you are actually smoking - that is one of the reasons why it is not enough to cut down the number that you smoke. Each one is dangerous so it is important to try and give them up completely.

Carbon Monoxide, which is given off by tobacco, combines with the oxygen in your bloodstream therefore reducing the amount which is available for your heart to function. If you want to remind yourself of the dangers of carbon monoxide think of how people commit suicide by breathing in from car exhausts.

Smoking also increases the stickiness of the blood which may lead to bloodclots; again this is an important when you think of the causes of a heart attack. (Reiterate causes)

Passive smoking is when you inhale other peoples smoke. Heavy passive smoking may be harmful especially when you already have heart disease so you should avoid spending too much time in enclosed spaces with others who smoke.
Is this an issue for you? - Do you spend a lot of time with smokers?.....

[CO Monitor] I have a monitor here which can detect the amount of CO still in your blood. Would you like to see how much there is - even after the few days that you have not smoked whilst in hospital.

Benefits.
What do you feel the benefits of giving up smoking could be?

The risk of CHD is reduced on stopping smoking regardless of how long you have smoked for.

Other benefits include:
1. Easier breathing and loss of smokers cough (you may find you cough more when you first give up, but this is due to secretions gradually loosening instead of being stuck to your arteries.)

2. Saving of money - maybe initially you should put the money into a tin and buy something else to reward yourself.

3. Food tastes better - some people are afraid of putting on weight when they stop smoking and it is true that you may increase your appetite and enjoy food again. It is important however, as smoking is such an important risk factor, that you persist. You can attempt to loose weight gradually once you have broken the smoking habit. Don't try and do too much too soon.

4. Smell nicer - it is amazing how many people who have given up smoking say that they didn't realise how bad smoke smelt, particularly on peoples breath and clothes.

Discuss what the problems might be. Perceived barriers to stopping smoking.....

Having talked about the effects of smoking on your health and the benefits you may gain, what do you feel about stopping smoking?

How to stop smoking.

Most smokers accept the risks mentioned before but hope 'to get away with it'. Heart patients have not got away with it and for them to continue smoking is deliberately risking further damage. Cutting down is not enough - you have to try and give up altogether. Many people who have tried and failed before, manage to give up after a heart attack.

* Mentally prepare yourself as you will only succeed if it is what you really want. Half hearted attempts will result in your reverting back to old habits.

* Analyse your smoking habits and ask " why do I smoke?
 Is that more important than my health?" When do I smoke, where and who with? This indicates when you need to be wary that you smoke and take avoiding action.

*Make a plan. Are you going to stop completely or cut down gradually? After CCU many people don't ever want to start again. It has been shown that people who stop completely have a higher success rate than those that try and cut down. What would you like to do?..

* Try alternatives such as eating an apple, going for a walk, practising relaxation or do a hobby/ crossword etc.

* Postpone cigarettes for half an hour. You may forget you wanted one. If you are accustomed to a cigarette at a particular time , try to do something else at that moment to break the habit.

* If you 'weaken' or 'succumb' - it is not the end of the world and you can try again - many people cannot break this habit straight away but succeed at later attempts. Remember research has shown that nicotine has been shown to be as addictive as heroin.

* You may become irritable or moody. Try to persist and recognise that your irritability is often a common reaction when people are trying to give up an addiction. Try to talk about your feelings - sometimes admitting to your family how difficult it is will encourage their support and understanding.

* Try to create a no smoking zone around you. Ask others to help you, perhaps by not smoking next to you or offering you cigarettes. Remind them that you are recovering from a heart attack and that you have given up smoking for your health.

Four Steps to stopping

1. Think of stopping - list reasons and barriers.
2. Prepare to stop -a) identify and avoid times , places and situations where you smoke b) write down each time you smoked and identify it as a danger time. c) make new habits to brake the old d) include family and friends for support. e) pick a day.
3. Stopping - a) big day arrives put planning into action. change routine avoid dangerous situations.b) remember side effects will pass c) take one day at a time d) reward yourself.
4. Staying stopped - a) recreation walks, exercise hobbies.b) visit non smoking friends c) dont be fooled into " only one more cig " d) learn to relax e) change type of drink if that is associated with smoking f) treat yourself.

Summary

1. Client assessment - history, knowledge and beliefs, association and motivation.

2. Physiological effects.

3. Association with illness.

4. Benefits / barriers of stopping and their management.

5. Steps to stopping.

6. Establish clients commitment

7. Review and clarify salient points

High Blood Pressure.

Objectives

1. Client will be able to explain in lay terms association between HBP and CHD

2. Client can identify the main causes of HBP.

3. Client can list main points for management of HBP.

Information content.

Have you ever been told that you have high blood pressure? Do you feel this may be a problem for you? Does anyone in your family have treatment for high blood pressure?

Do you know what we mean by high blood pressure?...
Everyone has a blood pressure! It reflects the force with which the heart pushes the blood through the arteries. Blood pressure is affected by the condition of the arteries (if they are narrowed it has to use greater pressure to pump the blood through) It varies depending on a persons activity and emotional state. When relaxed or resting a persons blood pressure will be lower than when they are active, angry or stressed. Blood pressure tends to increase with age. When a person has a blood pressure that is persistently above the normal limits, then they are said to have hypertension (High blood pressure).

Hypertension increases the risk of CHD and stroke. Even mildly raised blood pressure increases the danger especially in those who also smoke or have high cholesterol. One of the major problems is that hypertension often remains undiagnosed for many years as there are often no obvious symptoms.

High blood pressure causes 'hardening of the arteries' and damage to the smaller blood vessels. The heart has to increase its workload to pump blood against this high pressure. There is a greater risk of clot formation and all of these factors increase your risk of a heart attack.

Causes.

The reason why many people develop hypertension is unknown but there are several factors which contribute. They include:-

* heredity - there is evidence to show that hypertension is more likely if one or more close relatives have the condition.

* Bodyweight - obesity and hypertension are linked. A reduction in body weight may be all that is required to reduce blood pressure.

* Stress - Pain, anxiety and emotional stress all result in a temporary rise in blood pressure; whilst prolonged stress can result in a persistent rise.

* Salt - Excessive amounts of salt consumed in food can increase the risk of hypertension.

* Alcohol - An overconsumption of alcohol can cause hypertension.

Management.

It is important to realise that high BP is for the rest of your life and is not a temporary condition.

Correct assessment is essential if management is to be effective as blood pressure can vary from moment to moment it will be measured more than once to get a true trend.

Stopping smoking and a reduction in weight will be advised. A gentle exercise programme may be recommended and a reduction in salt intake will help. These may be all that are necessary to lower your blood pressure. But remember that you will have to keep doing it to ensure that you get the benefits.

If this is not the case then drugs will be prescribed. There are many new drugs with different actions and we can discuss these later if you wish. If you are prescribed medication at a later date it is important that you discuss the actions and possible side effects with your doctor. Do not stop taking medication without letting your doctor know as this may have effects that are caused by the sudden withdrawal of the drug. We will talk more about drugs generally later on.

To recap the points that help to avoid the risk of hypertension:
*Keep weight to within normal limits.
*Do not smoke.
*Take regular exercise.
*Manage your lifestyle to reduce long-term stress.
*Moderate your salt intake.
*Have your blood pressure checked annually.
* Take medication as prescribed.

Establish commitment and assess understanding of session.- Do you believe that you can control you blood pressure to some extent?...What do you think you can do to try and reduce your blood pressure?...

Summary.

1. Explanation of blood pressure.
2. Association with heart disease.
3. Causes of hypertension
4. Management of hypertension
5. Establish client commitment
6.. Review and clarify salient points as required.

Diet.

Objectives

1. Client can explain cholesterol and its association with CHD in lay terms.

2. Client will be able to identify foods which are high/ low in cholesterol from the list

3. Will be able to list the main guidelines for healthy diet.

Information content

Elicit client's beliefs re diet.. Do you feel that you have a healthy diet?.. Do you feel that you could make any changes to improve your diet?.. What things influence what you eat?..

The main risk factor as far as diet is concerned is having a high cholesterol level.

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<u>Cholesterol</u>.

Many people do not realise that cholesterol is actually manufactured naturally by the body. It is needed for maintenance of the body cells. The liver produces as much cholesterol as the body needs but in many people the level is raised by eating a diet high in saturated fats. The recommended maximum level for total cholesterol is 5.2mmol/l.
Some families have a strong heredity factor and cholesterol should be monitored in family members.
You cannot tell a persons cholesterol level by their body weight. Many thin people have high cholesterol and fat people do not always have high levels.

<u>Foods high in Cholesterol</u>.
(show list of high and low categories and ask... Which of these do you think is high in cholesterol?... Which do you think are low in cholesterol?...
Meat - Beef, pork, lamb particularly liver, brains and kidneys. Sausage pies and processed meats are also high.
Dairy Produce - Milk, butter, cream, hard cheeses and eggs.
Saturated Fats - Lard, hard margarine.
cakes and pastries.
Sweets and Chocolates (made from hard fats)
Shell fish. Nuts. Avocado pears.

<u>Foods low in Cholesterol</u>.

Wholemeal bread.   Cereals.   Peas, beans and lentils.
Potatoes (Provided that they are not cooked in fat eg chips, roast or mashed with butter.)
Fruit and Vegetables.
Oily fish - Mackerel, Herring, Salmon, Tuna.
Chicken (without the skin).

<u>Triglycerides</u>.

These are the other main body fat. Like cholesterol they are manufactured by the liver and also absorbed from the diet.
Excess triglycerides are stored as body fat.
Triglycerides increase risk of blood clotting.
Maximum recommended level is 2.3mmol/l.

<u>Transport of Cholesterol around the body</u>.

As cholesterol is unable to dissolve in the blood (insoluble) it has to be converted to complexes known as lipo-proteins. There are three main types of lipo-proteins:

LDL (low density lipo-protein) this carries the cholesterol from the liver to the body. The higher the LDL concentration the more cholesterol is in the blood and the greater the risk of it being deposited on the walls of the arteries.

VLDL (very low density lipo-protein) this carries Triglycerides around the body.

HDL (high density lipo-protein) this is the 'GOOD GUY'. It carries the cholesterol back from the body to the liver and it has the ability to stop cholesterol being deposited on the artery wall. The higher the HDL the <u>less</u> the risk of CHD.

IT is therefore not just your total cholesterol which is important but your ratio of HDL/LDL. Ideally you want a high proportion of your total to be HDL.

Types of Fat.

There are three major fats found in food.
Saturated Fat - These increase your level of cholesterol in the blood. Hard margarine, butter, lard, chocolate, peanuts, cocoa and avocados are all high in saturated fat.
Polyunsaturated Fat - may increase levels of HDL and therefore lower the level of cholesterol in the blood. Obtained mostly from vegetable sources and fish oil - many margarines oils now have 'high in polyunsaturates' on the label.
Monounsaturated Fat - like polyunsaturates these increase the level of HDL and therefore may lower total cholesterol. Includes things like olive oil.

Recommended Diet.

I could offer you general guide-lines for a healthy diet - do you feel that it would be helpful to review these?

It is recommended that everyone should eat a balanced diet as this will have long-term benefits for health. However the British diet tends to contain too much fat and sugar and not enough fibre.

Reduce Fat Intake
Reducing the total fat intake (particularly saturated fat) may lessen the risk of CHD by reducing the cholesterol in the blood. Reduction in saturated fat tends to lead people to use more polyunsaturates and this may speed up the removal of cholesterol from the blood. Eskimos have a low incidence of heart disease and this is thought in part to be due to a high intake of fish oil. Mackerel, herring, tuna and salmon are particularly good sources. However an excessive intake of polyunsaturates can lead to other health problems, hence the recommendation to reduce the total fat intake.

Increase Fibre.
Fibre provides bulk and speeds up digestion therefore it satisfies hunger and reduces the calories that are absorbed. There is some evidence to show that fibre lowers cholesterol levels.

Reduce Sugar intake.
Many people feel that they need sugar for energy but as other foods provide the calories required, additional sugar intake will lead to an increase in weight.

General Guide-lines

1. Avoid cooking in fat or oil. Instead cook by grilling, baking, boiling, poaching or steaming.

2. Eat less fat;
a) reduce meat intake - eat meat less often, reduce the portion, trim off the visible fat.
b) reduce dairy products - full fat milk, cream, butter and cheese (Stilton and cheddar particularly high in saturated
fat)
c) limit the amount of liver, kidney and sweetbreads.
d) reduce products containing hardened vegetable oil eg hard margarine.

3. Use low fat products where possible eg. low fat spreads, cheese and sausages.

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4. Eat more fish and poultry - remove skin from chicken and turkey. Eat oily fish at least once a week.

5. Use semi-skimmed milk instead of full cream milk. Try alternatives like natural yogurt or vinaigrette instead of cream or mayonnaise.

6. Limit the number of eggs including the ones used in cooking, baking etc.

7. Eat food high in fibre eg wholemeal bread and pasta, brown rice, cereals and porridge.

8 Eat plenty of fresh fruit and vegetables where possible eat skin, stems and stalk as this is where most of the fibre is found (baked potatoes, apples etc,)

9 Moderate salt intake Do not add salt without first tasting food. Try using herbs and spices for flavour. Cut down on salty snack foods eg nuts and crisps; cut down on smoked or salty meat and fish eg gammon, kippers etc.

10 Reduce sugar intake avoid too many cakes biscuits sweets chocolates and fizzy drinks and squashes. Remember ketchup and preserves are high in sugar.

11. Many prepared foods, canned foods are high in saturated fats calories etc. Try to become aware of the contents although the current labelling policy does not always make this easy.

12 Note we are not saying to abstain from things. Occasional treats are allowed!

Summary

1. Complete nutritional assessment and elicit clients beliefs re diet.

2. Explanation of cholesterol, normal range and its association with CHD.

3. Discussion of foods low/high in cholesterol

4. Explanation of importance of reduction in fat intake.

5. Discussion of general guidelines to healthy diet.

6. Establish clients commitment.

7. Review and clarify salient points as required.

Alcohol

Elicit client's beliefs and alcohol consumption.
How do you feel alcohol affects you?.. How much do you drink?..Do you drink at particular times of the day / week?..

Heavy drinking over a prolonged period of time can be damaging to health - it causes liver disease and as it is high in calories it causes obesity and high blood pressure.
Alcohol may also interfere with the effects of many medicines (eg nitrates, digoxin warfarin etc.)

