Re-engineering cardiac rehabilitation programmes: considering the patient's point of view

Mariane Pâquet MSc
Research Assistant, Clinical Research Centre, Université de Sherbrooke, Sherbrooke, Québec, Canada

Nicole Bolduc MSc
Assistant Professor, Clinical Research Centre, Université de Sherbrooke, Sherbrooke, Québec, Canada

Marianne Xhignesse MSc MD
Associate Professor, Clinical Research Centre, Université de Sherbrooke, Sherbrooke, Québec, Canada

Alain Vanasse PhD MD
Associate Professor, Clinical Research Centre, Université de Sherbrooke, Sherbrooke, Québec, Canada

Accepted for 2 November 2004

Correspondence:
Mariane Pâquet,
Clinical Research Centre,
Université de Sherbrooke,
3001, 12 Avenue Sud,
Sherbrooke,
Québec J1H 5N4,
Canada.
E-mail : mariane.paquet@usherbrooke.ca

PÂQUET M., BOLDUC N., XHIGNESSE M. & VANASSE A. (2005) *Journal of Advanced Nursing* **51**(6), 567–576

Re-engineering cardiac rehabilitation programmes: considering the patient's point of view

Aims. The aim of this paper is to report a study to describe how cardiac patients experience the first 3 months following a cardiac event requiring hospitalization, identify differences between the needs expressed by patients and the support they received during their recuperation and produce a preliminary model for the development of cardiac rehabilitation programmes, taking into account the patient perspective.

Background. Although cardiac rehabilitation should be standard care for patients with cardiovascular disease, less than 20% begin and maintain a rehabilitation programme. Cited barriers include inadequate rehabilitation services, sub-optimal referral, low participation rates of women and older adults and travel considerations. The literature suggests that programmes better adjusted to patient needs could increase attendance, but little research has considered this perspective.

Methods. Focus groups were conducted with a purposefully selected sample of 20 men and women who had been hospitalized for myocardial infarction, angina or percutaneous angioplasty. Data were analysed using qualitative content analysis.

Findings. A gap exists between what traditional rehabilitation programmes offer and patients' expressed needs during the recuperating process after hospitalization for a cardiac event. In our study, participants focused on stress management rather than on modifying health habits. Support groups were viewed as beneficial and, according to patients, accepting their condition, knowing their limits and better continuity of care would also help reduce stress. Based on the findings, we devised a model as the basis for developing cardiac rehabilitation programmes.

Conclusion. Cardiac rehabilitation programmes need to shift their focus of attention from promoting healthier behaviours to responding to participants' perceived needs, alongside risk factor reduction.

Keywords: cardiac care, health services research, nursing, rehabilitation

Introduction

Many cardiovascular risk factors are modifiable and therefore cardiac rehabilitation programmes traditionally target healthier lifestyles, such as 'smoking less', 'eating better', or 'exercising more', dispensing general information using a group approach. The results of trials examining the efficacy of primary prevention programmes are equivocal. Ebrahim and Smith (1997) conclude that since programmes result in only small changes in risk factors and mortality in the general population, health promotion interventions should target people at high risk. They suggest that modifying lifestyle following a cardiac event is probably effective because participants are more motivated at this time to change behaviours. Programme evaluations reveal that low participation rates, short duration and lack of integration with other care compromise outcomes (Wenger *et al.* 1995).

The current tendency is to offer a more individualized nurse-managed approach. This implies that nurses and other healthcare professionals have a better understanding of patients' experiences. Research on recuperation of cardiac patients during the early recovery phase remains limited. Considering that few studies take account of patients' priorities when planning rehabilitation programmes, we initiated a study to describe the self-perceived needs of individuals following hospitalization for coronary heart disease. The information obtained was intended to be used to formulate a preliminary model for the development of cardiac rehabilitation programmes and, more specifically, to help managers and clinicians to tailor an outpatient programme in a university hospital in eastern Canada.

Background

In Canada, cardiovascular disease is the principal cause of death and is the condition responsible for the greatest number of hospitalizations (FMCC 2003) and the highest healthcare costs (Moore *et al.* 1997). The ageing of the population, along with increasing survival rates following cardiovascular events, may explain the continual increase in the number of hospitalizations and the demands placed on healthcare services by these patients.

Aggressive risk reduction therapies for patients with cardiovascular disease are supported by randomized studies showing improved quality of life as well as reductions in mortality, recurrent events and the need for further interventions (Smith *et al.* 1995, 2001). Multidisciplinary programmes (Haskell *et al.* 1994, DeBusk *et al.* 1994, DeBusk 1996) and those taking into account psychosocial aspects (Jones & West 1996, Frasure-Smith *et al.* 1997) have shown some promise, although results have been inconsistent. Nonetheless, cardiac rehabilitation is now considered usual care for people with cardiovascular disease (Canadian Association of Cardiac Rehabilitation 1999). Recently, Suskin *et al.* (2003) concluded that while cardiac rehabilitation reduces the morbidity and mortality of patients with coronary artery disease (CAD) in a cost-effective manner, less than 20% of potentially eligible patients participate in secondary prevention programmes in Canada. Barriers to programme access include inadequate cardiac rehabilitation services and sub-optimal referral (Suskin *et al.* 2003). Other cited problems are the low participation rates of women (Sharpe *et al.* 1991, Ades *et al.* 1992, McGee & Horgan 1992), older adults (Ades *et al.* 1995, Allen & Redman 1996, King *et al.* 1999) and those having to travel long distances (Moore & Kramer 1996, Suskin *et al.* 2003). Alternative delivery systems to render rehabilitation programmes more effective in changing patient lifestyles should therefore be considered (Dafoe & Huston 1997, King *et al.* 1999, Missik 2001). Cardiac rehabilitation relevant to patient needs may increase attendance and subsequent behaviour change (King *et al.* 2001).

