Women and cardiac rehabilitation: a review of the literature

Wendy K. Day
Universal College of Learning (UCOL), w.day@ucol.ac.nz
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Introduction

Heart disease is an important issue for all New Zealanders. According to the Ministry of Health (MOH), Coronary Heart Disease (CHD) is the single leading cause of death for New Zealanders. In 1997, CHD accounted for 21% of female deaths and 25% of male deaths (MOH, 1999). In 1996 women lost 25,526 years to premature mortality and 4296 years to disability as a result of CHD (Tobias, 2001). Despite the high death and disability rates, there is a lack of relevant research related to CHD in New Zealand women.

There is a wide variety of literature available about CHD. Much of the research related to CHD has been performed using either exclusively male populations or such small numbers of women that the data from the women studied were unable to be analysed independently. As a result of this the treatment and rehabilitation of cardiac patients has been largely based on research on men. It is apparent that more researchers are focusing on research that examines women’s responses to CHD and the care and treatment they receive. The following literature review explores some of the issues related to women’s experience of cardiac rehabilitation. The majority of the research presented in this review originates from the United States of America and the United Kingdom, who share similarities in lifestyle, technology, and dietary habits with New Zealand.
The purpose of this literature review was to gain an overview of the available material related to women as consumers of cardiac rehabilitation. This review was then used as part of a grounded theory study exploring women’s perceptions of the contribution of cardiac rehabilitation to their recovery from a heart attack. Key words used for this search included women, cardiac rehabilitation, heart attack, myocardial infarction, and illness perception. Literature was accessed using a variety of databases including Cinahl, Medline and the Web of Science.

**Cardiac Rehabilitation**

“Ideally, cardiac rehabilitation begins at the time diagnosis of coronary artery disease is made” (Comoss et al., 1979). Diagnosis usually occurs as the result of an acute event such as an acute myocardial infarction (AMI). Comoss et al. (1979, p.2) provide the following definition for cardiac rehabilitation; “the process of actively assisting the known cardiac patient to achieve and maintain his (sic) optimal state of health”. Although the definition provided by Comoss et al. is now over 20 years old, more recent definitions are very similar. It would appear from this that the description of cardiac rehabilitation has changed little since its inception.

The World Health Organisation (WHO) provides the following definition of cardiac rehabilitation:

> The rehabilitation of cardiac patients is the sum of activities required to influence favourably the underlying cause of the disease, as well as the best possible physical, mental and social conditions, so that
they may, by their own efforts, preserve or resume when lost, as normal a place as possible in the community (WHO, 1993).

The WHO goes on to comment that rehabilitation is an essential part of care that should be available to all cardiac patients (WHO, 1993). The goals of cardiac rehabilitation are to alleviate or lessen activity related symptoms, improve functional capacity, reduce invalidism and enable to return to a useful and satisfying role within society (WHO, 1993). Most available guidelines for cardiac rehabilitation, including those of the National Heart Foundation of New Zealand (NHFNZ) are based on the 1993 WHO report.

The NHFNZ cardiac rehabilitation policy statement is as follows:

1. Rehabilitation of patients who have been treated for cardiac disorders is a necessary aspect of medical care to which all patients with cardiac disorders are entitled.

2. Cardiac rehabilitation should be an integral component of the long term comprehensive care of patients. Cardiac rehabilitation programmes or services should be available to all patients with cardiovascular disease. Rehabilitation services should be provided by any trained health professional caring for cardiac patients, since no sophisticated equipment or facilities are required. Both patients and their families should participate.

(NHFNZ, 2000 p.6)

These statements incorporate some of the aspects highlighted by the WHO Expert Committee on Cardiac Rehabilitation in 1993. However they fail to highlight that
every health care worker and the general public should be made aware of the need for cardiac rehabilitation (WHO, 1993).

Cardiac rehabilitation is also described as a dynamic process that assists individuals who have survived a cardiac event to achieve the best level of functioning possible (Mitchell et al., 1999). Cardiac rehabilitation programmes are aimed at helping individuals to adjust to their illness, limit or reverse the disease, modify risk factors for future cardiac illness, improve return to occupational and social functioning, and reduce the risk of re-infarction or sudden death (Dinnes, 1998; Mitchell et al., 1999; Petrie and Weinman, 1997; Wenger et al., 1995).

Cardiac rehabilitation has three recognized phases: 1. the inpatient phase; 2. the outpatient phase (up to 12 weeks post event); and 3. the maintenance phase (Australian Heart Foundation, 2000; Parks et al., 2000). Inpatient cardiac rehabilitation focuses on gradual mobilization and the resumption of activities of daily living, education, discussion and support including counselling if required, and discharge planning. Outpatient cardiac rehabilitation includes a light to moderate exercise regime and further education, discussion and support (AHF, 2000).

Topics covered in cardiac rehabilitation programmes include basic anatomy and physiology of the heart, the effects of heart disease and the healing process, risk factor modification, resumption of physical, sexual and activities of daily living, psychosocial issues, management of symptoms, and investigations as well as individual assessment and referral to other health professionals as required (AHF,
Different terminology is used to describe programme components, which makes comparison between countries difficult.