There is some evidence to suggest that a little alcohol taken regularly is protective to CHD.[Counsellor should be sensitive in discussing this finding and be aware of the dangers of selective listening]
To keep with in safe limits men should drink no more than 21 units per week and women no more than 14 units per week.
1 unit is equal to - 1/2 pt beer or lager, single measure spirits, 1 glass wine.

Elicit clients feelings, intentions...Do you feel that you would like to reduce your alcohol consumption?..Do you feel that this could be difficult for you?...

Obesity (Show desirable body weight chart)

Elicit clients beliefs eg... Do you feel that you are your correct weight?..Do you feel that you would like to change your weight?.. Have you ever tried to diet. If so how successful were you and what did you find difficult?

..Overweight people have a higher risk of high blood pressure and CHD. If trying to lose weight, follow the guide-lines for healthy eating. Avoid crash diets as weight is usually regained very quickly and they can be dangerous to you health. It is important to take some form of exercise when trying to lose weight.

Guide-lines for losing weight.
Reduce portions - eat small meals regularly rather than one large meal at night (your body metabolism is reduced as you sleep and you don't burn calories as quickly)
Avoid foods high in fat and sugar.
Eat plenty of high fibre foods.
Eat slowly.
Avoid unhealthy snacks.

Remember you are establishing a pattern for life.

Ask if client would like to see dietician or if their is any other support / information that may prove useful.
Suggest possible encouragement might be sought from others: - family, friends or support groups like Scottish Slimmers / Weight watchers and ask if they feel that might be something they could do.
Encourage them to discuss with the family.

Inactive lifestyle

Objectives

1. Client can identify the benefits of exercise.

2. Client can describe how he could incorporate exercise into his lifestyle.

<u>Information content.</u>

Elicit activity level and exercise routine prior to heart attack. What factors influenced this :
- time available, commitment, concurrent disability etc. ...

<u>Benefits of Regular Exercise.</u>

Regular exercise strengthens the heart muscle so that it can pump more effectively, reduces blood pressure, helps in weight reduction and changes the ratio of blood fats by increasing HDL (good cholesterol) and reducing LDL (bad cholesterol). It may also reduce stress by promoting a feeling of well-being.

During the first two to three months after your heart attack you should <u>gradually</u> increase the amount of activity that you do (we will discuss this at our next session)

But let's look to the future and think about your new healthy lifestyle after you have recovered.

<u>Guide-lines for commencing an exercise programme.</u>

It is important to develop fitness slowly.
To avoid boredom and make it more likely that you will continue you must ENJOY the type of exercise that you do.
Brisk walking is the safest exercise to start with, particularly if overweight or middle aged.
Other suitable forms of exercise include swimming, cycling or dancing (perhaps not discos too soon!)
Some form of exercise should be taken at least three times a week and it should be sustained for at least 20 minutes,with a 5 minute warm up period and a 5 minute cooldown period..
It should be vigorous to the point just before breathlessness.

Establish clients commitment : - Do you feel you would like to increase your exercise level?
What do you feel you could do to improve your activity levels? What could be a sensible and possible regular pattern for you? What could you work towards?

<u>Summary.</u>

1. Elicit clients exercise routine.

2. Explain benefits of regular exercise

3. Explain guidelines for commencing exercise programme

4. Establish clients commitment.

5. Review and clarify points as required.

<u>Stress</u>

<u>Objectives</u>

1. Client will explain in lay terms, the association between CHD and stress.

2. Client will be able to identify their personal stressors and own responses to them.

3. Client will be able to list several methods of dealing with stress.

4. Client will be able to demonstrate understanding of progressive muscle relaxation.

<u>Information content</u>

Elicit beliefs eg. What part do you feel that stress plays in your life?.What is stressful for you?... How do you feel it affects you?... Do you find it easy to relax? ...What do you do to relax?..

Stress is difficult to define as it can mean different things to different people. What may be stressful to one person can be seen as stimulating or challenging to another. Life would be dull without some stress and we need a certain amount to motivate us to achieve and be creative, without it we would work more slowly (if at all) and become less efficient.

Stress affects both how you feel emotionally and what goes on in your body.
A stress response is the reaction of the body to a demand placed on it. A number of chemicals including adrenaline are released into the blood , giving more energy, strength and speed to meet the demand. This can be a life saving mechanism which prepares the body for instant action in times of danger.
This is often referred to as the flight or fight response.

In modern life many of our stresses do not require us to either fight or run away but are body is then geared up to do so. This can result in muscle tension, digestive problems, headaches and sleeplessness.

When subjected to prolonged stress, hormones are released into the blood which convert some of the fat stores into fatty acids and it is believed that some of these can be deposited on the coronary arteries increasing the risk of a heart attack.

Two personality types have been described.
<u>Type A</u> personality is keen to achieve and be competitive, they may be impatient and aggressive. They are often obsessed with punctuality and can be annoyed if they are kept waiting. They usually prefer competitive games as leisure activities. They strive for more success in their job and seek to improve their financial status and housing. Perfectionists and worries are two examples.
<u>Type B</u> personality is generally the opposite. They are usually easy going individuals who have the ability to relax and enjoy leisure activities.
Many people have a mixture of these characteristics whilst tending to one type.

Problems occur when stress gets out of control. A person is said to be suffering from stress when pressures of work, social and family problems get beyond their ability to cope or when they become very upset about it or have symptoms as a result.

Management of Stress.

Effective management is not always easy. It may involve making changes in your lifestyle. The cause of stress should be identified first before methods of dealing with it can be planned. Sometimes it is difficult to identify the source...Think of what makes you feel stressed. What thing make you feel tense?.. Where, when, with whom? ..What situations?..

Eliminating or avoiding the cause of stress is one solution but often this is not possible, particularly when it involves the job or family.

Regular exercise helps to 'burn off' the excess chemicals produced by the stress response. It also releases a hormone called endorphin which is the body's own type of morphine - this gives a feeling of well-being and euphoria.

Other methods of coping with stress include learning to say 'no' when you feel pressurised. Take up a new hobby and make time to indulge in leisure activities regularly. Enjoy time with family and friends and create time to be alone when you want. Don't feel guilty about doing nothing from time to time. Laugh at yourself occasionally. Try to plan your life so that you don't have to rush all the time.

People relax in different ways and it is your responsibility to find a suitable method for yourself and learn to sustain and enjoy your method of relaxing.

I have a tape which describes a very effective method of relaxation. It will teach you to be able to relax the muscles of your body in a systematic way. It is like any other skill which you learn (eg.driving a car) it needs regular practise particularly at the start before it becomes automatic. I will help you with a session and you may keep the tape so that you can use it while you are in hospital and then take it home with you.

[Demonstrate tape and ensure correct use.

[Additional for partners session re Risk Factors]

Elicit their beliefs and intentions. How do you see your role in your partners recovery?.. How do you think the lifestyle changes will fit into the family habits?..Do you think there are any changes that you could make as a family?... Do you think these may be important to you?..What could be the benefits?...
An important function of the family is to encourage the patient to adhere to the advice given to aid recovery. Some aspects may be particularly hard; for example giving up smoking, modifying diet or increasing the amount of exercise.
The advise given to the patient will actually be a good guide for everyone for a healthy enjoyable lifestyle so it can be adopted by the whole family. This is important for yourself (and your children) to try and reduce your chances of having a heart attack. It may also increase your understanding of what the person is going through - the difficulties of modifying lifestyle, but the benefits to be felt when you are successful.
Small lapses are not a major set back. Encouragement is needed at times when there is no apparent progress. There may well be a plateau in recovery eg the scales no longer go down and pressures of work leave little time for leisure or exercise. At times like these old habits may return.- "why shouldn't I have fish and chips / a double whiskey and maybe another / or even a cigarette?"

This is when the family needs to jump in with understanding, encouragement and support. " of course it is not easy after such a long time to change your habits, its tough and some days are worse than others, but having come this far and gone through what we have, lets not give up now!"
Remember however nagging seldom succeeds! You have to try other means and try to be positive and encouraging even though that will be hard at times.

Summary.

1. Complete a stress assessment and elicit clients beliefs.

2. Explain physical and psychological effects of stress and its association with illness.

3. Discuss management of stress tailoring it to individual needs.

4. Demonstrate and ensure correct use of progressive muscle relaxation tape.

5..Review and clarify points as required.

[At end of session . Risk Factors.]

Remember perseverance is needed to re-educate your body if success is to be achieved in the long term. There will be set backs but you can try again. It is your responsibility to make these changes. You can accept, adopt or reject the information we have talked about as you see fit.
What you could do is to ask yourself:

What can I change?

What do I want to change?

Why is that change important?

How can I make that change?

To be sure that I have given you the information that you require can I just ask you to tell me what you think are your major risk factors and what plan could you adopt to reduce your risk.

NB. The time limitations imposed for the minimal group will dictate the depth of coverage for the risk factor sections. As it is of obvious importance however it is vital to make an adequate assessment of clients risk status and it may then be necessary to prioritize to ensure discussion of the main risk areas.

Summary

1. Complete a thorough assessment of clients risk factor status.

2. Ensure coverage of mandatory points as previously described in the relevant summary sections.

3. Review and clarify salients points as required

4. Establish clients commitment to change

5. Arrange time and place for next session.

6. Complete documentation of topics covered..

Topic Resumption of Activities when you go home.

Objectives

1. Client will explain reasons for early limitations and gradual resumption of activity.

2. Client will be able to briefly describe his normal activity level and explain when these activities can be resumed.

Content

Whilst you are probably really pleased to be told you are to be discharged, homecoming can be a stressful time (not just for you the patient but also for your family, indeed in some ways it can be harder for them - you know how you feel but they have to rely on what you tell them)

Anxiety, depression and disturbed sleep can all be common in the early days and if you are not prepared for this period it may slow down your recovery. We will talk a little more next time about the emotional reactions that are common and suggest ways of dealing with them.

Today I thought we could discuss the more physical aspects of your recovery - How much can I do when I get home?.. When can I drive?... What about work, holidays etc?

[Ascertain what patient likes doing and how normally spends time...] .

As we have said before, full recovery can take six to eight weeks which can seem a long time but you could look upon it as a chance to adapt to your illness, put things in perspective, many people say that it stops them taking life for granted so hopefully your recovery can give you a chance to remember the good things of life and start enjoying them again.

When you go home the aim is to gradually increase the amount you do. Be honest with yourself and your partner. If you feel good then get on and do a little more; however if you feel tired, a bit breathless or have some chest pain (and there may well be twinges in the early days) you should not ignore these symptoms, rather try and stay calm, sit down and usually they will settle.

You know how you feel but your partner doesn't - tell them that you will try and be sensible and not ignore symptoms - For their part they should let you get on if you feel good and not overprotect you. If you feel ill it is better to have the Dr check you over rather than wait till something more serious develops. We will talk more later about how to recognise symptoms and what you should do about them.

[Sections on driving, return to work, resuming sexual activity should be included as appropriate.. General aims and how to handle an emergency are suitable for all..]

General aims for next 2 months.

To learn to pace yourself.
To regain your self- confidence.
To return to an active life.
To develop a healthier lifestyle to protect your future health.
Do you feel that you would want to achieve these aims?...

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Before you have left hospital you will have been walking around the ward and trying to have plenty of rest (although that can sometimes be difficult in hospital! Think how good your own bed will feel!!) You should try to walk up some stairs before you leave. (Initially however you shouldn't go on your own - the effects of the sleeping tablets can be quite strong.)

 When you first go home - try and potter around the house for the first few days. A sleep during the day is a good idea as you may feel tired at times.

Remember the best guide to your activity is to be honest with Yourself. If you feel good, get on and do a little more - if you feel tired (and that is very common for quite some time) then have a rest. There will be good days and bad days when you feel exhausted, the pattern of recovery often seems to go with these swings but if you know this is common then hopefully you can deal with it.

However don't pamper yourself too much - inactivity is more harmful than early return to mobility. Your family may well be worried and overprotect you - tell them you have to get back to normal and remind them you will be honest and report any symptoms.

Daily walks are the most satisfactory form of exercise during the early recover period. Begin your walking programme with 2 or 3 gentle walks a day each of perhaps 10 minutes. Gradually increase the distance and speed, until you are walking 2 - 3 miles a day, this can take anything from 3 - 6 weeks to achieve. Remember initially don't walk until you feel tired as you still have to get back. It is not a good idea at the start to go out in cold, windy days, as this can cause your arteries to constrict (narrow). Later, when you do go out in these conditions try and wrap up well. Initially try and avoid hills if possible - consider getting a lift to another area to start your walk. You are advised not to exercise after a heavy meal (this is a bad idea as the blood supply is diverted to the stomach to deal with the food and other parts of the body then have a reduced blood supply).

These time scales are offered as guide-lines. Remember to listen to your body, monitor how you feel and gauge your activities accordingly. Your GP will be following you up and is therefore the best person to discuss your activity level with.

First 2 weeks.
Gradually begin light tasks (drying dishes is excellent, no excuses!) You could enjoy a quiet evening out.
Avoid lifting heavy objects or undertaking energetic pulling, pushing or digging; if you have to strain (demonstrate valsalva) you shouldn't do it. Remember to avoid becoming constipated.
You should be careful about playing with small children or walking a boisterous dog.
3 - 4 weeks.
Begin more strenuous activity including shopping, light do-it-yourself, cleaning car or gardening.
Would you like to think of a full day and think about what you will be doing? (Checks both activity and use of medication etc)
 5 - 6 weeks
swimming, gentle cycling or hiking could be enjoyed. Jobs at home can include vacuuming, cleaning windows, cutting the grass (as long as it is not like a field!) You can now drive a car if your Dr has agreed.
8 - 12 weeks.
Most if not all activities can now be resumed including going back to work. If you feel fit other forms of exercise such as golf, tennis and sailing can be undertaken but it is wise to discuss these with your Dr first. Very strenuous activities such as squash and jogging are not usually recommended. Talk to your Dr. about any particular activities or hobbies you may have.
What particular activities do you have that you would like to discuss?

Resuming Sexual Activities.

Many people are worried about when they can resume normal sexual relations after a heart attack, would this be an concern for you?

It is commonly thought that resuming sex will damage the heart or cause problems with its recovery. This is untrue. It has been shown that intercourse uses up about the same energy as climbing two flights of stairs, in fact as far as the heart is concerned it doesn't know the difference! So sexual activity can be resumed as soon as you feel able to take other forms of exercise without symptoms. As intercourse require more energy than other sexual activity, holding and caressing may be preferable to begin with. You could consider using positions that use less energy, with your partner taking the active role.