Cardiac rehabilitation has evolved over the past 20 years (Clark *et al.* 2002). Nurse-led secondary prevention clinics in primary care can reduce risk factors for the recurrence of coronary events (Campbell *et al.* 1998, Dalal & Evans 2003, Murchie *et al.* 2003, Campbell 2004). Current trends in cardiac rehabilitation which have been shown to be effective are home-based cardiac programmes and those offered in community centres (Lewin *et al.* 1998, Marchionni *et al.* 2003). A programme based on cognitive behaviour therapy was shown to enhance the recovery of patients with coronary heart disease in a study including 2481 patients (Dalal *et al.* 2004). Furthermore, strategies such as motivational interviewing and transtheoretical model interventions facilitate behaviour changes and maintenance (Feinstein & Feinstein 2001, Bellg 2003). However, more research is still required to address better the needs of eligible patients so as to provide effective rehabilitation programmes and reduce the burden of cardiovascular disease.

The study

Aims

The aims of the study were to describe how cardiac patients experience the first 3 months following a cardiac event requiring hospitalization, identify differences between the needs expressed by patients and the support they received during their recuperation, and produce a preliminary model for the development of cardiac rehabilitation programmes, taking into account the patient perspective.

Design

We conducted a qualitative study using focus groups because qualitative research is well suited to generating hypotheses in a domain where little research has been carried out (Pope & Mays 1995).

Participants

People hospitalized for a cardiovascular event, defined as a myocardial infarction, angina pectoris or percutaneous coronary angioplasty (PCA) between January and April 1999 and able to communicate orally in French were eligible to participate in the study. In order to generate as much information as possible, purposeful selection was used to obtain a diverse sample of about 30 individuals. A list of all eligible persons ($n = 438$) was obtained from the archives of the university hospital. Postal codes corresponding to three different environments, defined by accessibility to healthcare services, were used to select participants. This provided a sample from urban, semi-rural and rural milieux. Randomly chosen individuals ($n = 229$) received an invitation to participate, and a group composed of the first 10 volunteers was formed for each study milieu.

Data collection

Data were generated from three focus groups. All sessions were audiotaped for later transcription. Tapes were listened to as soon as possible and the verbatim transcription was entered in the software package Nvivo to facilitate qualitative content analysis. Immediately after the focus groups the interviewer and two observers, one of whom was a researcher, wrote memos about initial impressions during data collection that facilitated analysis and conceptualization of ideas.

During the first part of the 2-hour sessions, discussion centred on participants' common experiences. In order to facilitate interaction between participants they first listened to the account of a 'typical' patient experiencing a cardiac event. The story had been developed previously by the research team based on two semi-structured interviews with people having similar characteristics to those of the study population. The technique was based on the method proposed by Labonté and Feather (1996) and aimed to predispose individuals to initiate personal reflection. Subsequently, a trained interviewer asked open-ended questions of the type: 'What struck you in this account?', 'What did you learn from your own experience?', 'What did you do?' and 'What could you have done?' to identify facilitators or barriers for effective cardiac rehabilitation. Based on findings generated by analysis of the first part of the discussions, points considered to be important when planning rehabilitation programmes were validated by asking focused questions to participants during the second part of the sessions.

Ethical considerations

As specified by the hospital's ethics committee, we obtained authorization from the director of professional services to receive a list of all eligible patients. Prospective participants were invited to participate by letter. After having been informed about the study and the possibility of their withdrawal at any time, volunteers signed a consent form. They were also advised of the confidential treatment of all data. All participants had a follow-up telephone call to offer help, psychological or other, if needed.

Data analysis

The sources of data used were the transcripts and the interviewer's and observers' notes. Data analysis was done using qualitative content analysis. The analyst did not participate in the elaboration of the research protocol, did not collect any data, nor had previously consulted related literature so that emergent analysis was grounded in the data rather than developed from existing knowledge (Cutcliffe 2000).

Analysis proceeded until saturation was reached using the method of cyclic condensation of data (Huberman & Miles 1991). Since responses were short, they were first coded answer by answer. After analysis of the data generated by the discussion in the first focus group, we met to discuss the emerging categories until we obtained a consensus. With subsequent data, the analyst used axial coding of new transcripts and re-analysed all of the material considering evolving themes until no new conceptual information could be added. For credibility, a

second analyst independently coded categories and interpretations of 40% of randomly chosen transcripts (Sandelowski 1986). Codes and categories were reviewed with the investigators. Selective coding was applied to the data generated by the third focus group. This led to preliminary theoretical constructs conceptualizing the relationship between the categories. The memos facilitated decision making throughout the modelling process. The final coding framework and the preliminary model proposed by the analyst were validated during a 3 hour discussion. Consensus was obtained by the research team at large, including the interviewers and the observers.

