Factors in attendance at cardiac rehabilitation

Study aims
The aim of the study was to advance our understanding of why patients did not attend phase-3 CR after discharge from hospital. Phase-3 CR involves attendance at an outpatient education and exercise programme.

Method
The study was a single-measure, practice-based prospective study. It included all eligible patients referred to the CR programme over a three-month period. The inclusion criteria are set out in Box 1. I recruited patients admitted with acute coronary syndrome or MI in hospital during phase 1 of their CR. Inclusion criteria are listed in Box 1 and the recruitment process is outlined in Fig 1.

I used the Hospital Anxiety and Depression scale (Zigmond and Snaith, 1983) to assess psychological status and the revised Illness Perception Questionnaire (IPQ-R) to assess health beliefs (Moss-Morris et al, 2002). The IPQ-R assesses patients’ beliefs about their condition in five areas:

- Identity;
- Cause;
- Timeline;
- Consequences;
- Cure-control.

I developed a non-validated questionnaire consisting of 10 questions to assess participants’ knowledge and beliefs about CR and their self-reported reasons for attending or not attending the programme.

The local research ethics committee approved the study.

5 key points
1 Cardiac rehabilitation is an important component of risk-factor modification
2 Patients’ knowledge of risk factors and the role of CR is poor
3 Staff should explore each patient’s needs and beliefs at the start of the referral process
4 A flexible, individualised approach to CR is required to improve attendance
5 A less rigid approach to the phases of CR should be considered

In this article...

- A study on why patients did not attend a local cardiac rehabilitation programme in Guernsey
- The influence of the island’s demographic profile
- Implications for practice

The National Service Framework for Coronary Heart Disease (Department of Health, 2000) set targets, including target outcomes, for cardiac rehabilitation after myocardial infarction (MI) and revascularisation. Part 1 of this two-part series is a literature review examining the phases of rehabilitation and CR targets, and exploring why these targets are not met (O’Connell, 2014; see page 16). This article, Part 2, reports the results of a research study of CR services on the island of Guernsey, which was undertaken to find out why some patients decline the offer of rehabilitation.

The National Service Framework for Coronary Heart Disease (Department of Health, 2000) set targets, including target outcomes, for cardiac rehabilitation after myocardial infarction (MI) and revascularisation. Part 1 of this two-part series is a literature review examining the phases of rehabilitation and CR targets, and exploring why these targets are not met (O’Connell, 2014; see page 16). This article, Part 2, reports the results of a research study of CR services on the island of Guernsey, which was undertaken to find out why some patients decline the offer of rehabilitation.

Exercise is just one aspect of CR
Results
Over a three-month period, 38 patients were referred to the CR service. Twelve of these (32%) did not meet the inclusion criteria for the study and, of the remaining 26 patients, 25 agreed to take part (96%). I sent questionnaires to all 25 patients and 16 were returned (a response rate of 64%). Respondents’ characteristics are given in Table 1.

The mean age of participants who responded was 69 years (range: 45-86). Women were older than men (73.8 years versus 64.9 years) and those who attended CR were younger than those who did not. Attendees had a mean age of 57 years.

Illness perceptions
All respondents returned the IPQ-R but some did not fully complete it; the reasons for non-completion are not known. Analysis was limited to 12 cases for questions relating to timeline, 13 cases for cure/control and 14 cases for consequences.

In relation to identity, five participants related pain (31%) and two linked shortness of breath (13%) to their heart condition. Fatigue was mentioned by four participants (25%) and sleep problems, dizziness and loss of strength were identified by three (19%).

The main causal factors of their heart condition (as participants) identified were diet or eating habits (n=9, 56%), ageing (n=8, 50%) and family history (n=6, 38%).

Beliefs about CR
Thirteen participants completed this part of the questionnaire. In total, 25% (n=4) thought attendance at CR was important for their health but 46% (n=6) disagreed with the statement: “CR would be effective in curing my heart condition or help me to avoid its negative effects.” A total of 69% (n=9) said attendance at CR would have no effect on their outcomes, although 23% (n=3) agreed that attending CR was as important as taking their medication.

