

# FACTORS WHICH MAY PREDICT SUCCESSFUL REHABILITATION IN PATIENTS WHO HAVE UNDERGONE CORONARY ARTERY BYPASS SURGERY: A PILOT STUDY

C Eales MSc Physiotherapy  
Physiotherapy Department  
University of the Witwatersrand  
A Stewart BSc Physiotherapy, MSc  
Medicine, DPE  
Physiotherapy Department  
University of the Witwatersrand

## INTRODUCTION

Coronary artery bypass surgery is being used increasingly as a method of treatment for patients with ischaemic heart disease<sup>1</sup>. Some patients seem well equipped to deal with the challenge of returning to a productive and active lifestyle and others simply cannot cope. It seems that there are many factors which influence the outcome of successful rehabilitation.

The World Health Organization defines successful rehabilitation of cardiac patients as the sum of activity required to ensure them the best possible physical, mental and social conditions "so that they may by their own efforts regain as normal as possible a place in the community"<sup>2</sup>.

This definition implies that the patient should assume an active role in his rehabilitation and accept responsibility for himself. Responsibility is defined as being morally accountable for one's actions and so self-responsibility is then the moral accountability for one's own actions, as regards to one's self.

Unfortunately, however, this important aspect of rehabilitation is frequently neglected, both by patients and the medical profession.

Central to the WHO's definition of rehabilitation given above, is the concept of a patient accepting responsibility for his/her own progress. This responsibility or self-responsibility should then become a major objective for cardiac rehabilitation programmes.

The issue of who is ultimately responsible for an individual's health or illness is one which can be debated. Many patients and most medical doctors believe that doctors are primarily responsible. Increasingly,

however, the feeling is that individuals themselves must take responsibility for their health and until this is done, improvements in existing health care systems will not materialise.

In order to assume this responsibility individuals must understand disease processes, know what is preventable and be interested in maintaining good health.

In a chronic disease such as coronary artery disease, it is perhaps appropriate to consider reduction of disability and handicap, which may be equated with an improvement in quality of life, and an acceptance of self-responsibility for compliance with long term changes in health style, as the predictors for the successful outcome of rehabilitation.

With ever increasing health costs, factors which may contribute to successful rehabilitation become important considerations.

Oldridge considers cost-effective rehabilitation services the challenge of the 1990's<sup>3</sup>.

The two most important components for successful rehabilitation therefore become:

- An improved quality of life.
- An acceptance of self-responsibility for rehabilitation<sup>2</sup>.

However, improvement in quality of life is a subject which has been well researched and documented in the literature<sup>4,5</sup>.

The concept of patients accepting responsibility for their own rehabilitation has received little attention.

In order to establish if the acceptance of self-responsibility is indeed a major component of successful rehabilitation and to identify the factors which indicate the acceptance of self-responsibility, a pilot study was undertaken.

For this purpose a questionnaire was designed to meet the following objectives:  
To assess:

- The socio-economic status, fitness profiles, exercise habits and obesity profiles of a group of patients who had undergone coronary artery bypass surgery.
- The post-operative medical status of this group.

## ABSTRACT

A study was conducted to determine the factors which may predict the successful outcome of rehabilitation in patients who had undergone coronary artery bypass surgery.

Rehabilitation was considered successful if the patient experienced an improved quality of life and had accepted the responsibility for his/her own rehabilitation.

Ten patients who had undergone coronary artery bypass surgery one year ago, were selected from the Cardiac Rehabilitation Unit of the Johannesburg Health and Housing Department.

The outcome of rehabilitation was determined in these ten patients by judging their improvement in quality of life and their acceptance of self-responsibility.

This was done by administering a questionnaire to the patients and their spouses which covered aspects of compliance to a programme to modify risk factors, the patients' ability to manage stress, their fitness and obesity profiles and their exercise habits.

From this study the authors concluded that the acceptance of self-responsibility for rehabilitation is an important factor in the outcome of successful rehabilitation.

- The patients' knowledge of:
  - \* exercise
  - \* diet
  - \* medication
  - \* effects of smoking.
- The patients' satisfaction with the outcome of the operation, work status of the patient, mood state and extent of acceptance of responsibility for their rehabilitation.
- The spouse's/ care-giver's knowledge of:
  - \* exercise
  - \* diet
  - \* medication
  - \* effects of smoking.

The spouses' satisfaction with the outcome of the operation, perception of the patient's mood-state and the degree of acceptance of self-responsibility by the patient, were also determined<sup>4,5,6,7,8,9</sup>.

## METHOD

### Patient selection:

Eleven Caucasian patients, who had had bypass surgery one year prior to this study, and their spouses were identified at the Cardiac Rehabilitation Centre of the

Johannesburg Health and Housing Department. One of these patients did not wish to participate in the study. Five of the patients were considered to be successfully rehabilitated by the staff of the Centre (Group A : patients 1-5) and the other five (Group B : patients 6-10) were considered not successfully rehabilitated.

The arbitrary criteria used by the staff of the Centre to select the patients for this study were :

- Regular attendance at the rehabilitation unit.
- Exercise compliance.
- Not smoking.
- Weight loss.