Rigour

Strategies to ensure rigour were triangulation across data sources, data collection procedures and data analysis. Having a diversity of participants representative of the study population helped to attain saturation. Validation by participants, during the second part of the group discussions, of main results obtained in the first part of the discussions also favours applicability of findings.

Findings

Participants' characteristics

The three focus groups were composed of five, seven, and eight individuals from rural, semi-rural and urban milieux, respectively. The mean age was 69·6 years, with a range of 50–91 years. Among the 20 participants, 16 were male, 15 were married, 16 were older than 60 years and 16 were retired. A similar distribution of characteristics was obtained in each group.

First part of the discussion: elements to consider when planning rehabilitation programmes

During the first part of the discussions participants mainly discussed problems they had experienced before, during and after hospitalization. This shed light on patients' needs as they changed over time but, according to the aim of this paper, we report only participants' needs during the 3 month period following discharge home. Three categories emerged from the analysis: personal elements, environmental elements and elements in interaction with the other two levels. A free translation of representative quotations is presented in the text below. These illustrate some of the most important data related to elements to consider when planning tailored cardiac rehabilitation programmes.

Elements at the personal level

Health, psycho-cognitive aspects linked to the disease, and behaviour were the three subcategories identified at the personal level.

Health Participants reported that the healthcare system adequately cared for their physical problems during their hospitalization: 'That was nothing…the team was wonderful, it's unbelievable how they take care of us'. Overall, patients felt physically better after hospitalization: 'They unblocked me…it's been two weeks and I can do what I want and I'm a lot better'. Furthermore, if specific problems persisted during the recuperation process adequate resources, such as medication, were available: 'It's going better with all those pills there'.

Patients listed anxiety, worry and stress as having the most impact on their lives. They identified formal health care, community services, and family and friends as helpful environmental supports. However, they said that more help was needed in stress management: 'If there existed a type of programme for cardiac patients that would be something important to help cope with stress'. Patients emphasized the psychological benefits of the focus group; they felt that group sessions with people having experienced cardiac events, as well as sessions including people who had experienced a cardiac event and their significant others, would be helpful.

Knowing that genetics, a non-modifiable risk factor, predisposes to coronary heart disease may influence health behaviour and attitude towards disease. Participants in our study showed a more resigned attitude when members of their family had experienced a cardiac event. For example, someone mentioned: 'My father died of heart disease at 48. I have to prepare myself. You have to learn to live with that'.

Psycho-cognitive With regard to psycho-cognitive aspects, knowledge, beliefs and attitudes were discussed. Problems experienced had either been resolved by individuals themselves or by help from the environment. Patients stressed the importance of a change of attitude towards their condition: 'It's sure that you have to accept your disease. If you accept it, it's the key to success'. Another participant said: 'Sooner or later, whether we want to or not, we're not as good as when we were 30. But you have to be able to tell it to yourself. I can't fall into that and say that I'm finished'.

Behaviour Three months following a cardiac event requiring hospitalization, patients were reluctant to modify their lifestyles. Different reasons explained why people did not express the desire to do this. First, certain people had previously done so: 'I already stopped smoking because I had

to'. Second, some felt that they had good habits and therefore nothing to modify:

Me, I never smoked in my life, I've always been physically active, and from one day to the other it happened to me. I was surprised. I never expected that. I never thought that I could be a candidate for heart disease. I have no family history. Nothing could predict that it would happen to me.

Furthermore, some people were not convinced that their habits were risk factors:

I smoke and I wonder if a cigarette is like a bullet. I know a guy who is dying, he never smoked in his life; lung cancer. I started smoking at the age of 8, I am now 76, and I've smoked for 66 years. No problems, I don't tell you that smoking is good but it does not cause death.

The person's physical condition was a fourth reason for not modifying health habits: 'Regarding exercise, I can't do any since I have problems with my legs'. Finally, the need to modify health habits was often perceived as pressure coming from the outside but not as a personal objective: 'They told me to walk, walk when you can'. However, participants discussed the importance of taking personal decisions about lifestyle changes: 'Others may tell us but we learn from ourselves. I realise that now'.

Three months after hospital discharge people wanted to return to their previous activities:

Well, I don't want to hear it anymore. And that's it, I tell myself, I have to keep going and the doctor told me the other day, 'you're lucky, look at the others, they have an old heart and you have a new one.

They compared their performance before and after the event, since physical capacities are often diminished following a cardiac event: 'Now you're very happy that they do it because they're serviceable but you tell yourself that before you could do it alone'. This brought them to want to modify the way they worked:

We're too anxious, as soon as we begin a job we want it to be finished even before we start. We have to put into our heads that the grass will always grow, I will mow a bit today and I will sit down and do another part in the afternoon and another tonight. It's not as if it has to be finished immediately.

Finally, 3 months after their hospitalization, patients felt that they were in the best position to evaluate their needs: 'It's that the best person to know what I can or can't do is me'.