As with other forms of exercise, some people do however get angina on exertion particularly in the earlier stages of recovery. Slow down until the angina settles. Taking a glyceryl trinitrate tablet sublingually, before intercourse, will help to avoid symptoms.

Reduced sex drive or loss of function is common for a variety of reasons. Emotional factors including fear, anxiety and depression decrease sexual ability. This loss of desire may temporarily delay the resumption of a full and active sex life.

Your partner may also experience fear and anxiety which will add to the overall tension within the relationship. Or they may become overprotective, reluctant to make demands or unwilling to allow normal relations to take place. It is important to discuss your feelings regarding sex with your partner as airing anxieties and needs may help you both overcome difficulties that arise.

Some drugs prescribed for heart disease, in particular beta-blockers and other anti-hypertensive drugs, can reduce sexual drive and performance. If you feel that drugs may be the cause of your sexual difficulties discuss it with your Dr. A change in medication may be possible but remember do not stop taking a drug without consulting your Dr first.

As self-confidence develops and emotions stabilise, full sexual desire and ability will return.

Do you feel that this has clarified the position for you or do you have any other questions?

Driving.

What driving do you do?..

It takes time for concentration to return to full capacity.
It is important that you are able to cope with the physical and mental demands that driving imposes and can deal with any emergency that arises. Remember you want a gradual increase in the heart's workload, not place sudden demands on it. Think of the way it speeds up when another driver swerves in front of you. You are therefore not advised to drive a car for 4 - 6 weeks. Discuss this with your Dr.

Until recently you had to inform DVLC - now, provided you have an uncomplicated recovery with no dizziness, blackouts, sustained chest pain or palpitations they no longer need to know. You do however need to inform your insurance company.

If your insurance company raise your premium after you declare your medical condition (none disclosure can result in loss of cover) it may pay you to shop around, as some companies are more understanding than others. You could find an insurance broker but make sure he is registered with British Insurance Brokers Association. Companies who have an understanding policy include: AA Insuance Autoquotes
Zurich Insurance Co.

Holders of specialist licences - HGV, PSV or pilots require individual advice. In most cases licence will be temporarily withdrawn and they must inform DVLC. In many cases they may be considered for reinstatement after several months if their attack has been mild and tests have shown their risk of further trouble is small. [ie Negative ETT].

Holidays and Flying.

Do you have any holiday plans? Where would you think of going?...

During the recovery period you may wish to take a holiday. A restful holiday may be taken as soon as you can cope with the travelling involved. It may be wise to delay a holiday abroad for 4 - 6 weeks. You can discuss your early plans with your GP who will monitor your progress.

There is no restriction on flying. The stress of flying is often more due to problems on the ground than of the actual flight itself; hurrying along corridors and up stairs, carrying heavy bags etc.
If relevant:- High altitudes such as in mountainous regions may lead to breathlessness and angina as the oxygen content of the air is reduced.

Holidays should be planned with care to avoid unnecessary stress, leaving plenty of time for travel and taking plenty of stops if sitting in car for long distances. Remember to take plenty of supplies of tablets
All countries in the EEC have reciprocal agreements with the UK regarding health care and provide most if not all of the treatment free. Further information can be obtained from your local DHSS office

Returning to work.

You have said that you are a .....   What exactly does it involve? Is it physically tiring?..Stressful?..What do you feel about the job?..

Try not to make and major decisions about not returning to work or altering your hours etc. too soon in your recovery, you may well feel differently as you progress. Returning to work can be a major boost and there are the financial considerations.

Career women may feel anxious if there is any associated guilt with not assuming the 'traditional role' of staying at home and looking after the family. They may therefore place an undue blame on their lifestyle and be determined to give up their job.

The type of occupation and the physical effort involved are important factors which influence the decision about when to return. It is wise to allow time to make a complete recovery before resuming work. If your job is not physically demanding you may return from 8 weeks onwards. If your job involves heavy manual work or is stress full, a longer convalescent period is recommended. However most people are able to resume work after 3 months.

If you are unable to be absent for work for this long, try resuming on a part-time basis. Discuss your position with your GP as he has been monitoring your recovery and is therefore in the best position to guide you.

[? Discuss the reasons why they feel that they are unable to stay away this long. (There is evidence that people who perceive their job as stressful return earlier.)]

When you return to work remember even a desk job can be stressful or tiring at first. You should be prepared for possible reactions and questions from colleagues and friends. Sometimes you are suddenly expected to become an expert on everyone's aches and pains and you may be subjected to stories of their relations or friends who had a heart attack. Well meaning friends may be over-solicitous or cause you anxiety by saying things like - " my brother was kept off work for 4 months; should you really be back so soon?" Be prepared to accept these reactions - people are often worried about their own vulnerability as well as caring about you. Tell them that everyone is different and you are taking part in a sensible, supervised recovery plan.

Have you thought of any other questions about your job that you would like to talk about?

How to handle and emergency.

Certainly one of biggest fears people have after a heart attack is the uncertainty of whether or not it will happen again. Have you thought about this?

Once the first few days are over, the chances of a second attack are not as great and with the passage of time they become less and less. The risk does exist, but it can be greatly reduced by adopting a more healthy lifestyle and continue taking the medicines such as aspirin or beta-blockers that have been prescribed for you.
As we have already mentioned, it is likely that you may feel tired, weak and emotional in the early days. You may get slight chest pain or breathlessness on exertion. These symptoms are all quite common, reminding you that the heart has not yet fully recovered. You should try and stay calm, sit down if possible and take GTN if it has been prescribed for you. (We will talk more about drugs at our final meeting when the Drs have decided what tablets are suitable for you) In most cases this is enough for the symptoms to settle after a short time.

The reoccurrence of chest pain can be terrifying especially if there was no angina prior to the MI or during hospitalisation.
When patients first go home they are often acutely aware of every ache and pain wondering " Is this it? Is it going to continue like this?" There are many other reasons for similar aches, eg indigestion or muscular ache. One guide is to think about what brought the pain on eg. particular food or meal may result in indigestion. Relieving factors can give some guide eg milk or antacid may relieve indigestion and GTN will relieve angina.
It is important to know that angina does not mean 'a little heart attack' each time it occurs.
   Be honest with your partner - tell them how you feel - if they see that you are not hiding your condition and are being sensible in not hiding your symptoms, then they are more likely not to panic or fuss around you.
You should not however ignore anything more serious. It is best to get it checked out before it is too late. Frequent or prolonged dizziness or blackouts; palpitations (where you feel the heart racing or pounding); sustained or severe breathlessness or pains in your arms, chest or jaw should all be reported to your Dr.

 If you live within the call out range (check address and confirm) you can always call for the Coronary Care Team if your symptoms are severe or you can't reach your GP. A doctor and nurse are always on call for the unit and often they will know you from your time in coronary care. You can be seen in your home and either reassured and left at home or if you have to come into hospital, it is a better route as you can by-pass A/E and the team can give you immediate treatment to relieve your symptoms.

You should call 999 and ask for the ambulance service and request the cardiac unit, they record your message reducing the chance of a mistake in your address and they put an ambulance on standby.

We have a telephone helpline which has a 24hr answering machine. {Ensure they have our card with number} If you have any queries please call and I will phone you back as soon as possible. It does not matter how small the query you have please feel free to phone. It is important to remember however this is not an emergency number If you problem is more urgent either phone your doctor or request the cardiac unit.

Special considerations for Women Patients.

Women often have different concerns during recovery. The issue of work may not be as clear as many are housewives working at home. Men often find it easier to relax at home whereas women tend to begin housework within the first week. Men are away from their work environment but women are put straight back into their work surroundings. They often feel guilty or anxious that they are neglecting the husband or children.

Can I ask what you would worry about?

Women who suffer MI during childbearing years should be advised not to use oral contraceptives especially if they are also smokers.

Summary

1. Assess clients activities of daily living.

2. Explain rationale for limitation and gradual resumption of activity. Tailor this to particular activities.

3. Discuss driving, return to work, resuming sexual activity as appropriate.

4. Explain how to manage future symptoms and how to handle an emergency.

5. Review and clarify salient points.

6. Arrange next session.

7. Complete documentation.

<u>Topic   Emotional Effects.</u>

<u>Objectives.</u>

1. Client will be able to identify their own individual stressors.

2. Client will be able to identify their own physical and emotion response to stress.

3. Client can demonstrate correct relaxation technique as previously practised.

<u>Information Content</u>

A heart attack is a major traumatic event which can effect your emotions considerably during the recovery phase. Anxiety over progress & apprehension about the future can cause mood changes with periods of anger, irritability, frustration and despondency often interspersed with elation and optimism. There is a tendency to break down and weep, often for no apparent reason for example whilst watching TV or whilst in the middle of doing a job. Feelings of helplessness can make small problems of life more difficult to cope with.

Powers of concentration are often reduced and this can affect your ability to read a paper, watch TV of do a specific task. Your short term memory may be affected and you may often forget what you have just done or thought about.

These feelings are common and considered 'normal' reactions to the physical and emotional trauma that you have suffered. These may persist for several months. <u>Remember however this does not mean you are abnormal if you do not experience the reactions   some people are lucky and recover without these effects.</u>

Family members should be aware of these possible reactions so that they can be supportive & understanding, providing encouragement and distraction at times; and allowing you 'space' at other times when you need it. They should also avoid being overprotective and allow you to get back to normal. However remember they too have gone through a very worrying time. You know how you feel but they have to rely on what you tell them. Often problems can be minimised if you talk together, making a 'deal' with each other - You have to promise not to ignore symptoms and tell them if you are feeling unwell - in return they have to allow you some space to be alone if you wish. It is really a matter of rebuilding your confidence for both of you.

One of the most difficult times is when you are first discharged from hospital and you both feel insecure and afraid. You also have to adapt to certain changes - being at home all day, changes in your body's response to activity, family adjustment and possible financial considerations of being away from work.

If you have little to do there is extra time for worrying
Keeping yourself occupied may well help your emotional adjustment and gradually increasing your physical activity may help restore your self-confidence and sense of independence.

Talking to a supportive listener may help and don't be afraid of having a good cry if you feel like it during the emotional periods - you are not having a 'nervous breakdown' - it is a common reaction following a heart attack.

Changes in sleep patterns are common. You may well be restless and waken early; or you may find it difficult to sleep because your mind is active and you can spend several hours tossing and turning. You may dream more than usual and they may be vivid and sometimes frightening.

To improve your chances of a restful sleep, try and relax before going to bed. You should sleep in any position you feel comfortable. Do not eat a big meal before going to bed and avoid tea or coffee if it stimulates you. If you find you are restless through the night, perhaps you should get up and do something for a short time.

Friends can upset you without meaning to by comments like " you look great you must be a fraud" - although this is said half jokingly this can be hurtful at a time when you are still feeling quite weak. It may be that the friend is feeling anxious themselves worrying " it may be me next but he looks OK" If you don't want to describe your heart attack you don't have to - learn to say " no I'd rather not" or " sorry I can't do that just now" without feeling guilty or apologetic about saying no.

Stress

We talked a little about stress in our discussion about risk factors but lets spend a little more time to look at it more deeply and think of ways of trying to deal with it.
How do we recognise when we are stressed?

Well there may be visible signs - clenched teeth or fists, sweaty palms, periods of raised voices or fast speech etc. Other people however may 'hold things in' and not outwardly show many signs.

What do you do when you are stressed?... What do you think?... Feel?...What happens to your body?...

There are several recognised methods of relaxation, most of them are relatively easy to learn and can provide a means of helping people to deal with stressful situations. Whilst these periods of regular relaxation are helpful, the main aim is for a reduction in overall levels of stress. It may not be possible to change situations that produce stress, but people can often change the way they react to it.
You should:
* Recognize events that are stressful to you.
* Recognize your own physical and emotional reactions to stress
* Choose ways of reacting to these situations in a new way.
* Practise these new responses as it takes thought and repetition to learn new responses, especially those relating to the family.

As we have said before learning to relax is a skill like learning to drive and you will learn best if you practise regularly.

How have you felt about the relaxation tape? What effects have you felt after its use? Do you wish me to do another session with you?

Summary

1. Elicit clients individual stressors and copying strategies.

2. Explain common emotional reactions following MI.

3. Explain stress management techniques.

4. Evaluate clients use of relaxation tape.

5. Review and clarify salient points

6. Arrange next session.

7. Complete documentation.

Topic Preparation for Discharge.

Objectives

1. Client will be able to list their drugs, know how and why they are taken .

Information Content

You are no doubt pleased and excited by the news that you are soon going to be discharged from hospital but this may also be a worrying time for you and your partner. Just remember; you are over the worst period now and hopefully you are on the road to a new, healthier lifestyle.

Today I thought we could look at the topics we have not yet covered.

Drugs.

By now your Drs will probably have decided which tablets you need to take when you go home. Lets talk a little about them (discuss as appropriate)

How do you feel about taking tablets? Do you like to simply take them or do you prefer to know a little more about them?

Aspirin
- The simple little aspirin can do more than cure headaches...It has been shown that taking a small dose of Aspirin daily on a long-term basis helps to reduce the 'stickiness' of the blood and therefore minimises the risk of further bloodclot and heart attacks. The benefits usually outweigh the possible effects of irritation of the stomach. If you are troubled with indigestion when taking Aspirin you can try taking them with milk or food; it may be possible to give a coated form which can reduce the irritation to the stomach or your Dr may decide to prescribe another drug to reduce this reaction.

Nitrates

These are used to ease angina (pains from the heart) and sometimes to treat heart failure or severe breathlessness. They work by making the arteries bigger so that more blood is supplied through the narrowed coronary arteries and more oxygen gets to the heart muscle. There are many ways to take nitrates. The most common is to use GTN (glyceryl trinitrate) tablets which dissolve under the tongue or to use a spray which is applied under the tongue. The nitrate enter the circulation quickly and take effect within minutes. Some long acting nitrates are taken on a regular basis and can be swallowed in the normal way. It is also possible to incorporate the drug on a sticky plaster which is placed on the skin and delivers a constant supply of nitrate through the skin. Not every form suits every patient. GTN may be taken **before** exertion to prevent angina
They are not addictive . You should take them at the onset of pain rather than waiting until it is severe.