Cardiac rehabilitation programmes appear to vary widely in their focus and composition around the world and within New Zealand. The focus of American programmes appears, from the literature to be largely on exercise (Ades et al., 1999; Balady et al., 1996; Bruce et al., 1976). The American Heart Association (AHA) states Phase 2 programmes also provide information on smoking cessation, nutrition and stress management training (AHA, 1998).

Wenger et al. (1995) suggests that cardiac rehabilitation is characterised by long-term services that are comprehensive and involve medical evaluation, prescribed exercise, health education to encourage modification of cardiac risk factors, counselling and interventions to modify behaviour. Wenger et al. do not explain what they mean by long-term, however this may be because cardiac rehabilitation programmes last for varying amounts of time. The guidelines provided by the Australian Cardiac Rehabilitation Association suggest that phase 2 of cardiac rehabilitation should last for 4 to 12 weeks (AHF, 2000).

Cardiac rehabilitation programmes also appear to vary widely within New Zealand. Phase 2 cardiac rehabilitation programmes in New Zealand run from between 4 to 10 weeks depending on the hospital running the programme (NHFNZ, 2000). Programme content usually includes education on self-management, nutrition, exercise, stress management and risk factor reduction. However the actual content varies from between programmes (NHFNZ, 2000). Within New Zealand cardiac
rehabilitation programmes are coordinated by clinical nurse specialists and are run through accredited hospitals. This means that there are some geographical areas in which cardiac rehabilitation programmes are not available or readily accessible.

Cardiac rehabilitation has been shown to benefit patients with a wide range of conditions including AMI. Research studies report an increase in functional capacity (Adams et al., 1999; Cannistra et al., 1992; Lavie and Milani, 2000) and a decrease in mortality (Naughton et al., 2000, Oldridge et al., 1991) for both men and women after rehabilitation. Cardiac rehabilitation has also been linked to improvement in general health, self-esteem and to decrease anxiety (Conn et al., 1992). Although much of the available research has not been performed on New Zealand populations, the findings of these research studies are still relevant because of similarities in dietary habits, risk factors for CHD, and rates of cardiac illness between these countries.

Although there has been research into cardiac rehabilitation much of that research has focused on exercise tolerance (Cannistra et al., 1992), participation in exercise programmes (Cannistra et al., 1992; Moore et al., 1998), risk factors, referral and attendance (Halm et al., 1999), and usefulness of programme content (Castelein and Kerr, 1995; Filip et al., 1999; Murray, 1989). The vast majority of past research is quantitative in nature and performed using mostly male subjects (Boogaard, 1984; Brezinka and Kittel, 1996; Wenger, 1992).
Gender Issues

Cardiac rehabilitation is an area of growing importance for women because of the increase in the number of women suffering from cardiac illness. Over the last 15 years there has been an increasing number of research studies looking at gender differences in cardiac rehabilitation participation and benefits (Ades et al., 1999; Blackburn et al., 2000; Conn et al., 1991; Lieberman et al., 1998; Rankin, 1990; Romeo-Ashton and Saccucci, 1996; Schuster and Waldron, 1991).

Research has shown that women benefit as much as men from cardiac rehabilitation (Ades et al., 1992; Cannistra et al., 1992; Lavie and Milani, 1995). Ades et al. (1992) examined the exercise capacity of older female and male patients before and after a 12-week supervised aerobic training programme. Results showed that the peak aerobic capacity and maximal oxygen consumption of women improved significantly and that this increase was similar to the increase in male participants. King (2000) reported in her study about the effect of gender on short-term recovery from cardiac surgery that women had a greater improvement in functional capacity than men. However, these findings also indicated that neither gender nor age consistently predicted the degree of recovery (King, 2000).

Attendance and Referral

Women’s attendance at cardiac rehabilitation programmes has been documented to be lower than that of men (Halm et al., 1999; Wallwork, 1996). Parks et al. (2000) performed an audit of the Phase 2 cardiac rehabilitation programme at Auckland
Hospital and found that women were less likely to attend than men, with 36% of eligible women attending in comparison to 49% of men. A study in Minneapolis using the Acute Myocardial Infarction Registry of the Minnesota Heart Survey found that 22% of women attended cardiac rehabilitation in comparison to 41% of men (Everson et al., 1998).

It is also evident from overseas research that women may not be referred for cardiac rehabilitation as readily as men (Cochrane, 1992). Ades et al. (1992) found that physicians in Vermont recommended that older men participate in cardiac rehabilitation more often than older women despite both groups having similar clinical profiles. Everson et al. (1998) also found that women on the Minnesota Heart Survey Registry were referred for cardiac rehabilitation less often than men.