Elements at the environmental level

Resources, the workplace and habitat were the three subcategories identified at the environmental level.

Resources Previous quotations have already alluded to high satisfaction with formal health care. Needs expressed at this level were mainly family-oriented. Better information to informal caregivers was seen as a solution to the major problem of over-protectiveness:

Following hospitalisation, it would be good to give information to the spouse. Spouses are scared of everything. You know, scared to make love. You know, if she had had information telling that there is no danger…

However, one woman exposed a different point of view: 'I would appreciate it if my husband would help me from time to time – he does not seem to realise that I am sick'.

The workplace and habitat Needs in these categories were either easily fulfilled or not expressed. For example, people found it difficult to have to cease work but had a resigned attitude, such as: 'I will retire' or: 'I would really like to go to work but, if I do nothing but feel sorry for myself, who is going to pay for it? It's me'.

Elements in interaction at the personal and the environmental level

Several elements were associated with the other two categories already described.

Limits Participants were concerned about having a better knowledge of their limits and especially learning how to respect those limits: 'And when it will be the time to go back to work, I will go back and I don't think that it's a question of not doing this or that. It's to know your limits and to see'.

Time Being aware of having limited time left to live influenced the recuperation process: 'Every minute we live is important but we cannot predict 10 days ahead. If I continue to live, I live every minute'.

Continuity of care With regard to the process of care delivery, needs were mainly expressed about home care received after hospitalization. Participants wanted a regular time schedule, consistent personnel and better communication with providers as well as among caregivers. Volunteers wished to be better informed of their schedule: 'I have two blood samples taken a week, but one morning they don't come – why is that? The nurse should telephone'. Although the help was extremely appreciated, having the same person delivering the care seemed important:

OK, home care, I found that very good but the caregivers changed too much. First one nurse came several times to change my bandage, then a different one came two or three times and after that it was always a new one. They were all very kind, but there was no continuity.

Cognitive impairment was a problem with older patients and participants felt that this should be considered: 'You know, when the nurse comes I'd rather have the schedule written on a piece of paper'. Communication was often difficult within the family: 'My wife should change her way of cooking, but she wouldn't take it if I told her'. Finally, lack of communication between healthcare workers was also a problem: 'The doctor himself is supposed to have made arrangements with the nurse, but when I talk about it to the nurse she knows nothing'.

Quality of life Finally, a central concept was quality of life: 'It's a quality of life that has changed'. Another person said: 'I like people too, so instead of keeping all my energy for work, I keep some to be able to go out to go to the club or to take a car ride. I decided that that is important'.

Principal findings

Part one of the discussions shed light on some of the participants' unmet needs following a cardiac event. The findings showed that few expressed needs could be satisfied on an environmental level since participants felt that they were the ones best suited to take action that could be beneficial to them. The focus of improvement was thus placed on a personal level. Participants also viewed group discussions similar to the focus group sessions as a potential solution to stress management.

Second part of the discussion: planning support

The specific questions asked to participants during the second part of the discussions are reported in Table 1, together with practical details that should be considered when planning support group interventions. Subjects discussed included participants' interest in rehabilitation programmes, whether group support should be offered to patients only and/or caregivers, and if individual meetings should also be considered. Frequency of meetings, the delay after hospital discharge and other points, such as travel considerations, were also discussed. In addition, details like parking fees and walking distance should not be neglected.

Proposed model

We devised a model based on the findings as the basis for the development of cardiac rehabilitation programmes, and this is shown in Figure 1.

Table 1 Points to consider when implementing support groups as part of rehabilitation programmes: patients' perspectives

If a rehabilitation program was offered:*	Points to consider
1. Would you be interested?	Cardiac participants are highly in favour of rehabilitation programmes centred on support groups. Principle reasons given are: a sense of security, helpful for stress management, getting more information and answers to questions from competent individuals. Only one participant showed no interest since she had undergone many surgeries, felt old and was discouraged.
2. Would you prefer	
(a) Group meetings including:	
Cardiac individuals only?	Popular because they allow discussion about participant's experience.
Cardiac individuals and caregivers?	From the cardiac individual's point of view, meetings with spouses are essential to allow the latter to better understand them.
Caregivers only?	Cardiac participants felt that caregivers also need support.
(b) Individual meetings?	Meetings favouring discussion in smaller groups including the cardiac patient, his/her caregiver and a professional, are suggested to discuss more 'delicate' matters such as sex. Also useful for people with hearing disabilities or those who are still working.
3. Would transportation be a problem?	Transportation is often a problem. Many people, especially caregivers (usually women) do not drive and people with a recent cardiac event have restrictions. However, people can find help or are willing to help each other for transport. Travelling during the winter and/or at night is more difficult. Parking is also a problem. Specific issues discussed were walking distance and parking fees.
4. At what frequency would you wish the meetings to be?	Not more than one meeting per week.
5. How long after hospital discharge	A delay of 1–3 months after hospital discharge is usually suggested. The ideal moment to begin group sessions varies from one person to another.
6. Do you have any other suggestions?	Meetings are more difficult to organize if participants are still working.

*Specific questions asked during the second part of the discussions were developed after analysis of the data generated during the first part of the discussions.