Remember to take you GTN tablets / spray with you whenever you go out in case you need it.
Special instructions

Place the GTN tablet under you tongue and let it dissolve. If you accidentally swallow the tablet, take another one immediately **Nitroglycerin is ineffective if swallowed** . Do not drink whilst the tablet is in your mouth. If the chest pain settles you can remove the tablet before it has completely dissolved.
GTN tablets lose their effectiveness after 8 weeks once the bottle has been opened.
Exposure to light cause rapid deterioration so tablets must always be kept in a dark bottle.

A fresh GTN tablet will be bitter tasting and may cause stinging; if this sensation is absent it probably means the tablet is no longer effective and you should take another.

If possible, sit down when taking nitrates

Take one tablet every 3 - 5 minutes for any of the following symptoms:

* pain in chest, neck, shoulders, arms or between shoulder blades. Pain felt in the jaw or teeth.
* a tightness, squeezing or pressure sensation.
* a heaviness, numbness, tingling or ache in either arm, elbow or hand.
* a feeling of indigestion.

If the discomfort has not been relieved after taking 3 GTN over 15 minutes you should call your Dr.

Side effects
A common side effect is headaches. This is because nitrates work by dilating the blood vessels including those in the head. Try and spit the tablet out as soon as the ache is easier. The headaches will become less as your body becomes accustomed to the drug.
Some people may experience flushing and it may make you feel faint so you should lie or sit down when first taking the drug.
GTN tablets can be purchased from a chemist more cheaply than by using a Dr's prescription.

Beta-Blockers. (Atenolol, Tenormin, Metoprolol etc)

Beta blockers affect (block) the action of adrenaline, which the body produces during exercise and emotion. By reducing the action of adrenaline, the heart rate is lowered and blood pressure reduced. Beta-blockers are therefore of great use in the treatment of hypertension and angina.
   They should only be stopped under medical advice. Sudden withdrawal can be dangerous as the body adrenaline surges and the blood pressure can spiral.

Side-effects.
Beta-blockers are extremely effective but they may have side effects which occur in a few people. If the blood pressure and pulse are reduced excessively, feelings of tiredness and dizziness may result. Some patients may develop cold hands and feet or they may experience ankle swelling. Male patients can experience impotence.
   Your Dr should be informed if you have any of these symptoms as it is usually possible to reduce the dosage or change to a different form of tablet.

Diuretics. (Water tablets)

The effects of diuretics is to reduce the amount of excess fluid in the body by increasing the urine produced by the kidneys. As a result the heart has less to cope with. Diuretics achieve the removal of fluid mainly by getting rid of salt (sodium chloride). As the sodium is expelled, it 'drags' the extra fluid with it. Patients on diuretics should therefore not eat excess salt or salty foods as this would counteract the action of the drug.

Side -effects.
Some people can experience muscle cramp or weakness caused by lack of potassium. When diuretics expel sodium they can also drive out the potassium from the body. Your Dr may prescribe potassium supplements or a different form of diuretic which conserves potassium. It is a good idea to ensure the diet has sufficient potassium; fresh fruit and vegetables are rich in potassium - bananas, oranges and tomatoes are good sources.

Thrombolytics. (Streptokinase)

When you first came in to hospital you were give an infusion (drip) that contained a drug called Streptokinase. This drug dissolves blood clots and was very effective (had some effect) in reducing the size of your heart attack.

Repeated use may cause allergic reactions. The antibodies are present from 5 days after receiving the drug and last for 1 year so if you were unfortunate and had another heart attack within the next year it would be necessary to give you a different drug. It is therefore important that you keep the card that you were given with you in order that medical staff know that you have already received the drug and the date that it was given.

[Give advice on any other drug which is prescribed eg. Calcium antagonists, Digoxin etc.]

General Advice on Drugs.

* It can be confusing if you are taking a variety of tablets at different times of the day. It is a good idea to your own system of reminders - either write down your regimen or lay out your tablets for the whole day.(Do this with the patient or show how)

* Some tablets are more effective when taken on an empty stomach and others need to be taken with food; others may be unaffected by food. Read the label or ask the best way to take your particular tablets. (Write on your reminder list)

* Some drugs need to be continued for a considerable time. When you are near the end of your supply (do not let it run out) ask your Dr if a repeat prescription is necessary.

* If you do experience what you think are side effects, make sure you report them to your Dr. Do not stop taking the drug as this may have adverse reactions. It is possible that your symptoms are caused by something other than the drug. Your Dr will be able to advise you and may prescribe an alternative.

Investigations and Further Treatments. (model of heart, diag of by-pass etc)

Would you like to know a little more about any of the tests or future treatments that may be necessary?

Electrocardiogram   ECG.

This is a record of the electrical activity of the heart. It is essential in diagnosing a heart attack and is also useful as it may act as a guide to recovery.
 Usually after a heart attack a permanent change occurs as the scar tissue 'bends' the electrical current slightly away from it's normal path. Drs in the future will therefore look at your ECG and know that you have had a heart attack in the past.
An ECG is however not always easy to interpret and it does not always show the amount of damage that has occurred.

Blood tests.

When you were first admitted the Drs may have talked about your 'enzymes'. When you have a heart attack the damaged muscle releases chemicals (enzymes) into the blood. The amount of the enzymes released is proportional to the amount of damaged muscle, so they show the 'size' of your heart attack.

Exercise test (Treadmill)

About 6 weeks after you have been discharged you may be referred for an exercise test. This involves you coming in as an out-patient and walking on a treadmill. You will be hooked up to an ECG as you walk and a Dr will monitor your blood pressure at frequent intervals. The speed of the treadmill and its incline will be gradually increased as you progress. The ECG shows how your heart is recovering and responding to exercise. It will be stopped if you have any symptoms such as breathlessness or chest pain. (check re Beta-blockers)
Echocardiography. (Echo)
You may have had a echo whilst in the unit. This is a scan of your heart which shows the different structures of the heart and their movements. It can be helpful in showing the severity of the heart attack and an indication of its recovery.

Cardiac Catheterisation. (Angiogram)

This test necessitates your staying in hospital overnight.
It involves the introduction of a small tube (catheter) into a blood vessel to look at the condition of your coronary arteries.
The catheter is usually inserted (under local anaesthetic) into an artery in your arm or groin. It is advanced, under x-ray control into each of your coronary arteries and dye is injected show that the arteries will show up on film.
Angiography is not carried out routinely after a heart attack and is only performed if angina is troublesome or if further treatments such as angioplasty or surgery are to be performed.

Angioplasty.

This procedure is most likely to be performed after a heart attack if there is persistent angina. It is particularly suitable if only one of the coronary arteries is involved and the narrowing is located to a specific area.
 A special catheter with an inflatable balloon is passed into the narrowed artery (the procedure is similar to angiography described above). The balloon is inflated at the point of narrowing and widens the artery so that more blood can flow down it when the balloon is removed. The average length of stay in hospital following angioplasty is 3 days. The procedure is not performed in Dundee and you will be referred to Glasgow or Aberdeen.

<u>Surgery.   Coronary Artery By-pass Graft.</u> (Diagram)

  This operation is used to provide an alternative route for blood flow to an artery when it is partially or completely blocked. A segment of vein from the leg or one of the arteries from inside the chest wall is used, sewing one end onto the Aorta (main artery) and the other end onto the coronary artery beyond the narrowed or blocked segment; thus by-passing it. After a heart attack it is usually only performed if angina fails to respond to treatment and angioplasty is not suitable. Surgery would be carried out in Glasgow or Aberdeen.

Review.

We have covered a lot of information; what a heart attack is, the risk factors that are associated with it and their modification in order to try and reduce the chances of it occurring again.
We have talked about guide-lines for resuming your normal activities, possible further symptoms, investigations and treatments that may be required including drugs.
We have looked at the effects of stress and how you could try and manage it in your life and we have practised relaxation techniques.
Are there any points or areas which you would like to be clarified or talk more about? Do you have any other questions that you would like to ask?

When you get home you may have other questions or things you want to talk about. Phone me and leave a message on the answer machine and I will call you back. It doesn't matter how small the question is, I will be pleased to hear from you but remember it is not a emergency number.

Remember during your recovery you have been advised to follow a plan which involves performing regular activity and relaxation, and may require you to make adjustments to your lifestyle including changes in the diet, stopping smoking and taking tablets regularly. The chronic nature of the illness means life time adjustments. You may be motivated now when the heart attack is still fresh in your mind, but it can be hard when you get back to normal and the memories of the pain and seriousness of the illness have faded. There is no outward sign of your heart attack like a scar after an operation to remind you.
Your recovery is largely within you own hands. It is you choice whether or not you stop smoking or change your diet. It is your decision.

I have enjoyed working with you over the last week and I hope you have found the sessions to be useful. Please remember to contact me if you have any further questions. Goodbye and Good luck.

Summary

1. Discuss relevant medications

2. Discuss investigations if client wishes.

3. Review programme and clarify any points if required

4. Remind client of telephone helpline.

5. Arrange time and place of next session for extended programme.

6. Complete relevant documentation.

Extended Programme.

Content of for extended programme is obtained from this core framework. It offers an opportunity to develop the areas , reinforce the information and assist the client with behavioural changes they wish to make.

Due to the situational limitations of the inpatient phase it is likely that much of the programme may be more nurse directed, however the extended programme often develops more into client directed sessions when the person is in their own environment and may be ready to ask more questions and formulate discussions pertinent to their lifestyle.

As previously mentioned, assessment should be a continual process however the first home visit is particularly important and affords an opportunity to carry out a reassessment within the home environment.

The extended programme allows for further sessions on risk factor reinforcement and discussion of the relevant sections in more depth. Discussion on the family reaction and involvement is often pertinent at this time. Many people wish more information at this stage on the investigations and possible future treatment and the rehab nurse may have to perform the role of case manager and liaise between the hospital and community.

HINTS AND WRINKLES

The following is a compilation of hints and suggestions provided to assist the Cardiac Rehab. Nurse in the implementation of the programme. THey address some commonly recurring problems and have simply been discovered through experience.

A number of patients require the assistance of a Medical Social Worker to provide advice on housing and social benefits. It is an advantage to the patient to have this need identified while in the hospital. A specific social worker is assigned to each ward and is available for patient consultation. A simple phone referral can initiate the process. Once the patient is discharged it is very difficult to initiate any action from either the community social worker or the medical social worker. Every attempt should be made to arrange for an in-patient social work referral if it is needed. The name and phone number of each ward's social worker is available at the nurse's station. The dept. secretary's telephone number is 2650 or 2144.

When a patient is discharged from the hospital, the responsibility for his care transfers to his GP. It is customary for the GP to visit the patient within 5 days of discharge and provide regular follow-up during the first 6-8 weeks post MI. Occassionally, this follow-up is not provided. During the extended sessions it may be necessary to assist in coordination of the appointments with the patient's GP. A simple phone call to the GP's office can clarify any misinterpretations and re-establish continuity of care.

It may also be necessary to follow-up on the patient's hospital appointments. Unless contraindicated, most patients will be scheduled for an exercise tolerance test 6 weeks post discharge, followed by a medical clinic appointment. If the patient does not receive notification of these appointments within 4 weeks of discharge it should be brought to the attention of his doctor. Initially, contact with both the ECG dept. and clinic should be made clarify any administrative oversight. If the situation cannot be corrected at this level, the patient's hospital notes should be obtained from medical records and given to the ward secretary to either make the necessary appointments or notify the doctor of the situation. ECG dept. telephone number is 2342. Medical records can be obtained by request with the patient's name, date of birth, hospital number and admission dates.

There are also sources of support within the hospital
that can be useful. Ward 1 has a portable video machine
which is usually available on request. The pharmacy has a
drug information centre that can provide answers to
medication questions. That number is 2351 or 3096. Many
patients will be involved in physiotherapy exercise classes.
The physios usually meet with their patients once or twice
during their hospital stay and should be notified when a
patient is recruited to the rehab. programme. Communication
w ith the physios will promote a collaborated effort and
continuity of care. Their telephone number is 2760 or 2628.

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TEACHING MATERIALS

Leaflets and Handouts

"Heart Information Series", numbers 1-19, British Heart Foundation

"Take Heart: Some helpful advice following a heart attack", Schwarz Pharma

" A Patient's Guide to Angina", Schwarz Pharma

"Look after your Heart: Beating Heart Disease", Health Education Board for Scotland

"Advice for those recovering from a Heart Attack", Sottish Health Education Group

"Recovering from Heart Disease: A family guide to rehabilitation", Bayer CARE Programme

"You and your angina", Pharmax Limited

"So you want to stop smoking", Health Education Board for Scotland

"Cigarettes and Heart Disease: What smoking does to your heart", Parlay International

"Passive Smoking: Unclouding the issue", The Scottish Health Education Group

"Eat to your Heart's Content: A guide to eating for good health", Health Education Board for Scotland

"Food Should be Fun", The British Heart Foundation

"Take Fish to Heart: A guide to healthier eating", Sea Fish Industry Authority

"Nutrition Plan", Institute for Aerobics Research

"A 14-day eating plan for a healthy heart", Tufts University Diet Nutrition Letter

"Resumption of Activities when Home", Cardiac Rehabilitation Programme Manual

"Home Exercise Programme", The Wellness Centre

"General Exercise Precautions", Parley International

"Do you know how to take your pulse?", The Wellness Centre

"Warm-up Exercises", The Wellness Centre

"Exercise, Why Bother?", The Sports Council

"Take a deep breath...and relax", Parlay International

"Instant Approach to Controlling Stress", Institute for
    Aerobics Research

"Heart News", Bayer CARE Programme

"Relax Your Stress Away", Parlay International

"Food for Thought", Scottish Health Education Group

Video tapes

"Your Life in Your Hands: Recovering from a heart attack",
    The Coronary Prevention Group

Audio tapes

"Recovery and Relaxation", Cardiac Rehabilitation Research
    Programme

Other teaching aids

Dundee Coronary Risk-Disk, Cardiovascular Epidemiology
Unit, University of Dundee

RESOURCE LIST

Action Heart (Cardiac Rehabilitation)
Wellesley House, 117 Wellington Rd.
Dudley, West Midlands   DY1 1UB
tel. no. (0384) 230222/230601

The British Heart Foundation
14 Fitzhardinge Street
London   W1H 4DH
tel. no. 071 935 0185

The Chest, Heart, and Stroke Association
Tavistock House North
Tavistock Square, London   WC1H 9JE
tel. no. 071 387 3012