Box 1. Inclusion Criteria
Eligible patients were those who had had:
- Myocardial infarction
- Coronary artery bypass graft
- Percutaneous coronary intervention
- Heart failure
- Valvular heart surgery
- Insertion of an implantable cardioverter defibrillator

“It’s a privilege to work in primary care”
Philippa Quin p26

**FIG 1. PATIENT RECRUITMENT PROCESS**

- Patient is referred to cardiac rehabilitation
- Patient is offered a place on the phase 3 programme
- Patient is asked to take part in research study and is given study information sheet
- Patient completes consent form. One copy is for the patient; one copy is for the researcher
- Patient’s GP is informed of participation in the study
- Patient completes three anonymised questionnaires at the start of phase 3 and posts these back to the researcher

The most common reason for not attending CR was related to exercise, with seven out of the 12 participants who did not attend stating that they were exercising at home already.

Only one participant indicated that they were not interested in CR and stated: “I don’t feel I want to do this.” Four agreed that attendance at CR was important for their health and the remaining participants did not believe that CR was an important aspect of their recovery from their cardiac event or a preventive measure.

Four of the participants who did not attend the phase-3 programme said they preferred to follow their own programme at home. One indicated she did not like to exercise in a group.

**Discussion**

The proportion of patients who declined a place on the CR programme (75%, n=12) was much higher than that reported in other studies. Kerins et al (2012) found 11% (n=187) of patients did not attend CR and Turner et al (2002) identified 12.6% of patients who did not attend or defaulted. However, low rates of attendance (39%) were also reported by Farley et al (2003).

The low acceptance rate in my study may reflect demographic differences between the people on CR programmes on the UK’s mainland, where comparative studies were conducted, and the island of Guernsey, where this study took place.

Patients who participated in my study were, on average, older than those recruited to other studies (Farley et al, 2003; Grace et al, 2002; Turner et al, 2002). The mean age of participants in my study was 69 years (range 45-86). Women were found to be older than men (73.8 years v 64.9 years). Those who attended cardiac rehabilitation were younger than those who did not; attendees had a mean age of 57 years. Worcester et al (2004) found that age was a significant factor in predicting attendance in and drop-out from CR, with men over the age of 70 years being 2.6 times less likely to attend and women over 70 years being nearly three times more likely not to attend than those under 70. The mean age of patients in their study was 64.9 years. In contrast, Yohannes et al (2007) found that younger patients were more inclined to drop out of CR.

The findings of my study suggest that age is also an important predictor of attendance at cardiac rehabilitation. Unlike Yohannes et al’s (2007) study, my study suggests that older patients are less likely to attend cardiac rehabilitation than younger patients in my area of practice. It could be argued that this is because older patients see cardiac rehabilitation as being less relevant to their needs, while younger patients may see it as a means of returning to work and their previous level of activity.

Evidence also suggests women are less likely to attend CR than men (Worcester et al, 2004; Lane et al, 2001). The relatively large number of women in my study may explain why the uptake of phase-3 CR was poor. Grace et al (2002) found that women were less likely to be referred to CR. One participant in my study said she had not attended because she had not been referred by her consultant. By the time she was referred, her need for CR in her opinion was no longer relevant as she had regained her normal level of activity.

The British Association for Cardiovascular Prevention and Rehabilitation (2012) recommends early provision of CR in its seven standards. Tod et al (2002) suggested there were three points when patients required support and advice from CR providers. They highlighted feelings of abandonment on transfer from coronary care to the ward environment and on discharge from hospital after an MI. Patients also identified the first two weeks at home as the time when they felt most vulnerable and would have preferred input from health professionals. The third time point when patients indicated that they needed support was 6-8 weeks after the MI.

Yohannes et al (2007) found psychological distress could predict drop-out from
CR; they reported that patients’ illness perceptions could also predict early drop-out. However, there was no association between psychological status and attendance at CR in my study.