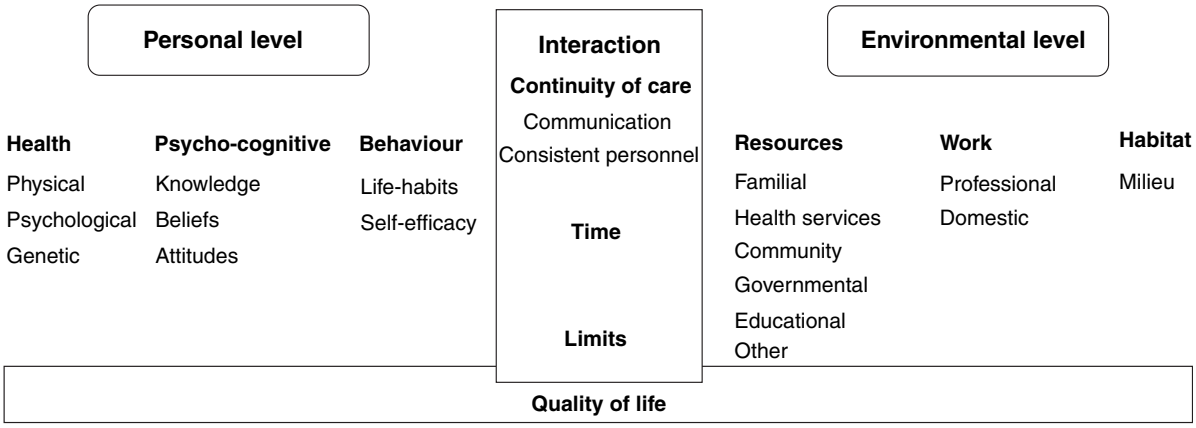

Figure 1 Elements to consider when developing tailored cardiac rehabilitation programmes: a preliminary model.

Discussion

Although the data were collected 5 years ago (1999), they remain relevant in today's environment. Indeed, current research is still seeking explanations for low participation rates in cardiac rehabilitation programmes (Cooper *et al.* 2002, Daly *et al.* 2002, Suskin *et al.* 2003), and there is evidence that when lifestyle changes are required, patient-centred approaches may have better outcomes than traditional advice-giving (Britt *et al.* 2004). However, to date, few studies have considered patients' perspectives when addressing the needs of programme participants.

The principal aim of this research was to identify self-perceived needs of people who had recently experienced a cardiac event (myocardial infarction, angina pectoris or PCA), in order to plan effective rehabilitation. The account used at the beginning of the discussion was a valuable tool for data collection. What is striking is that participants expressed very few needs that could be satisfied by standard rehabilitation programmes focusing on prescriptive lifestyle modification.

However, the study has some limitations, namely that only 13% of those invited to participate accepted. Only two of every three people initially interested in the discussion groups actually attended, a common problem in research studies using focus groups (Sullivan & Foltz 2000). Possibly, only people who were doing well, had good support, and were interested in group events chose to participate. Furthermore, we were unable to identify needs according to individuals' specific characteristics. As well as selection bias, our findings may reflect a desirability bias, which would also tend to under-estimate participants' needs expressed and limit generalization of the findings. People may not want to criticize the healthcare system in the presence of professionals, but the context of group discussions and the fact that all the findings are reported anonymously may have helped overcome the tendency to report high levels of satisfaction.

According to our findings, participants' needs after a cardiac event are oriented towards accepting their condition and knowing their limits, rather than modifying health habits. Our data suggest that age, but even more disease experience, may influence people's expectations after experiencing a cardiac event. Viewing their heart attack as an acute event rather than a symptom of a chronic condition has been proposed as an explanation for patients' low levels of motivation for long-term life changes (Wiles 1998, Wiles & Kinmonth 2001). Prochaska *et al.* (1992) has already identified the difficulty of modifying health habits, stating that only 23% of people were ready to modify one habit, 5% were willing to change two and almost none would modify three. The transtheoretical model of health behaviour change (Prochaska & DiClemente 1983, Prochaska & Velicer 1997) proposes that adults exist in various stages of readiness (precontemplation, contemplation, preparation, action, maintenance and relapse) with respect to willingness to accept and process information. Behaviour change strategies, such as motivational interviewing, helpful in moving patients through the stages of change, have been successful in promoting behaviour change and maintenance (Bellg 2003, Britt *et al.* 2004). For example, this technique has been shown to increase the quit rate of smokers (Mallin 2002, Robinett *et al.* 2004).

Our participants seem satisfied with the care they received for their physical problems, which may explain that they expressed few needs oriented towards that aspect. Help to cope with stress preoccupied them more. Other studies have found that cardiac patients often experience emotional problems in early recovery (Jaarsma *et al.* 1995, Murray

What is already known about this topic

- Cardiac rehabilitation and secondary prevention programmes that target cardiovascular risk factor modification contribute to a decrease in morbidity and mortality following a cardiac event.
- Although cardiac rehabilitation should be considered usual care for individuals with cardiovascular disease, studies have shown that traditional programmes have little impact at the population level.
- There is a need for alternative methods of rehabilitation programme delivery that are more effective in inducing healthier behaviours and better medication adherence.