The Coronary Prevention Group
60 Great Ormond Street
London   WC1N 3HR
tel. no. 071 833 3687

The Health Education Authority
Hamilton House, Mableton Place
London   WC1H 9TX

The Health Education Board for Scotland
Woodburn House, Canaan Lane
Edinburgh   EH10 4SG
tel. no. 031 447 8044

Health Search Scotland
Woodburn House, Canaan Lane
Edinburgh   EH10 4SG
tel. no. 031 452 8666

SHARP- Scottish Heart and Arterial disease Risk
Prevention, Dept. of Medicine, Ninewells Hosp.
Dundee   DD1 9SY
tel. no. (0382) 60111 ext. 2436

The Smokeline
tel. no. 0800 84 8484

Tayside Health Education Centre
7 Dudhope Terrace
Dundee
tel. no. (0382) 28213

SECTION III

SCOTTISH HOME & HEALTH DEPARTMENT GRANT

CARDIAC REHABILITATION : EVALUATION OF AN IN-PATIENT AND AN EXTENDED PROGRAMME

GRANT APPLICATION TO SCOTTISH HOME AND HEALTH DEPARTMENT

FEBRUARY 1993

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12. PROPOSED HEALTH SERVICES RESEARCH PROJECT

(a) Title [repeated from front sheet]
(b) Introduction
(c) Aims
(d) Plan of investigation
(e) Existing facilities
(f) Justification of requirements
(g) Key references

See guidance provided
separately.
Up to five further
pages may be added to
complete this appendix

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Title

Cardiac Rehabilitation: Evaluation of an in-patient and an extended programme

Introduction

It is widely acknowledged that a myocardial infarction (MI) can produce immediate and
long-term effects which are both physical and psychological and affect the patient and
family. (1-4) Cardiac Rehabilitation (CR) programmes have been shown to be effective
in reducing these adverse reactions, reducing fears and anxieties, reducing disability and
facilitating return to normal activities, reducing recurrence as well as producing positive
effects such as increased confidence and long-term risk factor modification (5-12). A
critical factor in these clinical outcomes, and one which may be achieved by a systematic
CR programme, is to overcome the inadequate and often inappropriate information that
patients and spouses have about their heart attack and about their recovery plan (13-15).

Scotland currently has the highest world wide incidence of Coronary Heart Disease
(CHD) (16). Despite the potential benefits of CR, facilities in this country are relatively
few and far between, a situation which contrasts with countries such as the USA or West
Germany where over 80% of patients are admitted to some form of CR following MI
(17).

This situation arises for a number of reasons. First, CR is not, exclusively the remit of
any one health care profession. As a result, whilst several professions may be involved in
offering some aspects of CR, no one professional coordinates and plans the programme
for each individual patient and ensures that the patient and family understand the
programme. In an area where the multidisciplinary approach is vital, it is essential that
one person takes responsibility for coordinating each patient's programme. Nurses are
showing enthusiam for developing such programmes as an integral part of their clinical
work, but need guidance on the type of programme to adopt.

Second, programmes have not been sufficiently evaluated to demonstrate the minimal
input required to be effective. In the current climate of cost-consciousness, there may be
reluctance to adopt a comprehensive CR approach, but an effective minimal intervention
might be acceptable. While some evaluations have been done, the studies have been
criticised for small sample sizes, lack of randomisation of patients and reliance on poorly
validated measures (18). In addition, they have not compared minimal with more
comprehensive programmes. There is therefore a need to conduct a rigorous evaluation
of the efficacy of a minimal CR programme contrasting it with a more extensive
programme.

The critical factor making a more comprehensive approach require more resources than
a minimal input is the continuation of sessions after discharge from hospital. CR
consists of several components including: 1. information about heart disease, medical
treatment, individual recovery plan and modifying risk factors 2. training in managing

stress 3. training in physical exercise and 4. enabling the patient to take appropriate control over their recovery. This proposal will compare a minimal inpatient programme with a programme extending after discharge and attempt to identify patients requiring the more extended programme.

Spouses, family members and others having a significant amount of contact with the patient should be involved from the beginning because they experience their own difficulties in coping with the patient's condition (19), because they may be particularly receptive to the need for their own lifestyle change (and potential for primary prevention) at the time of the MI (20-21) and because they can be important in implementing the CR programme and in assisting the patient in achieving optimal outcomes (22), although this benefit is not always obtained (12).

The main objective of CR is to provide the patient and family with the information, skills and coping strategies necessary to take appropriate control over the management of their own rehabilitation programme. This is also consistent with current models of nursing practise which emphasise the role of self care defined as 'The practice of activities that individuals initiate, on their own behalf, in maintaining life, health and well being' (23). When the individual has difficulty in achieving these aims unaided the nursing profession makes its contribution by providing strategies for support (24). In a somewhat different setting, we have shown that patients having rehabilitaion programmes following stroke or fracture are more successful in overcoming disability if they perceive that they have control over their recovery (25), confirming other findings showing health benefits of perceived control.

CR has great potential benefit for the health service both in terms of actual numbers of clients and in the evidence for positive outcomes which they may achieve. It is going to become increasingly important over the next decade as with the widespread use of thrombolytic agents, patients with uncomplicated infarctions are likely to be in hospital only for a few days and will have a shorter period of re-adjustment. They may well be discharged in a state of psychological shock which may increase the incidence of cardiac cripple if proper rehabilitation is not instituted.

Aims

The aim is to evaluate the benefits of structured educational CR programmes provided by a nurse counsellor for patients following a first MI (and their families). A minimal programme of inpatient sessions will be compared with a programme with additional post-discharge sessions and with normal care. The specific research questions are:

I Do patients following a first MI who receive a **minimal programme of inpatient CR** demonstrate a) equal benefit to those receiving an **extended programme** with additional post-discharge sessions and b) greater benefit than those receiving **normal care?** Benefits are defined as: 1) greater understanding of their illness and recovery plan, 2) less psychological disturbance and greater well-being, 3) reduced disability and faster return to normal activities, 4) fuller participation in their recovery plan and adherence to medication regimens 5) greater lifestyle change and risk-factor modification, 6) less morbidity and 7) reduced health care use.

II Do partners (of patients following a first MI) who receive a **minimal programme** of CR while the patient is in hospital demonstrate a) equal benefit to those receiving an **extended programme** with additional post-discharge sessions and b) greater benefit than those receiving **normal care?**
        Benefits are defined as: 1) greater understanding of the illness and recovery plan,
        2) less psychological disturbance and greater well-being, 3) greater lifestyle change
        and risk-factor modification, 4) reduced health care use.

III Is it possible to identify **sub-groups** of people (patients and partners) who do not benefit from the minimal programme but do benefit from the extended programme?

Design

Inpatient CR, following a first MI, will be compared with an extended programme involving additional post-discharge sessions given in the first 2 months and with normal cardiac care with randomisation to treatments. (The comparison with normal care allows the trial to establish whether any treatment shows benefit, while the comparison with extended care investigates whether additional inputs achieve greater benefit than the minimal treatment.) Follow-up will continue for one year. While the assessment of the effects in terms of recurrence or mortality is not powerful within the period of this grant, factors mediating these outcomes (risk factor behaviour and medication adherence) will be assessed. Processes mediating the outcomes, including both patients' and their partners' knowledge and perceived control will also be assessed. Distress and duration of disability are assessed as outcomes in their own right.

Patients

Patients admitted to Ninewells Hospital with a first MI will be invited to join the study if they are under 70 years of age and are fluent in English. Based on our preliminary study of the number of patients available, it is anticipated that patients will enter the study at the rate of 10 per month and that a total of 120 patients will be recruited in one year. Partners (spouses or 'significant others', defined as the person the patient identifies to be most involved in helping following discharge) will also be invited to join the study, giving a parallel group of 120 partners.

Normal Care in Ninewells Hospital

The care that the control group will receive and which is also the basic care for the experimental groups, consists of admission to the CCU followed about 48 hours later by transfer to one of 6 general medical wards (3 male, 3 female). Normal length of stay is 7 to 10 days in total. After discharge, outpatient care is variable, some patients being referred to the cardiology outpatient clinic, some receiving a special physiotherapy exercise programme and some being followed up only by their GP. It is anticipated that these variations will be equally distributed between three groups, but this will be noted and controlled for in the analysis.

Structured Educational Cardiac Rehabilitation Programmes

The **Minimal Programme** (MP) will involve counselling in groups of up to 12 individuals (patients and partners) for up to 3 sessions while the patient is in hospital. In addition each will receive up to 2 individual counselling sessions.

The **Extended Programme** (EP) will continue for a further 6 weeks, with up to 5 group and 3 individual sessions after discharge.
(These figures are based on current practise in non-evaluated programmes.)

The nurse counsellor appointed will change during the project in order to control for effects specific to the individual counsellor. The CR groups will be offered a programme of education and counselling by a nurse counsellor which will begin within 2 days of admission. Outpatient attendances will be coordinated with other outpatients visits and discretionary home sessions may be arranged. Content areas will include: information about CHD, treatment and investigations, personal risk factors and necessary strategies for modifying them, stress management (including relaxation training), gradual resumption of normal activities, problems of returning home and to work. Patients will be provided with written information tailored to their situation and needs, in addition to the normal care provision of standard material. Times and content will be documented and patients will be invited to comment retrospectively about the suitability of counselling received.

Assessments

Initial assessments primarily provide descriptive data and baselines for outcome variables. Follow-up measures include assessments of the processes mediating critical outcomes as well as the outcomes themselves.

While some assessments use standardised techniques, others will be developed in pilot work and validated in the study, using methods that we have used previously to assess knowledge and disability in other settings.

1. **Initial** assessment will involve the collection of demographic data (including relationship and contact with partner) and clinical data, including a Modified Norris index to indicate severity of MI. Prior to discharge, patients and their partners will complete a checklist to describe the patient's normal activities prior to the MI. In addition, the recommended plan for the patient's subsequent investigation, medication and other treatment will be recorded from patients' case notes.

2. **Follow-up** Assessments will include:

i Knowledge of heart disease, risk factors, personal risk factors, risk factor modification, medication plan, advised resumption of normal activities (mobility, driving, sex, work) will be assessed using a combination of open-ended and multiple-choice questions.

ii Distress assessed by the HAD (26): a standardised assessment of anxiety and depression designed for use with patients with physical illnesses.

iii Perceived Control over recovery will be assessed using the Recovery Locus of Control scale which has been shown to be internally consistent and to have predictive validity for patients receiving rehabilitation in other settings (25)

iv Disability and resumption of normal activities will be assessed using a questionnaire to compare with reported normal activities in the initial assessment.

v Medication adherence will be assessed by comparing patient reports with clinician recommendation.

vi. Risk-Factor Modification will be assessed in terms of behaviour change by comparison with previous behaviour and clinician's recommendations. In addition, weight and cholesterol will be assessed and, where appropriate, smoking cessation will be assessed using CO monitor. Also, hypertension and diabetic control will be evaluated where applicable.

vii Partner Assessments will be used to validate patient reports of iv, v and vi above. In addition the partner's Knowledge, Distress and Perceived Control will be assessed in the same way as the patient's and changes in the partner's own risk behaviours will also be recorded.

3. **Final** Assessments will obtain clinical and health care usage as follows:
Morbidity: subsequent reinfarction or cardiac readmissions will be noted from patients hospital notes
Health Care contacts (including further investigations or surgical treatment) will be ascertained from hospital notes and by asking the patient's GP.

Procedure

Patients and partners will be identified and undergo initial assessment within 48 hours of admission. Before entering the study, the content and timing of the CR programmes will be explained and patients will be told that these programmes are additional to normal care. The patients' GPs will be informed of the patients participation in the study.

Simple randomisation to CR and control groups is not possible because of the contamination effects and the possible perceived 'deprivation' of the control patients mixing with CR patients on the same ward. Therefore patients will be allocated to wards in accordance with current practice (i.e. by sex and by day of the week) and the 6 wards will be randomly allocated to have one of the two CR programmes or to the control group. In order to minimise the confounding of groups with particular wards and to ensure that the assessor is kept as blind as possible to the subject's allocation, ward allocation will be changed periodically. Each change will involve a clearance period,

during which patients on the earlier regime are discharged, and will involve randomisation. Randomisation will be conducted to achieve approximately one third of subjects in the control group with the remainder allocated equally to the two interventions. The randomisation will ensure equal numbers of men and women allocated to each group, and that each ward is included under each CR and control condition.

Patients and their partners will be reassessed at home 2, 6 and 12 months after admission. The 2 month point coincides with the end of the extended CR programme and is the point at which patients are generally considered to be ready to 'get back to normal'. The final two interviews examine lasting effects.

All patient/partner identification and all assessments will be done by JF. Random allocation to CR and control groups will be done by the counsellor in consultation with MJ. The counsellor will keep records of all counselling sessions offered and attended.

Statistical Analysis

Advice has already been given by statisticians in the Department of Public Health of Dundee University Medical School on necessary numbers to ensure adequate power for the comparisons involved. Group comparisons will use the 'intention to treat' principle and will involve: i) Both CR groups vs Control, ii) Minimal vs Extended CR. Groups will be compared on all variables assessed in follow-up assessments using both univariate and multivariate techniques. Multivariate techniques will be used to investigate whether a subgroup of patients exists who only benefit from the Extended programme. Further statistical advice will be available on completion of data collection.

Time Plan

The first 6 months will be spent piloting measures, establishing the CR programmes and setting up necessary procedures. Patients will be recruited to the study from months 7 to 18. The first counsellor will be appointed for months 1 to 12, the second for months 10 to 22. The final interview will be completed in month 30 and data analysis and report writing will be done in the final 6 months.

Ethical Considerations

Written informed consent to participate in the follow-up study will be obtained from all participating patients and their relatives. Ethical Committe approval is being sought from Tayside Ethical Committee.

(e) *Existing facilities (see Appendix 2)*

The Department of Nursing of Tayside Health Board have agreed to provide funding for the provision of counselling for the duration of this project if support is available for the evaluation.

(f) *Justification of requirements*

A salary is required to employ the first applicant to manage the research programme and to undertake the assessments. This level of expertise (nursing sister) is required for the clinical and management skills involved. (Training in research skills will be provided.) Other expenses include stationary requirements (for questionnaires, educational materials, etc.), additional office costs, cholesterol measurement and travel to patients' homes.