All the patients and their spouses /caregivers were interviewed telephonically by the same assessor.

All the patients in group A were males. The mean age was 62.8 ( $\pm 4.76$ ). In group B there were four males and one female. The mean age for this group was 55.8 years ( $\pm 13.820$ ).

For the purpose of this study, successful rehabilitation was judged using the criteria suggested by Oldridge<sup>2</sup>. They are the following:

#### IMPROVED QUALITY OF LIFE

- Improved functional status which was assessed by an exercise stress test.
- The amelioration of cardiac related symptoms.
- The return to gainful employment and/or recreational activities after the intervention<sup>4</sup>.

#### ACCEPTANCE OF SELF-RESPONSIBILITY

- Social status.
- Compliance with a programme to modify risk factors.
- A positive attitude to recovery.
- The ability to manage stress.
- The ability to take decisions regarding health and the acceptance of the responsibility for these decisions.
- A knowledge of the prescribed medication.
- Fitness and obesity profiles.
- Exercise habits.

Group A had an average std. 7 educational level and group B, std. 9. There was one patient with a university degree in each group.

The average rating on the social scale, as suggested by Schlemmer and Stopforth, 1979, was 72 for group A and 67 for group B<sup>10</sup>.

This research project was approved of by the committee for research on human subjects. Protocol number: 18/10/90.

## RESULTS AND DISCUSSION

### IMPROVED QUALITY OF LIFE.

Functional capacity was assessed by an exercise stress test. The mean peak MET

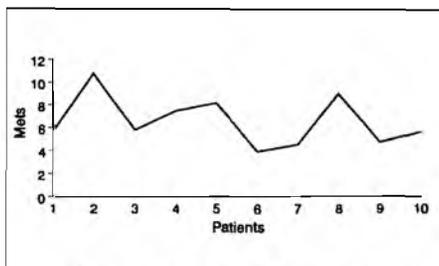


Figure 1. Peak MET Levels

level of group A was 7.6( $\pm 1.8$ ) and of group B was 5.54( $\pm 2.02$ ) (Figure 1). (Mean peak MET is a unit used to estimate the metabolic cost of physical activity).

The peak MET levels were lower for the patients who were unsuccessfully rehabilitated (Group B, patients 6-10) except in the case of patient no.8 who was only 32 years old.

In group A, none of the patients had any cardiac related symptoms.

Two patients in group B had angina, another two complained of severe fatigue and only one subject seemed to be symptom free.

Six subjects were back in full-time employment, four in group A and two in group B. Each group had a subject who was on pension. Two patients in group B who had been employed prior to the operation were unemployed one year post-operatively (Figure 2). Both these patients

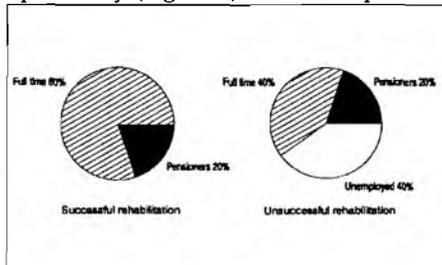


Figure 2. Employment Status

were still symptomatic.

It seems, from the information gained from the patients on improved functional capacity, amelioration of cardiac related symptoms and return to gainful employment, that our results follow the same trend as the results of the CASS report<sup>4</sup>.

### ACCEPTANCE OF SELF-RESPONSIBILITY

The educational and social status of the two groups were similar. According to the literature, the outcome of rehabilitation may be influenced by the educational level and the social status of the patients<sup>11</sup>. It is possible that this may be observed in a larger study but in our pilot study it was not the case.

All the patients in group A knew that smoking was detrimental to their health and had stopped smoking. Two of the patients in group B were still smoking. Only two patients from each group knew that smoking had a deleterious effect on the cardiovascular system.

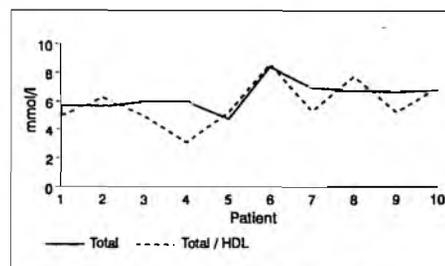


Figure 3. Cholesterol Levels

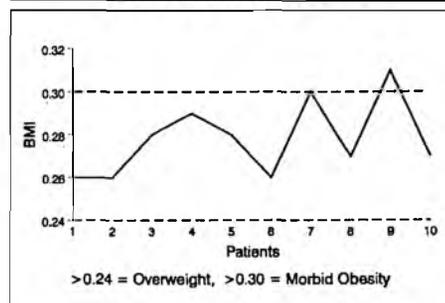


Figure 4. Body Mass Index

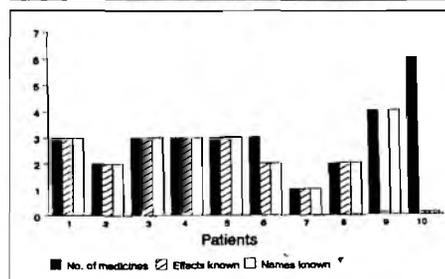


Figure 5. Knowledge of Medication

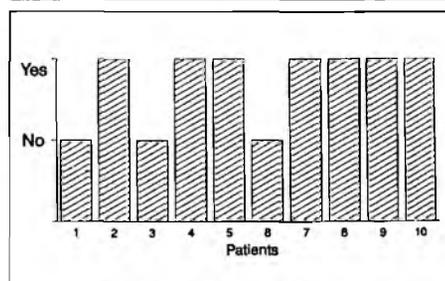


Figure 6. Presence of Stress

Patients in group A had lower cholesterol levels (Figure 3) and lower body mass indices (Figure 4) than patients in group B.