What this paper adds

- Patients made few comments about their physical care, and mainly focused on stress management rather than on modifying health habits.
- Support groups would help patients to manage stress and should be considered when designing rehabilitation programmes.
- Rehabilitation programmes should use a more holistic and participatory approach rather than simply using isolated group events centred on lifestyle modification.
- Programmes based on modifying health habits have little chance of success if participants are not ready to adopt new behaviours, let alone lifelong lifestyle changes.

et al. 2000), and this should be considered when planning cardiac rehabilitation. Participants suggested that support groups, like the focus group discussions, would help them to manage stress and should be considered when designing rehabilitation programmes. Focus group discussions have also been seen as positive support experiences by patients in other studies (Dickerson 1993, Sullivan & Foltz 2000). Whittemore *et al.* (2000) have shown that peer advisors providing social support to elders who had experienced myocardial infarction were in fact receiving support at the same time as they were giving it. In our study, participants spoke not of 'improving their health' but of 'not being perceived as unhealthy'. Focus groups may benefit participants because they feel that they perform a socially meaningful function by helping others. They were also seen as a solution to over-protectiveness of family members by facilitating communication and information transfer. Over-protectiveness had a negative effect during the recovery phase, as has been found in other studies (LaCharity 1997, Murray *et al.* 2000). However, difficulty in attending group events and the cost of parking are two points to consider when designing rehabilitation programmes, as has also been pointed out by King *et al.* (2001).

Recently, a meta-analysis concluded that psychosocial interventions should be included in cardiac rehabilitation programmes along, with exercise training, and drug therapy (Linden *et al.* 1996), but pointed out that it may be difficult to pinpoint why psychosocial interventions work. Positive effects observed were mortality and risk factor reduction. Other effects included improvement in quality of life and reduction in anxiety and depression, positive outcomes highly valued by participants in our study.

Conclusion

Our findings suggest that rehabilitation programmes should use a more holistic approach rather than simply using isolated group events centred on lifestyle modification. Patients' priorities should be taken into consideration, because programmes based on modifying health habits have little chance of success if participants are not ready to adopt new behaviours, let alone lifelong lifestyle changes. The preliminary model, we propose may be used to plan support using a participatory approach based on group sessions, as suggested by participants. Negotiating the content of rehabilitation programmes with clients may yield better outcomes than using a prescriptive approach because they have an intrinsic empowerment effect on participants. For example, patient-centred strategies such as motivational interviewing have been reported successful in changing addictive behaviours.

Further research could reveal if programmes focusing on helping patients accept their condition rather than modifying their lifestyle should be encouraged. Studies could also be carried out with participants having specific characteristics to evaluate whether findings apply to all types of patients and to furnish other information on patients' individual needs following a cardiac event. More information on whether participants rate quality of life as more important than longevity, as suggested by our findings, could be useful when planning cardiac rehabilitation. Ultimately, hope for better quality of life could be successful in motivating people to modify their health habits.

Acknowledgements

The authors acknowledge Denyse Lamontagne, Carl Fortier, Martine Proulx, Annie Fortin, André Maltais and Annie Lacroix.

We would like to thank Denyse Lamontagne for her involvement in the initial stages of the project and for having led group discussions. We also thank Carl Fortier, Martine Proulx, Annie Fortin, André Maltais and Annie Lacroix, who all contributed to the work. Further thanks go to Jessica Kovitz-Lensch for revising the manuscript. The project was funded by Santé Canada: Projet prendre en main sa santé (grant F2000-425), and the Clinical Research Centre, Faculty of Medicine, Université de Sherbrooke, Canada (grant 6785-05-1998/0380011).

Author contributions

NB and MX conceived and designed the study, collected data, obtained funding and provided administrative, technical or material support; MP, NB, MX and AV performed the data analysis; NB, MX and AV made critical revisions for important intellectual content and supervised.

References

Ades P.A., Waldmann M.L., Polk D.M. & Coflesky J.T. (1992) Referral patterns and exercise response in the rehabilitation of female coronary patients aged greater than or equal to 62 years. *American Journal of Cardiology* **69**, 1422–1425.

Ades P.A., Waldmann M.L. & Gillespie C. (1995) A controlled trial of exercise training in older coronary patients. *Journal of Gerontology Series A – Biological Sciences and Medical Sciences* **50A**, 7–11.

Allen J.K. & Redman B.K. (1996) Cardiac rehabilitation in the elderly: improving effectiveness. *Rehabilitation Nursing* **21**, 182–186.

Bellg A.J. (2003) Maintenance of health behavior change in preventive cardiology. Internalization and self-regulation of new behaviors. *Behavior Modification* **27**, 103–131.

Britt E., Hudson S.M. & Blampied N.M. (2004) Motivational interviewing in health settings: a review. *Patient Education and Counseling* **53**, 147–155.

Campbell N.C. (2004) Secondary prevention clinics: improving quality of life and outcome. *Heart* **90**, iv29–iv32.

Campbell N.C., Thain J., Deans H.G., Ritchie L.D., Rawles J.M. & Squair J.L. (1998) Secondary prevention clinics for coronary heart disease: randomised trial of effect on health. *British Medical Journal* **316**, 1434–1437.

