Cardiac rehabilitation: are we putting our hearts into it?

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We surveyed 510 patients to measure levels of patient satisfaction with our cardiac rehabilitation service and to compare health-related outcomes between patients who did, and did not, attend cardiac rehabilitation. Two hundred and sixty-five patients responded (52.4%). Our results showed that cardiac rehabilitation was associated with improved health behaviours, such as diet and exercise, and was popular with patients. The majority of non-attenders would have attended cardiac rehabilitation if certain features had been available. Following the survey, various improvements were made to the rehabilitation service, including a re-design of the patient literature and a designated lead consultant.

Introduction

Cardiac rehabilitation aims to address all modifiable behavioural risk factors that are susceptible to intervention, including smoking, exercise, diet and weight.[1,2] Since less than half of eligible patients attended the out-patient-based cardiac rehabilitation programme at St George's Hospital, we wanted to establish whether our service was beneficial and popular with patients, and what features might persuade others to participate. This evidence would enable us to improve our service and increase attendance, thereby reducing the risk of further cardiac events, with consequent benefits to patients, their families and healthcare providers. We surveyed patients who were offered cardiac rehabilitation after their admission to St George's Hospital in 2006, in accordance with the National Service Framework (NSF) for Coronary Heart Disease (CHD).[2]

Methods

Questionnaires were posted to a cohort of 510 patients. Patients who attended cardiac rehabilitation (attenders) received a set of questions about their satisfaction levels with the service provided. Patients who did not attend (non-attenders) were asked what features would have made them more likely to attend. Four- and five-point Likert scales[3] were used to enable respondents to specify their level of agreement with the relevant question. This produced ordinal data, which were reduced to a nominal level by summing the responses. Both sets of patients were asked the same questions about their health-related behaviour and cardiac risk factors.

The data were entered and analysed in Microsoft Excel® and Clinstat®. Where specific questions were not answered, these cases were excluded from the percentages. Statistical analysis was performed using the independent samples t-test or Chi-squared test. A probability value of $p<0.05$ was considered significant.

Exclusions

- Non-local patients, as defined by postcode of residence.
- Deceased patients.
- Questionnaires returned blank.

Results

We received completed questionnaires from 265 patients (52.4%). Of these, 144 (54%) had attended cardiac rehabilitation sessions. The mean age of respondents was 67.4 years and about one-third were female (31%). Thirteen (11%) non-attenders were current smokers, compared with five (3.5%) attenders ($p=0.017$).

All patients in this sample were provided with advice and information about making healthy lifestyle changes after their cardiac event, but this was reinforced during cardiac rehabilitation. **Table 1** shows that attenders were more likely to be non-smokers, to have improved their diet, to weigh less and to have exercised more. Attenders reported less problems experienced in carrying out their usual activities and better health now than before their hospital admission (**table 2**). Attenders reported high satisfaction levels with all aspects of the cardiac rehabilitation sessions (**table 3**); relaxation sessions were the least popular feature.

Table 1. Lifestyle changes (n=265)

		Non-attenders (n=121)	Attenders (n=144)	p-value
Do you currently smoke?		11% (13/117)	4% (5/142)	0.017
Did you give up smoking?		22% (27/121)	18% (26/144)	0.39
Smokers who gave up *		71% (27/38)	81% (26/32)	0.32
Did you improve your diet?		45% (55/121)	69% (100/144)	<0.01
What is your current weight?		76.2 kg (mean)	73.2 kg (mean)	0.14
Did you lose weight?		31% (37/121)	25% (36/144)	0.31
Actually lost 1 kg or more *		45% (27/60)	51% (63/123)	0.43
Average (mean) weight loss *		0.6 kg	1.5 kg	0.29
Did you exercise more?		44% (53/121)	76% (103/144)	<0.01
How many times a week do you perform moderate exercise for at least 30 minutes?	none	16% (18/112)	9% (12/137)	≥1 time 0.078
	1 to 4 times	53% (59/112)	61% (84/137)	
	≥5 times	31% (35/112)	30% (41/137)	

* Additional data were retrieved from the rehabilitation team's records, which show the patient's weight and smoking status around the time of their cardiac event and hospital admission

Table 2. Patient outcomes

	Non-attenders (n=121)		Attenders (n=144)		p-value
	NS	MVE	NS	MVE	
Any problems carrying out your usual personal activities?	65%	35%	76%	24%	0.0595
Any pain or discomfort in everyday life related to your heart condition?	82%	18%	83%	17%	0.89
Is your health better now than before your hospital admission?	37%	63%	20%	80%	<0.01

Key: NS = responses were "not at all" and "slightly"; MVE = responses were "moderately", "very much" and "extremely"

Table 3. Satisfaction (n=113)