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CARDIAC REHABILITATION : EVALUATION OF AN IN-PATIENT AND AN EXTENDED PROGRAMME.

PROGRESS REPORT TO SCOTTISH HOME AND HEALTH DEPARTMENT

FEBRUARY 1993

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Title

Cardiac Rehabilitation: Evaluation of an in-patient and an extended programme.

Aim

To evaluate the benefits of structured educational Cardiac Rehabilitation (CR) programmes provided by a nurse counsellor for patients following a first MI (and their families).

1. Do patients who receive a minimal programme of inpatient CR demonstrate a) equal benefit to those receiving an extended programme with additional post discharge sessions and b) greater benefit than those receiving normal care?

2. Do partners (of patients following first MI) who receive a minimal programme of CR while patient is in hospital demonstrate a) equal benefit to those receiving an extended programme and b) greater benefit to those receiving normal care?

3. Is it possible to identify sub-groups of people (patients and partners) who do not benefit from the minimal programme but do benefit from the extended programme?

Current Investigation

The value of the study continues to be important and no similar study design has been published or presented at conferences (including the Vth World Congress of Cardiac Rehabilitation. Bordeaux 1992) which would pre-empt the results.

Progress to date

The study commenced in August 1991 and this report describes the work undertaken until January 1993. The first six months were spent setting up the intervention and refining the measures to be used. A nurse counsellor was appointed for the first half of the project. As specified in the design, the counsellors changed during the study in order to control for effects specific to the individual and the second counsellor is currently in post.

A manual, to be used for the intervention, has been written. [see Appendix 1 for contents page. The manual is available for inspection on request.] The first section describes the philosophy, purpose and goals of the programme. A chapter on the role of the nurse as an educator and counsellor incorporates the principles of learning on which the programme is based. The main sections describe the topics which are covered during the programme including information about CHD, treatment and investigations, personal risk factors and necessary strategies for modifying them (including relaxation training), resumption of normal activities, problems of returning home and to work and how to manage future symptoms. A list of the educational aids and a resource list is included.
To ensure replicability of the intervention the value of the manual has been tested in the induction of the second counsellor.

All of the measures outlined in the proposal have been implemented, are proving successful and are acceptable to the patients. The measures adopted and work done in developing them, are reported in Appendix 2

Subjects

On the basis of previous admission figures, we predicted that the recruitment rate of people who fulfilled the entry criteria would be 10 per month. Recruitment has proceeded on target. Currently 108 patients have been recruited. 75 partners have agreed to participate. We anticipate reaching our target of 120 patients within the specified time. Table 1 presents information relating to this population.

Table 1.

	Total	Male	Female
Actual number recruited to date	108	(70	38)
Subsequently lost to follow up		M	F
Deaths	6	(5	1)
Voluntary withdrawal	6	(4	2)
Moved outwith area	1	(1	0)
Number currently available for follow up	95	(60	35)

Partners

As specified in the proposal, partners (identified by the patient as a person having significant contact) were also invited to participate in the study. To date 75 partners have agreed to take part. 54 female partners and 21 male partners. The majority (69) were spouses, but also included are 1 son, 2 daughters and 3 girlfriends, all of whom live with or nearby the patient.

Randomisation

As described in the proposal, randomisation has been based on the wards to which the patient is admitted in order to minimise contamination effects between subjects. The wards have been randomly allocated to one of the two CR programmes or to the control group and the ward allocations have been changed periodically. Interviewers have been blind to this random allocation. Table 2 describes the numbers of patients in each group as of 31st January 1993.

Table 2

Number of patients in each group.

Control	37
Minimal programme	42
Extended programme	29

Data collection

Data collection is generally proceeding as scheduled. By January 31st 1993, 108 patients have been assessed in hospital, 103 subjects had completed the follow-up interview, at home, within 2 weeks of discharge and 84 had been reassessed at 2 months, 52 had completed the 6 month and 10 the 12 month follow up. 5 follow up interviews have been late (longest delay- 1 month) either because of continuing morbidity (readmission/ cardiac surgery) or patient's absence on holiday. These delays will be noted and allowed for in the analysis. [See Appendix 3 for interview schedule.] Partner assessment has proceeded in parallel.

Analysis

At this stage no data relevant to the evaluation of the different interventions can be reported. Analysis between groups has not yet been performed as this would entail breaking the blind nature of the study design. However the study allows us to examine important questions about the immediate impact of an MI and these data can be reported whilst remaining blind. These analyses point to the emotional states, knowledge and misconceptions in patients and partners which may subsequently be found important in understanding the impact of CR programmes. The results of this early analysis are reported in this paper.

Analysis of baseline data: Knowledge and distress of patients and partners.

Analysis of baseline data on the first 50 patients was performed to look at the early levels of distress amongst patients and partners, to elicit their beliefs and misconceptions about a heart attack and to investigate any association between cognitions and distress. These early results were presented at Promoting Health - an International Research Conference for Nursing, in London, September 1992 and a paper was submitted as an invited chapter in a book to be published based on the conference. (Copies of the paper are enclosed)

The main results show; First, partners, both male and female have significantly higher levels of distress than patients. Most of the previous research in this area has investigated only the effects on wives. Second, patients, including women, in the present sample generally showed lower levels of anxiety and depression than might have been expected from previous work in this area. Third, people hold a varying range of beliefs and misconceptions which may have implications for future recovery and which need to be addressed if successful rehabilitation is to be achieved.

Table 3 Shows the characteristics of the sample.

Table 3

	Patients (n = 50)	Partners (n = 40)
Male	32	12
Female	18	28
Mean Age (range)	57(41-70)	53(28-71)

Recruited within 72 hrs of admission

Other misconceptions which may impede resumption of normal activity included the belief that a heart attack means the heart was worn out, that after a heart attack most people never return to their previous level of activity, that sex life had to be modified forever, and that it was important to avoid laughing too hard after a heart attack!. Misconceptions which could result in an ill-advised recovery plan, included the belief that they should return to normal activity immediately on discharge, that it was alright to drive during the first week at home and in not acknowledging that the chances of another heart attack were reduced if necessary lifestyle changes were made. It will be important to assess these cognitions in evaluating the impact of the CR programmes.

Future plans.

Recruitment will be completed at the end of February 1993. Data collection will be completed at the end of February 1994. Data analysis and report writing will be performed in the final 6 months, when it will be possible to assess the effects of the cardiac rehabilitation programmes.

Publications.

Foulkes J, Johnston M, Robertson C. (in press)
Knowledge and Distress: Implications for a Cardiac Recovery Programme.
In Health Promotion and Nursing Research. edited by J.Wilson-Barnett & J Macleod-Clark.
[4 copies enclosed.]

Attendances at Conferences / Courses.

In the interest of the current research   J.Foulkes has attended the following relevant meetings. Presentation of papers are highlighted.

1. Promoting Health:- International Research Conference for Nursing. London. September 1992.
  Presentation of paper.(see above.)

2. World Congress of Cardiac Rehabilitation. Bordeaux July 1992.
  Attendance funded by award from National Board for Nursing.

3. Inaugural Meeting British Cardiac Rehabilitation Association.
July 1992. Member of steering group for Scotland:- Cardiac Interest Group Scotland. Currently organising meeting " Cardiac rehabilitation problems " to be held 31st March 1993, Astley Ainslie Edinburgh.

4. Training Course in Health Services Research Methods. Part 1 & Part 2. Health Services Research Network. Edinburgh.

5. ERASMUS. Post-graduate course in Health Psychology as applied to prevention of Cardiovascular Disease. Leiden University, May 1992.

6.British Psychological Society. April 1993. Annual Conference. **Invited to present a paper** .

Emotional state

As detailed in the measures section (Appendix 2) subjects were assessed using the **Hospital Anxiety and Depression (HAD) scale** to assess the levels of anxiety and depression which are the psychological symptoms most commonly encountered in the immediate post infarct period. Previous research has generally reported high levels of distress in both patients and their partners; most of the work has related to male patients and their wives. Figures relating to these analyses are included in Appendix 4.

Anxiety

The mean HAD Anxiety score for patients' was 4.2 and the mean score for partners was 11.3.[Fig 1]. A t-test revealed a significant difference ($t = 8.83$, $df = 39$, $p = <0.001$) between patients and partners. The results for patients showed the mean score was well below the cut off point for disorder (score of 11) with only 12% of the patients being above this level, in contrast to 60% of the partners.

Depression

The mean HAD depression score for patients was 3.0 and the mean score for partners depression was 7.0.[Fig 1]. A t-test again showed significant difference between patients and partners ($t = 4.58$, $df = 39$, $p = <0.001$) The frequency distribution revealed that only 1 patient (2%) could be described as 'clinically depressed' whereas 8 partners (20%) were above this level.

Effect of Gender

It was possible that partners were more distressed as a group because they were predominantly female (male $=12$, female $= 28$). Further analyses however revealed no significant sex difference for either anxiety or depression. Male partners were equally as distressed as female partners and female patients had low levels similar to male patients.[Fig 2].

Correlation between couples.

Having established a significant difference between patients' and partners' distress it was plausible to ask if couples shared their distress. Did distress in one predict distress in the other? Results showed a significant correlation ($r = 0.33$, $p = < 0.05$) for their anxiety score but not on their depression. ($r=0.11$, ns). Figure 3 shows the scatterplot of patients' and partners' scores.

Cognitions

We constructed the **knowledge** questionnaire (see measures section, appendix 2) to elicit beliefs and misconceptions about a heart attack and advised resumption of normal activity. No significant difference was found between patients and partners on either their total levels of knowledge or misconceptions, however partners were significantly more uncertain than were patients. ($p = < 0.0001$).

Association between cognitions and distress

Whilst several separate knowledge items showed some association with anxiety or depression, no association was found between total levels of knowledge, misconceptions or uncertainty and distress.

Misconceptions

Misconceptions which may have implications for future recovery are shown in Table 4.

Table 4.

Statement	% holding misconception	% unsure
A heart attack means the heart is worn out.	45%	16%
The pain in a heart attack is known as heartburn.	12%	8%
The pain always means there is more actual damage being done.	60%	27%
The chances of another heart attack are reduced:- a) if you make necessary changes to lifestyle	9%	6%
b) if you return to normal activity immediately when you leave hospital	8%	9%
After a heart attack:- a) it is important to avoid laughing too hard	16%	20%
b) most people never return to previous level of activity	21%	9%
c) your sex life has to be modified forever	13%	27%
d) you can drive during the first week at home	4%	8%

Conclusions.

The results from this early analysis have shown that **partners**, both male and female, have significantly higher distress than patients. The previous work within this area has predominantly studied male patients and their wives, so the findings that male partners are equally affected is of clinical importance. Partners often receive less attention from health care professionals, yet they play an important role in the patients readjustment and recovery and in moderating the impact of the illness upon the family. **Patients**, including women, generally showed lower levels of distress than might have been expected from several previous studies. The evaluation of previous findings in this area are confounded by methodological problems such as variations in methods of assessment and the different timings of assessments.

People in the present sample held a varying range of beliefs and misconceptions which may have implications for their future recovery. The incorrect belief that the pain in a heart attack was known as heart burn, may result in either not reporting symptoms or in trying inappropriate analgesia. Believing that the pain always results in more actual damage to the heart, may well cause distress during future anginal episodes.

Research workers.

a) J. Foulkes.   Research associate. Grantholder.

   M. Johnston.   Professor of Psychology. Grantholder.

b) H. Gudmunsdottir.   Research associate. Collaborating on the
                             study. Investigating- Coping and causal
                             attributions following myocardial
                             infarcton. Funded by grant from British
                             Heart Foundation.

   C. Dingley.   Cardiac Counsellor. Employed by Tayside
                             Health Board

   H. Dryden.   Cardiac Counsellor. Employed by Tayside
                             Health Board.

Financial Statement.

Expenditure until 31/12/92.

Salaries (including NI & superannuation)	£ 27,242
Travel costs	£ 1,692
Data Analysis Consultancy Fee	£ 500
Consumables	£ 538
Equipment	£ 380
Total to date.	£ 30,352

Appendix 1. Contents of Cardiac Rehabilitation Research Programme Manual.

Appendix 2.

Measures.

This appendix describes the measures that have been used. An interview schedule is included. Measures denoted with an * are the ones which have been developed or are additional to the original proposal.

1. Distress.

Hospital Anxiety and Depression (HAD) scale.[Zigmond & Snaith 1983] A well-validated assessment of anxiety and depression designed for use with patients with physical illness. {14 items}

2. Knowledge *.

The knowledge questionnaire was constructed for the current study to elicit beliefs and misconceptions about a heart attack and resumption of normal activity.It was validated by an independent expert panel. On recruitment(administered as a pre-intervention test) it consists of 19 items to which the response was True, False or Don't Know. Three separate scores were computed; a correct score, a misconception score and an uncertain score. The internal consistency of the scores were reasonable, the Cronbach alphas were 0.68, 0.57 and 0.74 respectively. Three additional items examine perceived causal factors and one item asks anticipated healing times after MI. On subsequent administration of the questionnaire, 2 additional questions pertain to knowledge of prescribed medication and action to be taken in case of future pain. These items will be subject to validity checks during the analysis phase.

3. Risk-factor Modification.*

An assessment of behavioural change in terms of previous behaviour and clinician's recommendation has been measured by using an adaption of the measure used by the Scottish Heart Health Study [Smith et al 1990]. 6 additional items were included to investigate attitudes to smoking cessation; these items were used by Social & Community Planning Research [Social & Community Planning Research 1990]. Body mass index, total cholesterol, blood pressure and carbon monoxide levels have been monitored and diabetic control is being monitored if applicable.

4. Perceived Control over Recovery.

Is being assessed using the Recovery Locus of Control (RLOC) scale [Partridge CE & Johnston M 1989] which has been shown to be internally consistent and to have a predictive validity for patients receiving rehabilitation in other settings.

5. Powerful Others.* PO

Belief in control by health professionals and 'powerful others', has been found to be important in other locus of control measures, such as the Multidimensional Health Locus of Control [Wallston, K & Wallston, B 1978]. Studies being carried out by our research group at St Andrews University have designed, validated and checked the internal consistency of 3 items investigating this aspect of control. Inclusion of these items will also allow for comparisons to be made with patients suffering from other illnesses

6. Health Value.* HV

Research has shown that the value placed upon health is pertinent to examinations of health locus of control and recovery. Four items designed by Lau, Hartman and Ware [1986] have therefore been included. This will also allow comparisons to be made with other studies within our research group.