Canadian Association of Cardiac Rehabilitation (1999) *Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention*. Canadian Association of Cardiac Rehabilitation, Winnipeg.

Clark A.M., Barbour R.S. & McIntyre P.D. (2002) Preparing for change in the secondary prevention of coronary heart disease: a qualitative evaluation of cardiac rehabilitation within a region of Scotland. *Journal of Advanced Nursing* **39**, 589–598.

Cooper A.F., Jackson G., Weinman J. & Horne R. (2002) Factors associated with cardiac rehabilitation attendance: a systematic review of the literature. *Clinical Rehabilitation* **16**, 541–552.

Cutcliffe J.R. (2000) Methodological issues in grounded theory. *Journal of Advanced Nursing* **31**, 1476–1484.

Dafoe W. & Huston P. (1997) Current trends in cardiac rehabilitation. *Canadian Medical Association Journal* **156**, 527–532.

Dalal H.M. & Evans P.H. (2003) Achieving national service framework standards for cardiac rehabilitation and secondary prevention. *British Medical Journal* **326**, 481–484.

Dalal H.M., Evans P.H. & Campbell J.L. (2004) Recent developments in secondary prevention and cardiac rehabilitation after acute myocardial infarction. *British Medical Journal* **328**, 693–697.

Daly J., Sindone A.P., Thompson D.R., Hancock K., Chang E. & Davidson P. (2002) Barriers to participation in and adherence to cardiac rehabilitation programs: A critical literature review. *Progress in Cardiovascular Nursing* **17**, 8–17.

DeBusk R.F. (1996) MULTIFIT: a new approach to risk factor modification. *Cardiology Clinics* **14**, 143–157.

DeBusk R.F., Miller N.H., Superko H.R., Dennis C.A., Thomas R.J., Lew H.T., Berger W.E., Heller R.S., Rompf J., Gee D., Kraemer H.C., Bandura A., Ghandour G., Clark M., Shah R.V., Fisher L. & Taylor C.B. (1994) A case-management system for coronary risk factor modification after acute myocardial infarction. *Annals of Internal Medicine* **120**, 721–729.

Dickerson S.S. (1993) Support needs of spouses of cardiac patients. *Journal of the New York State Nurses Association* **24**, 17–21.

Ebrahim S. & Smith G.D. (1997) Systematic review of randomised controlled trials of multiple risk factor interventions for preventing coronary heart disease. *British Medical Journal* **314**, 1666–1674.

Feinstein R.E. & Feinstein M.S. (2001) Psychotherapy for health and lifestyle change. *Journal of Clinical Psychology* **57**, 1263–1275.

FMCC Heart and stroke foundation of Canada (2003) *The Growing Burden of Heart Disease and Stroke in Canada 2003*. FMCC, Ottawa.

Frasure-Smith N., Lesperance F., Prince R.H., Verrier P., Garber R.A., Juneau M., Wolfson C. & Bourassa M.G. (1997) Randomised trial of home-based psychosocial nursing intervention for patients recovering from myocardial infarction. *Lancet* **350**, 473–479.

Haskell W.L., Alderman E.L., Fair J.M., Maron D.J., MacKey S.F., Superko H.R., Williams P.T., Johnstone I.M., Champagne M.A., Krauss R.M. & Farquhar J.W. (1994) Effects of intensive multiple risk factor reduction on coronary atherosclerosis and chemical cardiac events in men and women with coronary artery disease. *Circulation* **89**, 975–990.

Huberman A.M. & Miles M.B. (1991) *Analyse des données qualitatives. Recueil de nouvelles méthodes. Collection pédagogie en développement. Méthodologie de recherche*. De Boeck Université, Éditions du Renouveau pédagogique, p. 480.

Jaarsma T., Kastermans M., Dassen T. & Philipsen H. (1995) Problems of cardiac patients in early recovery. *Journal of Advanced Nursing* **21**, 21–27.

Jones D.A. & West R.R. (1996) Psychological rehabilitation after myocardial infarction: multicentre randomised controlled trial. *British Medical Journal* **313**, 1517–1521.

King K.M., Humen D.P. & Teo K.K. (1999) Cardiac rehabilitation: the forgotten intervention. *Canadian Journal of Cardiology* **15**, 979–985.

King K.M., Humen D.P., Smith H.L., Phan C.L. & Teo K.K. (2001) Predicting and explaining cardiac rehabilitation attendance. *Canadian Journal of Cardiology* **17**, 291–296.

Labonté R. & Feather J. (1996) *Manuel Sur L'utilisation du Récit*. Santé, Canada.

LaCharity L.A. (1997) The experiences of postmenopausal women with coronary artery disease. *Western Journal of Nursing Research* **19**, 583–602.

Lewin R.J., Ingleton R., Newens A.J. & Thompson D.R. (1998) Adherence to cardiac rehabilitation guidelines: a survey of rehabilitation programmes in the United Kingdom. *British Medical Journal* **316**, 1354–1355.

Linden W., Stossel C. & Maurice J. (1996) Psychosocial interventions for patients with coronary artery disease: a meta-analysis. *Archives of Internal Medicine* **156**, 745–752.