All patients were aware that they should be on a low fat diet.

Patients and spouses generally had a good knowledge of dietary requirements.

All the patients knew the exact number of medicines they had to take daily (Figure 5). Patients in group A had better knowledge of the names and effects of the medication than the patients in group B (Figure 5). In Group A the spouses knew the exact number of medicines taken by the patient but three of the spouses in Group B had absolutely no knowledge of the patients medication.

Patients in both groups were satisfied with the outcome of the operation. Only one patient from group B was dissatisfied and he had to have a further bypass operation three months later, still with no amelioration of his cardiac symptoms.

Seven patients (four from Group B) were still experiencing unacceptable stress levels (Figure 6) and the activity levels of six patients (three from each group) were the same or less than they had been pre-operatively.

One would expect that if patients were accepting self-responsibility, their control of stress levels would be better and they would be at least as active as before the operation.

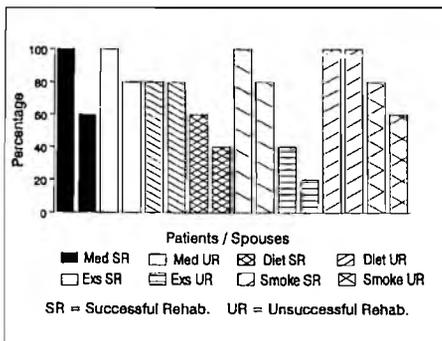


Figure 7. Assessment of Responsibility

When asked to assess their acceptance of self-responsibility patients were of the opinion that they were more responsible for themselves than their spouses/care-givers thought they were (Figure 7).

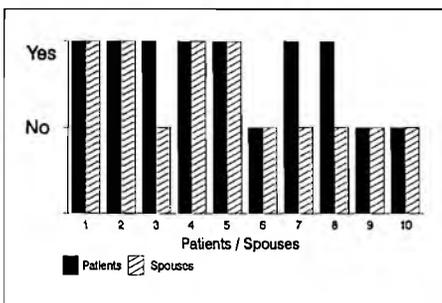


Figure 8. Knowledge of Exercise Programme

Because group A were regular attenders at a rehabilitation programme, their knowledge of the benefits of exercise and management of an exercise programme was generally good. The knowledge displayed by group B in this regard was lacking (Figure 8). All the spouses in Group B

(unsuccessfully rehabilitated) were completely ignorant on every aspect of the patients' exercise regimes.

Eight of the 10 patients were actively involved in sport while still at school. Of these eight, only two participated in endurance type activities, one being a runner and one a swimmer. All the others participated in the traditional team sports offered at South African schools.

After school, four subjects in group A and one in group B continued to participate in sport. They spent an average of 4.2 ( $\pm 1.30$ ) hours on their activities weekly.

Only one of the ten patients was actively exercising at the time of his bypass operation. Most subjects had stopped exercising many years before (group A, on average 19 years and group B, 31 years).

The patients in group A all attended the Cardiac Rehabilitation Centre regularly. Their better exercise history possibly played a role in their better compliance with exercise.

The spouses/care-givers were generally well informed about diet and that smoking was generally bad for one's health. They were however particularly uninformed about the medication and exercise programmes of the patients. This was particularly true of the spouses of the patients in group B.

This lack of knowledge could be due to poor communication between patients and their spouses or simply disinterest in the patient and his rehabilitation programme.

## CONCLUSIONS

Although this is a small pilot study, the factors investigated appear to be valid determinants of improvement in quality of life and in acceptance of self-responsibility. The patients in Group A generally had a better quality of life and at the same time were more aware of what to do in order to become responsible for their own rehabilitation.

If the improvement of the patients' quality of life is an important determinant of successful rehabilitation then it would seem that the acceptance of self-responsibility is also an important factor to consider when assessing the successful rehabilitation of patients who have undergone coronary artery bypass surgery.

## Acknowledgment

The authors would like to thank the staff of the Cardiac Rehabilitation Unit of the Johannesburg Health and Housing Department for their assistance in this study.

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## WCPT-AFRICA

The First Regional Congress was held in Nairobi, Kenya during April. The SASP representatives at the General Meeting included Doctor Jo Beenhakker (voting delegate), Lucy Bendle, Marge Steffen, Tasneem Mosam and Dakshika Eccharan. Sheena Irwin-Carruthers attended as Regional Treasurer.

Several SASP members were invited to take part in the Congress, which had a full programme of pre- and post-Congress courses, keynote addresses and papers.