7. Disability and resumption of normal activity.

The Functional Limitations Profile (FLP) [Patrick & Peach 1989] is being used to measure a wide range of activities as it addresses limitations and handicap as well as disability. It is the British version of the Sickness Impact Profile. It is important to this study to use a sensitive measure of the impact of MI on a wide range of functions.

8. Medication adherence.

Is being assessed by comparing patient reports with clinician recommendation.

9. Morbidity.

Subsequent re-infarction or cardiac readmissions are being noted from hospital records at the 1 year follow-up period.

10. Use of health services.

Investigations, surgical procedures, hospitalisations and GP contact is being noted at the 1 year follow-up, from hospital records and GP enquiry.

11. Confidence/ Recovery.*

Two items included by Lewin et al [1992] in the evaluation of a self-help heart manual measured the confidence people held in their future recovery and the perception of how their recovery was progressing. The items have been included to allow comparisons between the two studies.

12. Information received and satisfaction with advice.*

Open ended questions have been developed to investigate whether the content and timing of information was suitable and whether their perceived needs were met. Satisfaction with advice is rated.

13. Partner assessment.

Partners are assessed as above, although the measures of disability and medication adherence are used to validate patient reports. Risk factor modification is measured both for the partners themselves and also to verify patient's assessment.

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Appendix 3   .INTERVIEW SCHEDULE

	T1	T2	T3	T4	T5
Distress (HAD)	+	+	+	+	+
Disability (FLP)			+	+	+
Risk Profile	+		+2	+2	+2
BP/weight/CO monoxide		+	+	+	+
Cholesterol	+			+	+
Perceived Control (RLOC/PO/HV)		+	+		+
Knowledge	+	+2	+2		
Medication		+	+	+	+
Confidence/Recovery		+	+	+	+
Information/Satisfaction		+	+	+	+
Health Care Contact 1. Self report			+	+	+
2. GP					+
Morbidity					+
Mortality					+

T1 = On Recruitment
T2 = within 2 weeks discharge
T3 = 2 month since admission
T4 = 6 month since admission
T5 = 1 year since admission

2 - Measures include additional items not incorporated at recruitment interview.
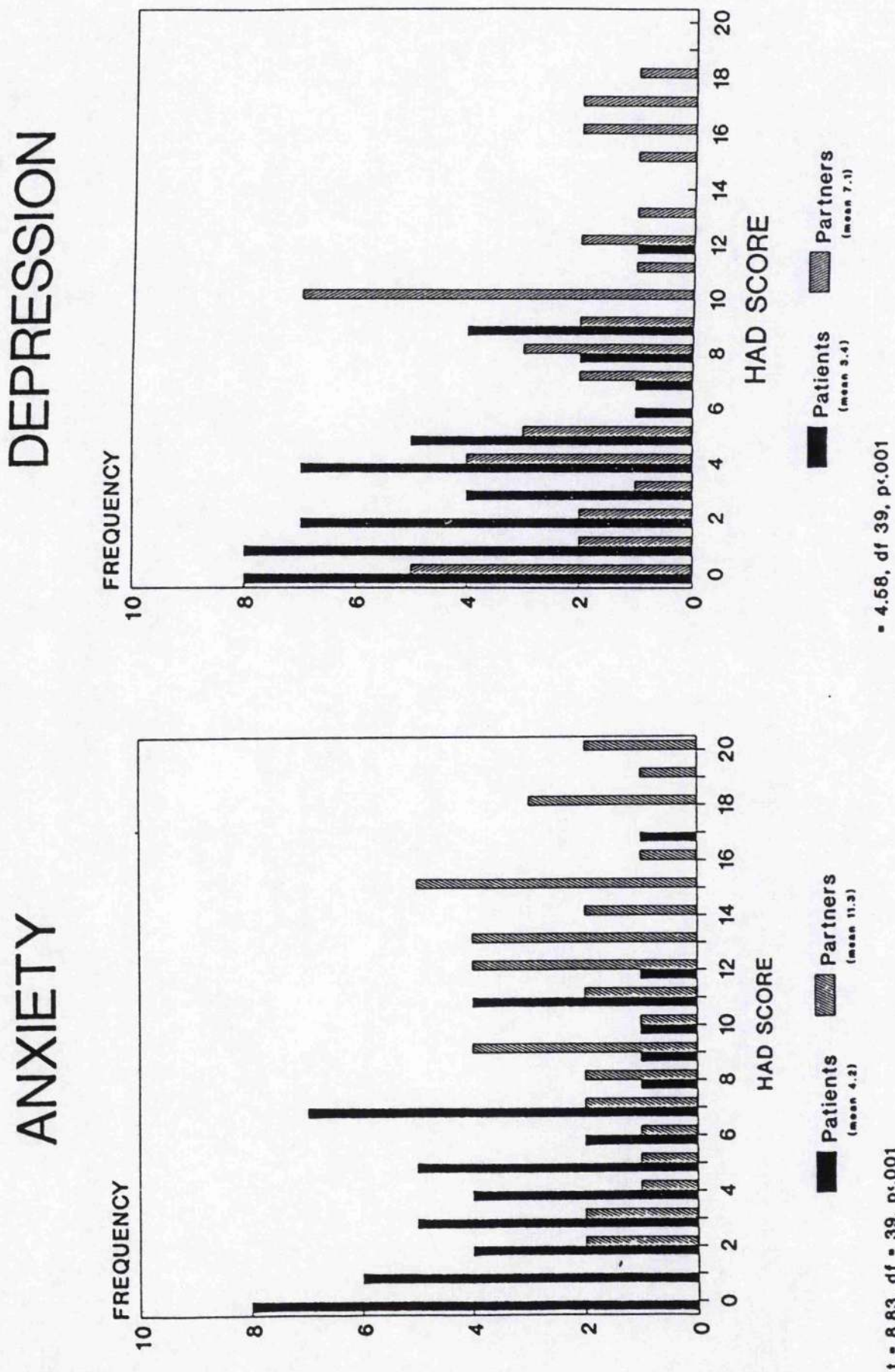
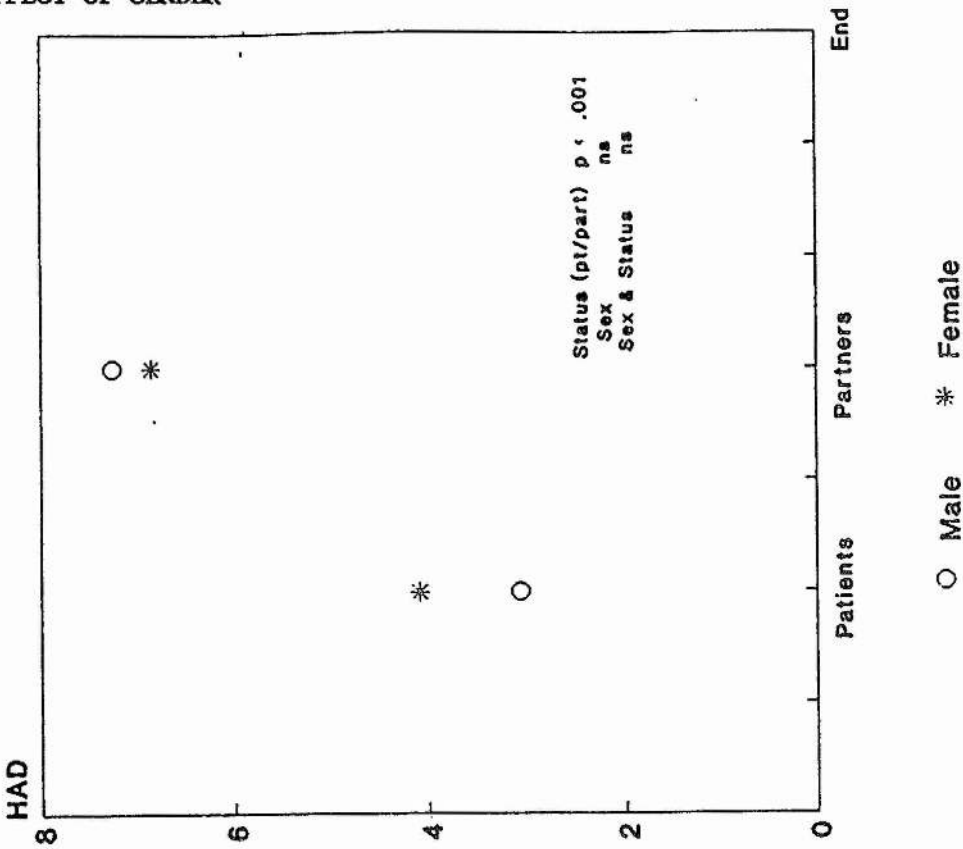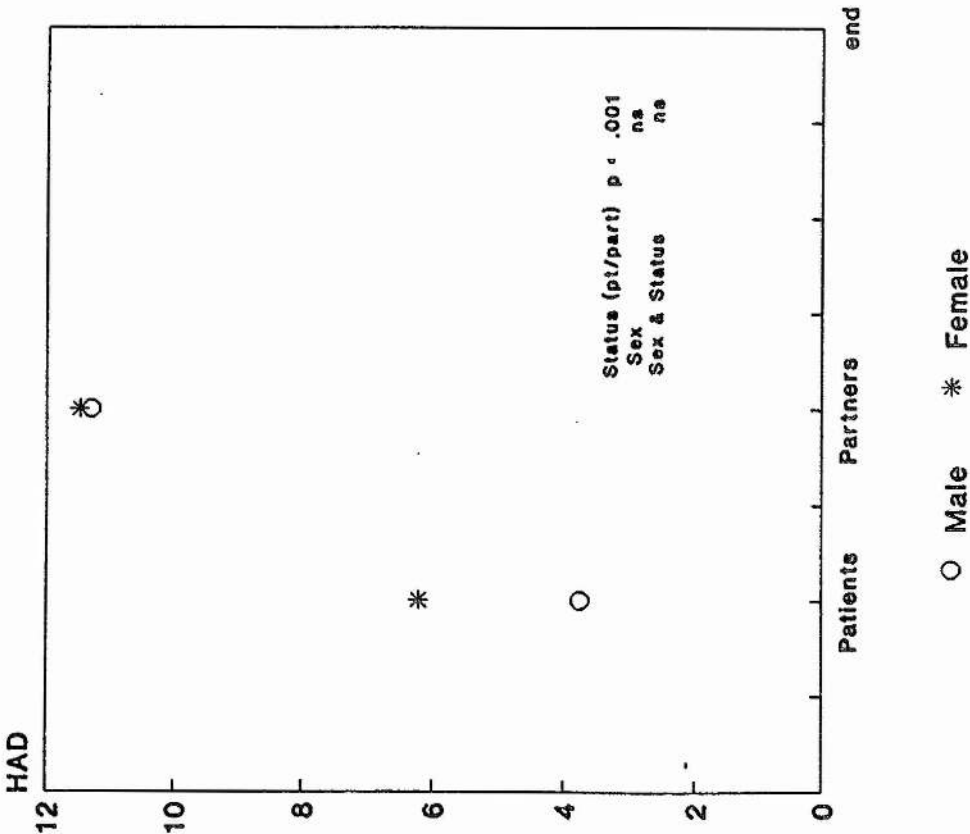Fig 1.   FREQUENCY OF ANXIETY/ DEPRESSION FOR PATIENTS AND PARTNERS
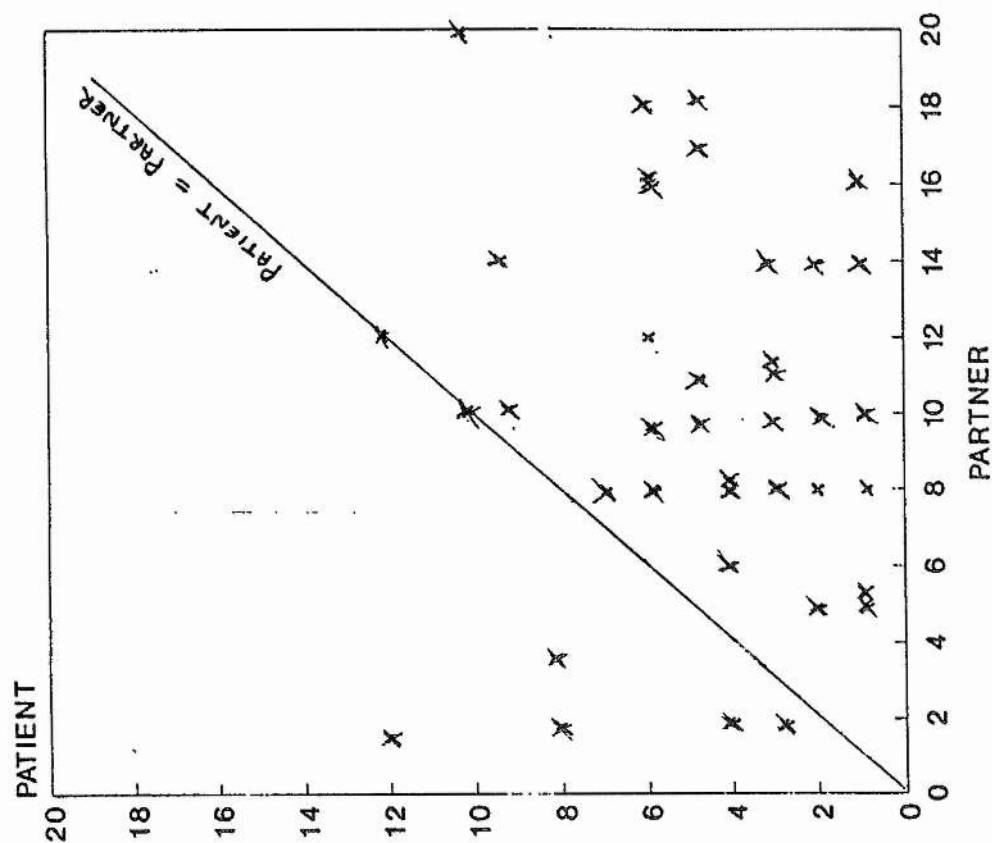
FIG 2.   EFFECT OF GENDER

DEPRESSION

ANXIETY

APPENDIX 4.