Mallin R. (2002) Smoking cessation: integration of behavioral and drug therapies. *American Family Physician* **65**, 1107–1114.

Marchionni N., Fattirolli F., Fumagalli S., Oldridge N., Del Lungo F., Morosi L., Burgisser C. & Masotti G. (2003) Improved exercise tolerance and quality of life with cardiac rehabilitation of older patients after myocardial infarction: results of a randomized, controlled trial. *Circulation* **107**, 2201–2206.

McGee H.M. & Horgan J.H. (1992) Cardiac rehabilitation programmes: are women less likely to attend? *British Medical Journal* **305**, 283–284.

Missik E. (2001) Women and cardiac rehabilitation: accessibility issues and policy recommendations. *Rehabilitation Nursing* **26**, 141–147.

Moore S.M. & Kramer F.M. (1996) Women's and men's preferences for cardiac rehabilitation program features. *Journal of Cardiopulmonary Rehabilitation* **16**, 163–168.

Moore R., Mao Y., Zhang J. & Clarke K. (1997) *Economic Burden Off Illness in Canada, 1993*. Health Canada, Laboratory Centre for Disease Control, Ottawa, available at: http://www.hc-sc.gc.ca/hpb/lcdc/publicat/burden/index.html.

Murchie P., Campbell N.C., Ritchie L.D., Simpson J.A. & Thain J. (2003) Secondary prevention clinics for coronary heart disease: four year follow up of a randomised controlled trial in primary care. *British Medical Journal* **326**, 84–87.

Murray J.C., O'Farrell P. & Huston P. (2000) The experience of women with heart disease: what are their needs? *Canadian Journal of Public Health* **91**, 98–102.

Pope C. & Mays N. (1995) Qualitative research: reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *British Medical Journal* **311**, 42–45.

Prochaska J.O. & DiClemente C.C. (1983) *The Transtheoretical Approach: Crossing Traditional Boundaries of Change*. Dow Jones-Irving, Homewood, IL.

Prochaska J.O. & Velicer W.F. (1997) The transtheoretical model of health behavior change. *American Journal of Health Promotion* **12**, 38–48.

Prochaska J.O., DiClemente C.C. & Norcross J.C. (1992) In search of how people change. Applications to addictive behaviors. *American Psychologist* **47**, 1102–1114.

Robinett J.M., Anderson R.L., Robyn L., Reynolds K.L., Hennrikus D.J., Lando H.A. & Kendall D.M. (2004) Clinical and behavioral characteristics of individuals with type 2 diabetes participating in a smoking cessation intervention study. *Diabetes* **53**, A72.

Sandelowski M. (1986) The problem of rigor in qualitative research. *Advances in Nursing Science* **8**, 27–37.

Sharpe A., Clark N.M. & Janz N.K. (1991) Differences in the impact and management of heart disease between older women and men. *Women & Health* **17**, 25–43.

Smith S.C. Jr, Blair S.N., Criqui M.H., Fletcher G.F., Fuster V., Gersh B.J., Gotto A.M., Gould K.L., Greenland P., Grundy S.M., Hill M.N., Hlatky M.A., Houston-Miller N., Kraus R.M., LaRosa J., Ockene I.S., Oparil S., Pearson T.A., Rapaport E. & Starke R.D. (1995) Consensus panel statement: preventing heart attack and death in patients with coronary disease. *Circulation* **92**, 2–4.

Smith S.C. Jr, Blair S.N., Bonow R.O., Brass L.M., Cerqueira M.D., Dracup K., Fuster V., Gotto A., Grundy S.M., Miller N.H., Jacobs A., Jones D., Krauss R.M., Mosca L., Ockene I., Pasternak R.C., Pearson T., Pfeffer M.A., Starke R.D. & Taubert K.A. (2001) AHA/ACC scientific statement. *Circulation* **104**, 1577–1579.

Sullivan J.M. & Foltz A.T. (2000) Focus groups. Giving voice to people. *Outcomes Management for Nursing Practice* **4**, 177–181.

Suskin N., MacDonald S., Swabey T., Arthur H., Vimr M.A. & Tihaliani R. (2003) Cardiac rehabilitation and secondary prevention services in Ontario: recommendations from a consensus panel. *Canadian Journal of Cardiology* **19**, 833–838.

Wenger N.K., Froelicher E.S., Smith L.K., Ades P.A., Berra K. *et al.* (1995) *Cardiac rehabilitation. Clinical Practice Guidelines No. 17*. US Departement of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research USA and the National Heart, Lung and Blood Institute, Rockville, MD, AHCPR publication no. 96–0672.

Whittemore R., Rankin S.H., Callahan C.D., Leder M.C. & Carroll D.L. (2000) The peer advisor experience providing social support. *Qualitative Health Research* **10**, 260–276.

Wiles R. (1998) Patients' perceptions of their heart attack and recovery: the influence of epidemiological 'evidence' and personal experience. *Social Science and Medicine* **46**, 1477–1486.

Wiles R. & Kinmonth A. (2001) Patients' understandings of heart attack: implications for prevention of recurrence. *Patient Education and Counseling* **44**, 161–169.