	Not at all	Slightly	Moderately	Very much	Extremely
Were you given enough information before starting the classes?	4%	6%	21%	58%	10%
10-week programme right length?	4%	3%	14%	67%	12%
Enough supervision during classes?	0%	2%	4%	56%	39%
Felt safe at all times?	0%	1%	3%	56%	41%
Opportunity to discuss concerns with staff before each session?	2%	1%	9%	57%	31%
Enjoyed the exercise part of the programme?	0%	1%	6%	50%	44%
Felt the relaxation session was beneficial?	9%	12%	22%	30%	28%
Found the education session informative?	2%	1%	16%	53%	28%
Did you reach your goal set at your initial assessment?	5%	1%	22%	52%	20%
Felt my health improved as a result of the sessions?	4%	7%	16%	53%	20%
Overall satisfied with the cardiac rehabilitation service?	1%	3%	4%	42%	50%

Discussion

These results clearly demonstrate the appeal and benefits of cardiac rehabilitation. Patients who attended were more likely to report healthy behaviour changes relating to smoking (p=0.017), diet (p<0.01), exercise (p<0.01) and perception of improved health since their hospital admission (p<0.01). Our demographics were comparable with published studies.[4,5]

Exercise is an important component of cardiac rehabilitation programmes and the health-related benefits are well evidenced.[6,7] Ninety-one per cent of attenders were performing moderate exercise at least once a week, compared with 84% of non-attenders (p=0.078). Less than one-third of patients in each group were meeting the government target of performing moderate intensity physical exercise for at least 30 minutes, five times a week or more.[8] Although this result falls short of the NSF target of 50%, it compares favourably with nationally reported exercise levels in the 65–74 years age group: 21% of men and 16% of women.[9] These statistics confirm that exercise levels generally decline with age, a phenomenon compounded by reduced exercise tolerance following a cardiac event.[10]

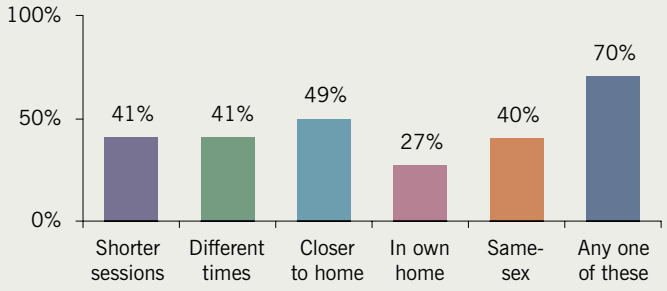
The majority of patients, who responded to our survey, were very satisfied with all aspects of the cardiac rehabilitation service. Patient satisfaction is vital to ensure that patients comply with the interventions, complete the full programme and maintain healthy behaviour changes over the long term. Other studies have demonstrated the health-related benefits of using cardiac rehabilitation to educate, motivate and empower patients.[11-13]

Our survey offered five different features to non-attenders, based on a review of the literature (**table 4** and **figure 1**). Contrary to other published research,[4,5] the least popular feature was holding rehabilitation sessions in the patient's own home. The most popular feature – holding sessions closer to where they lived – was positively rated by 44 (49%) respondents. Other studies have reported that providing home-based and closer-to-home options contribute to improved attendance rates.[4,14] However, preferences vary considerably between different patient

Table 4. Improving likelihood of attendance (n=154)

	Percentage (number)	
Would patients have attended cardiac rehabilitation sessions if:	**Probably or definitely not**	**Probably or definitely yes**
Programme was less than 10 weeks in length?	59% (54)	41% (37)
Alternative times were available, e.g. morning?	59% (56)	41% (39)
Sessions were held closer to where you live?	51% (45)	49% (44)
Sessions were held in your own home?	73% (66)	27% (25)
Same-sex sessions were available?	60% (51)	40% (34)

Figure 1. Features that would, probably or definitely, have persuaded patients to attend cardiac rehabilitation sessions



groups,[5,15,16] which demonstrates the difficulty of planning services to meet all needs, given the financial constraints in the National Health Service (NHS).

The survey has provided valuable information for improving and re-designing our rehabilitation service. Following the study, a lead consultant was designated for the rehabilitation team, which improved the patient literature and engagement process in order to increase attendance rates. We are now participating in the National Association for Cardiac Rehabilitation (NACR) database, which enables reporting against NSF standards.[17] We have also become a pilot site for a new national tariff, based on Payment by Results. The feasibility of home visits will be considered, subject to available resources

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Conflict of interest

None declared.

Editors' note

Also see the editorial by Varghese and Flint on pages 211–12 of this issue.

Key messages

- Attendance at cardiac rehabilitation is associated with improvement in health-related behaviours and outcomes
- Patients reported high satisfaction levels with the cardiac rehabilitation service at St George's Hospital
- Attendance at cardiac rehabilitation sessions could be increased if various features were available to patients, but the cost/benefit implications must be considered carefully

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