Fig 3. SCATTERPLOT OF COUPLES ANXIETY / DEPRESSION

DEPRESSION

r = .11, ns

ANXIETY

r = .33, p < .05
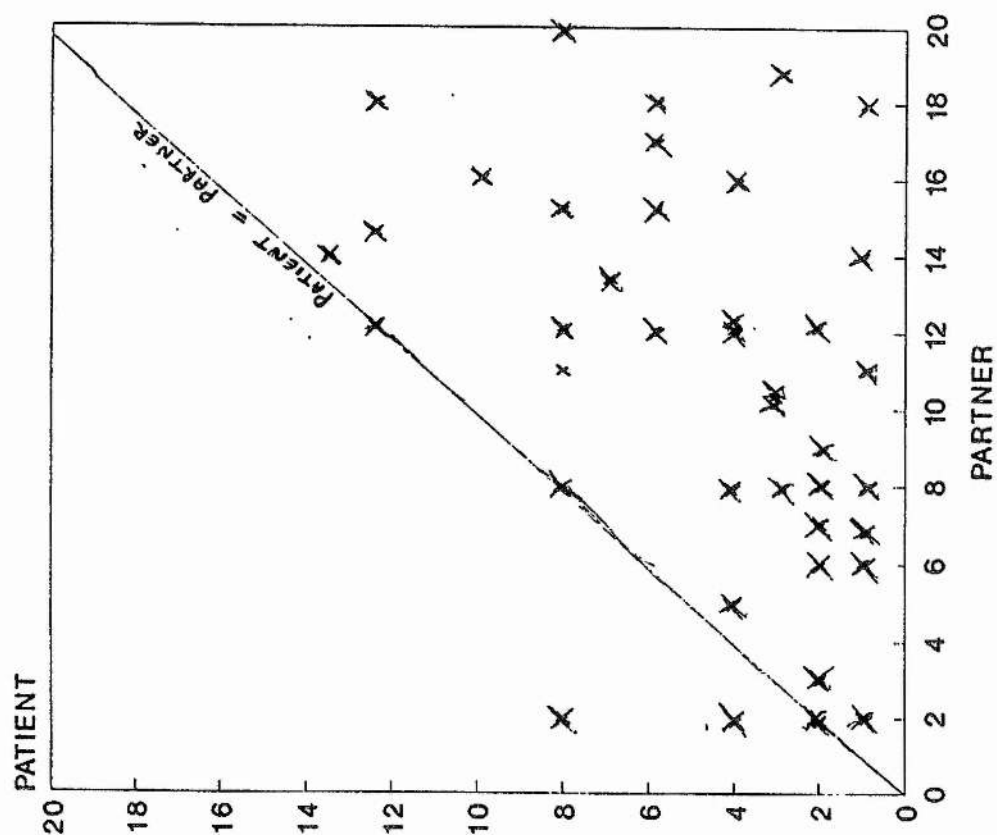
SECTION IV

PUBLICATIONS

21 *Knowledge and distress: implications for cardiac recovery programmes*

Joan Foulkes, Marie Johnston and
Catherine Robertson

Introduction

Cardiac rehabilitation (CR) programmes aim to provide the patient and family with the information, skills and coping strategies necessary to take appropriate control over the management of their own recovery pain (Dorossiev, 1983; O'Connor, 1989; Thompson, 1990; Lewin *et al.*, 1992).

It is well recognised that a myocardial infarction (MI) can produce immediate and long-term effects which are physical and psychological in nature and affect both the patients and their families (Mayou, 1979; Wilson-Barnett, 1979; Cay, 1982). An MI is usually of sudden onset but stems from a chronic pathological state; this has implications in that the acute illness is often of a dramatic, but short-lived duration. The patient and family may undergo a period of intense anxiety at the outset, at which time the emotional climate and problems of how people perceive their situation may influence their learning ability. Frequently, however, particularly since the use of thrombolytics, the patient's symptoms and physical condition may show a rapid improvement after initial therapy. It is then often more difficult for patients to believe that they have actually suffered a heart attack, indeed patients commonly say that they 'feel a fraud'. The short duration of symptoms and early discharge from hospital, sometimes after only five days, reinforces the belief that the episode was mild. Awareness and acknowledgement of the need for life-long behavioural change, in order to minimise the possibilities of reoccurrence, become less likely.

It is against this background that CR programmes have to work. As early as 1966, Henderson argued that it was part of the nurse's role to improve the patient's understanding and thus promote health. Cardiac rehabilitation addresses four major areas in the immediate post-MI

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period: (i) the patient's knowledge of the MI, the associated risk factors and recovery plan; (ii) their distress; (iii) the necessary modification of lifestyle; and (iv) the resumption of normal activities. The focus of this chapter is on knowledge and distress.

The results reported here are baseline data from the first fifty patients (thirty-two men and eighteen women) who entered a continuing study, the aim of which is to evaluate the benefits of structured educational CR programmes provided by a nurse counsellor for patients following a first MI (and their families). Patients were recruited within seventy-two hours of admission to the Coronary Care Unit at Ninewells Hospital, Dundee. Partners were also invited to participate. Ten patients were recruited on their own into the study as they did not wish anyone to be included with them. The mean age of patients was 57 years (range 41–70) and of partners was 53 years (range 28–71).

Knowledge

Knowledge has frequently been measured in order to evaluate the impact of patient teaching. Indeed some CR patient education studies appear to measure knowledge as an outcome in its own right (Rahe *et al.*, 1975; Owens *et al.*, 1978; Milazzo, 1980). However, a change of behaviour does not automatically result from increased knowledge of risk factors (Kemm, 1991) and knowledge should therefore be seen as a process, mediating a change in lifestyle, which is likely to reduce cardiac morbidity.

Even patients who are quite knowledgeable in some areas may have misconceptions which not only influence their post-MI behaviour, but may be a source of confusion and distress. A major component of the self-help Heart Manual designed by Lewin *et al.* (1992) was to provide cognitive approaches to assess and reduce misconceptions that were maladaptive.

The Knowledge questionnaire was constructed for the current study to elicit beliefs and misconceptions about a heart attack and resumption of normal activity. It consisted of nineteen items to which the response was True, False or Don't know. It was validated by an independent expert panel. Three separate scores were computed; a correct score, a misconception score and an uncertain score. The internal consistency of the scores was reasonable, the Cronbach alphas were 0.68, 0.57 and 0.74 respectively.

Several of the misconceptions which people reported may well have implications for their future recovery. Twelve per cent of the subjects in the current sample thought that the pain in a heart attack was known as heartburn, this incorrect belief may well result in either not

reporting symptoms or causing them to try inappropriate analgesia. Sixty per cent thought that further pain always resulted in more actual damage to the heart; future anginal episodes may well cause greater distress for these people than those who made a correct assessment. Sixteen per cent believed that it was important to avoid laughing too hard after a heart attack! Other reported misconceptions which may impede resumption of normal activity included the belief that a heart attack means the heart is worn out, that after a heart attack most people never return to their previous level of activity and that sex life has to be modified forever.

Some misconceptions could result in an ill-advised recovery plan; 8 per cent thought that they should return to normal activity immediately on discharge, 9 per cent were uncertain about this. Four per cent thought that it was permissible to drive during the first week at home and 8 per cent were unsure. Fifteen per cent either disbelieved or were unsure that the chances of heart attack were less if they made necessary lifestyle changes.

No significant difference was found between patients and partners on either their total levels of knowledge or misconceptions. However, partners had significantly more uncertainty than patients.

Distress

Previous research suggested that both patients and partners would have high levels of distress (Mayou, 1979; Cay, 1982; Thompson *et al.*, 1982; Thompson *et al.*, 1987), and that women would have higher levels of anxiety (Vetter *et al.*, 1977). The psychological symptoms most commonly reported in the post-infarct period were anxiety and, to a lesser extent, depression.

The measure used for this study was the Hospital Anxiety and Depression (HAD) scale, a widely used questionnaire designed by Zigmond and Snaith in 1983 (cited 1990) to provide separate measures of anxiety and depression. It is brief and, unlike many other mood rating scales, items which reflect symptoms likely to be present in physical illness are, as far as possible, excluded. Scores of eleven or more on each subscale have been found to indicate the presence of clinical mood disorder.

Twelve per cent of the patients in the current sample scored above the cut-off point for clinical anxiety and only 2 per cent were above the cut-off score for clinical depression. By contrast, however, 60 per cent of the partners had anxiety scores above eleven and 20 per cent had depression scores above this level.

Patients in the present sample generally showed lower levels of anxiety and depression than might have been expected from the

results of many previous studies (Mayou, 1979; Cay, 1982) where distress was assessed by psychological interview. The evaluation of findings in this area is confounded by methodological problems such as variations in methods of assessing anxiety and the different timing of the assessments.

Lower levels of distress have been found by several other authors, such as Sykes *et al.* (1989), who also argue that to focus on the means of a group may well be inappropriate as there are individuals within this whose levels are high. Havik and Maeland (1990) recommend that emotional reactions after infarction should be monitored during convalescence, as they have shown that for a subgroup of patients prolonged emotional upset may have a delayed onset. They argue that rather than follow the traditional concept of a linear relationship with emotional reactions resolving over time, they may actually follow a rather more complex pattern.

Having established that partners were more likely to be showing clinical levels of distress, it was plausible to ask if couples shared their distress. Did distress in one predict distress in the other? Results showed a significant correlation for anxiety but not for depression, i.e. couples tended to share their anxiety, but not their depression.

It was possible that partners were more distressed as a group because they were predominantly female (male = twelve, female = twenty-eight). Results, however, revealed no significant sex differences for either anxiety or depression. Male partners were as distressed as female partners and female patients had similar low levels to male patients. Vetter *et al.* (1977) demonstrated that female patients were more anxious than male patients, but this finding was not replicated in the current sample.

Association between cognitions and distress

In the nursing literature, several proposals about the relationship between cognitions and distress are discernible. First, greater knowledge, information or accurate expectations are expected to reduce distress. Second, greater uncertainty has been associated with greater distress. Third, some misconceptions, such as those addressed by Lewin (1992) may give rise to greater distress. These three hypotheses were examined in the current study. No association was found between total levels of knowledge, misconceptions or uncertainty and distress, although some individual items from the knowledge questionnaire showed some association with anxiety or depression.

Implications for cardiac rehabilitation programmes

The results from this early analysis have shown that partners, both male and female, are more likely to show higher levels of distress than do patients. Most of the previous research into partners of MI patients has investigated only the effects on wives (Cay, 1982; Hentinen, 1983; Thompson *et al.*, 1990), but the current research indicates that the high level of distress in partners affects husbands and wives equally. Families of MI patients often receive less attention from health care professionals, yet they play an important role in the patients' readjustment and recovery and in moderating the impact of the illness upon the family. These findings serve to emphasise earlier recommendations that partners should be included in cardiac recovery programmes. (Hentinen, 1983; Thompson, 1990). Spouses, family members and others having significant amounts of contact with the patient should be involved from the beginning because they experience their own difficulties in coping with the patient's condition (Wilson-Barnett, 1979), and because they may be particularly receptive to the need for their own lifestyle to change, with its potential for primary prevention, at the time of the MI (Hentinen, 1983; Thompson *et al.*, 1990).

The finding that patients had relatively low levels of distress may reflect the euphoria at survival, relief at being painfree or that patients were using avoidant coping, which whilst beneficial in the acute phase may lead to problems of adjustment if used in the long term. It is therefore important to measure changes in distress levels over the year following the MI and to assess ongoing coping strategies in order to monitor progress. This is being undertaken in the current study.

· People in this sample have been shown to hold a varying range of beliefs and misconceptions which may have implications for future recovery. Ruzicki (1989) asserted that individual assessment is necessary as a guide to determining the educational needs of the person. The need for adequate assessment has been highlighted in several other studies (Casey *et al.*, 1984; Moynihan, 1984), and it has been shown that before meaningful patient education can take place one needs to know how the patient perceives the situation (Casey *et al.*, 1984).

As highlighted by Linn *et al.* (1984) there is now a move away from standardised information, dictated by the health professional towards an emphasis on the needs of the individual who may have diverse requirements. The results presented suggest that this information needs not only to be individually tailored for patients, but also to be adapted for the partners if maximum benefits of CR are to be achieved.

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Cardiac rehabilitation: Evaluation of an in-patient and an extended programme

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It is widely acknowledged that a Myocardial Infarction (MI) can produce immediate and longterm effects which are both physical and psychological, and affect both the patient and their family. Cardiac Rehabilitation (CR) programmes have been shown to be effective in reducing these adverse reactions. At a time when the patient may be receptive to the need for change, CR programmes can offer an opportunity for secondary health prevention and may provide primary health prevention for the family. Nurses are showing enthusiasm for developing such programmes as an integral part of their clinical work but need guidance on the type of programmes to adopt. Whilst some evaluations have been done, several have been criticised and there is evidence to suggest that many programmes have not been designed to demonstrate the minimal input required to be effective.

EARLY RESPONSE TO MYOCARDIAL INFARCTION - THE
RELATIONSHIP BETWEEN INFORMATION, CAUSAL BELIEFS,
COPING AND DISTRESS.

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Cardiac Rehabilitation (CR) programmes provide a diversity of
components, but there is a need for targeting these appropriately. This
paper examines factors associated with distress in the early recovery
period.

A cohort of 116 MI patients were recruited within 72hrs of admission to
hospital; as part of a longitudinal, intervention study with a one year
follow up period. Data reported in this paper describes the findings at two
assessment points; on recruitment and within one week of discharge from
hospital. On the Hospital Anxiety and Depression Scale(HAD) (Zigmond
and Snaith 1983) the mean level of anxiety at recruitment was 5.17,
depression was 4.40 and at discharge 5.45 and 4.79 respectively.
Information about MI and CR was assessed using a scale specially
developed and validated, and patients were found to have a moderate level
of knowledge and a wide range of misconceptions. The main coping
strategies used (COPE) were acceptance, restraint, active coping and
seeking of social support. The most common attribution (using Norman's
1991 method) for the MI was to self, especially self behaviour blame.

No association was found between total levels of knowledge,
misconception or uncertainty and distress. Both anxiety and depression
were positively related to self behaviour blame, self character blame and
other blame. Use of alcohol and drugs as a coping strategy was associated
with higher anxiety, while using mental disengagement was correlated
with higher depression scores.

These results suggest that in order to reduce distress in the immediate
recovery period, CR Programmes should focus on enhancing adaptive
coping strategies and addressing attributions to the self.