A meta-analysis of eight studies, consisting of 96 patients, conducted by French et al (2006) found four illness perception constructs significantly predicted attendance at CR and suggested that patients were more likely to attend if they believed their condition could be cured or controlled. My study did not find any correlation between illness beliefs and attendance at cardiac rehabilitation. However, I found that patients who believed stress was a causal factor in their illness had strong positive views about CR; this finding was also identified by Cooper et al (2005).

I also found that knowledge about the causes of MI or coronary heart disease was poor. The majority of participants did not associate smoking with the development of heart disease or were ambivalent about its association. It could be argued that patients who have given up smoking believe they are not at future risk of heart disease, although this belief was not investigated in my study. The finding in my study is corroborated by Perkins-Porras et al (2006), who suggested that ex-smokers or non-smokers were less likely than smokers to associate smoking with heart disease.

Beliefs about CR
Cooper et al (2005) reported that patients who declined to attend CR assumed the programme involved only exercise. Participants in my study were not asked what they thought cardiac rehabilitation involved but the most common reason given for non-attendance was that they were getting enough exercise at home.

In my study only one patient indicated that they were not interested in CR, stating “I don’t feel I want to do this.” Four wanted to follow their own programme at home and it could be argued that this highlighted the importance of flexibility in CR service provision in terms of meeting patients’ needs.

Eleven participants did not believe CR was an important treatment in their recovery.

Limitations
The small study size is a major limitation. In an effort to reduce the risk of researcher bias, all participants were given a unique identifier number. I was the caregiver as well as a researcher, however, which may have influenced patients’ participation and responses.

Generalisation of the research findings to other CR populations may not be appropriate because of the demographic profile of the island where the study was conducted.

Practice implications
CR staff should explore patients’ needs and beliefs at the start of the referral process so a plan of care can be formulated. Patients’ knowledge about risk factors and the role of CR was poor in this study, highlighting a need for more input in phases 1 and 2 of CR to correct misconceptions.

The length of time some patients had to wait before they were deemed fit to attend phase-3 CR (three months) indicates a need to educate other health professionals about the role of CR and the intensity of exercise used in the rehabilitation programme. It suggests that other health professionals may have misconceptions regarding the safety of exercise following a cardiac event.

The finding from this study that beliefs about stress were positively correlated with the benefits of CR highlights the positive impact CR can have on patients’ psychosocial health. However, if management of stress is one of the reasons why patients attend the programme, there is a need for more psychological input into it to ensure their stress management needs are being met adequately.

Conclusion
CR is an important aspect of secondary prevention after an MI. Despite this, many patients do not attend a programme or do not complete phase 3.

Current research suggests there are numerous predicting factors that indicate whether a patient will attend CR. This study, based in a single centre, found that these factors are similar for the local cardiac population, although there are some significant differences in terms of age and gender. As a result, the study has advanced local understanding of why some patients do not attend phase-3 CR.

The importance of having a flexible, individualised approach to CR, which was highlighted by the findings of this study, was reinforced by the literature reviewed. A less-rigorous approach to all phases of CR should be considered.

TABLE 1: PARTICIPANT CHARACTERISTICS (n=16)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9 (56)</td>
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<tr>
<td>Female</td>
<td>7 (44)</td>
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<tr>
<td>Age (years)</td>
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<tr>
<td>Mean Range</td>
<td>69 years</td>
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<td></td>
<td>45-86</td>
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<tr>
<td>Referred to cardiac rehabilitation</td>
<td>16 (100)</td>
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<tr>
<td>Seen by nurse</td>
<td>15 (94)</td>
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<tr>
<td>Offered a phase 3 place</td>
<td>16 (100)</td>
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<td>Accepted place</td>
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<tr>
<td>Yes</td>
<td>4 (25%)</td>
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<tr>
<td>No</td>
<td>12 (75%)</td>
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References
British Association for Cardiovascular Prevention and Rehabilitation (2012) The BACPR Standards and Core Components for Cardiovascular Disease Prevention and Rehabilitation 2012. tinyurl.com/BACPR-RehabStandards