Halm et al. (1999) explored the use of Phase 1 and Phase 2 cardiac rehabilitation by American men and women found that in the population studied, 66% of men received referral for Phase 2 cardiac rehabilitation, in comparison to 48% of women. However research that investigated patient characteristics related to referral to cardiac rehabilitation found that gender was not a predictor of referral. Predictors of referral to cardiac rehabilitation in this study included the number of acute myocardial infarctions, number of coronary artery bypass grafts (CABG), previous participation in cardiac rehabilitation, and leisure physical activity (Burns et al., 1998).

Lieberman, Meana and Stewart (1998) performed a Canadian based study to examine gender differences as a factor that influenced cardiac rehabilitation participation. The results showed that both men and women ranked the recommendation of their
physician as the most important factor influencing their participation. For women the influence of adult children was also important whereas for men the influence of their spouse was important. This indicates that men and women rely on different support networks for decision-making.

Women are perceived as being less motivated to attend cardiac rehabilitation programmes than men, especially programmes containing vigorous exercise (Wallwork, 1996; Blackburn et al., 2000). Halm et al. (1999) found that women provided multiple reasons for not participating in Phase 2 cardiac rehabilitation including issues related to transport, insurance barriers, medical problems, and admission to a transitional care unit. However in New Zealand health insurance is not a barrier for women attending because cardiac rehabilitation is currently paid for in most areas by government funding. Jette and Downing (1994) investigated the health status of individuals on entry to a cardiac rehabilitation programme. Their findings suggest that participants were most limited in their performance of life roles by physical problems. Gender was not found to be statistically significant (Jette and Downing, 1994). However it might be significant that women participants are often older and have more existing health problems.

Schuster and Waldren (1991) found that upon enrolment in Ohio cardiac rehabilitation programmes women were significantly more anxious, less efficacious and less able to tolerate physical activity than men. Women were also found to have a higher dropout rate than men. Implications of this include the importance of recognizing gender related differences and planning interventions to meet the individual’s needs (Schuster and Waldron, 1991). Women have also been found to
have a higher degree of psychosocial impairment and a lower level of physical functioning on admission to a cardiac rehabilitation programme than men (Brezinka et al., 1998). Brezinka et al. suggest that this might partly explain the reported lower adherence and higher dropout rates in cardiac rehabilitation programmes.

Moore (1996) suggests that women are more likely to participate in cardiac rehabilitation programs that meet their needs. To achieve this however nurses need to understand what these needs are and what is currently available. Blackburn et al. (2000) compared patients who participated in the Cleveland Clinic Foundation hospital-based cardiac rehabilitation programme to patients who did not. They found a higher number of women participated in community-based programmes than in the Cleveland Clinic Foundation hospital-based programme.

Wallwork (1996) supports this in her study of women aged 65 years or under, who attended cardiac rehabilitation after being admitted to hospital with an AMI. Wallwork concluded that the favourable up-take of the programme by women in her study was due to the home visiting aspects of the programme and the relationships that developed between the patients and cardiac rehabilitation staff as a result of this. Halm et al. (1999) identified that women were less likely to attend the cardiac rehabilitation programme at a large mid-western American hospital than men but did not identify if any community-based programmes were available.
**Exercise**

Research examining women’s adherence to exercise regimes after an acute cardiac event indicated that the group of American women studied exercised below the recommended guidelines of the American Heart Association, with seventy-five percent exercising less than three times per week (Moore et al., 1998). It is interesting to note that, in this study, approximately one third of participants recorded all types of physical activity in their diary, including “picking up shells off the beach, child care and preparing dinner” (Moore et al., 1998). This may indicate that there is a difference in what women perceive as exercise.

In New Zealand it has been recognised that to exercise participants do not have to take up a sport or participate in a group exercise activity. The Hillary Commissions ‘Push Play’ programme was launched in 1999 to encourage New Zealanders to participate in 30 minutes of ‘physical activity each day. Physical activity in this case includes anything that increases pulse rate and causes a slight sweat (Hillary Commission, 2000). The exercise recorded by women in the study by Moore et al. (1998) may have fitted into the category of physical activity rather than what these authors define as exercise.

**Role Expectations**

Gender role expectations of both patients and society have been shown to affect experience of and recovery from illness. Although women’s roles have changed, many women still have the primary responsibility for looking after children and house
keeping (Boogaard, 1984). A research study investigating the experiences of younger, pre-menopausal women after diagnosis of coronary artery disease (CAD) discovered themes related to risk factors, initial symptoms, decision to seek treatment, return to work, activity and coping. The results of this study indicate that younger women were not expecting to suffer from CAD and thought their age and gender would provide protection from cardiac problems (LaCharity, 1999).

Hamilton and Seidman (1993) examined recovery from myocardial infarction (MI) from the perspective of return to work issues, participation in cardiac rehabilitation and sexual activity. Findings showed that within 4 weeks 75% of women had returned to household duties compared with one third of men. Results also indicated that women received less counselling than men, which may also affect their recovery. King et al. (2001) performed a study in Canada to examine the relationships between demographic factors, specific psychological factors and cardiac rehabilitation attendance. They discovered that women reported less social support but showed a greater improvement in health maintenance self-efficacy expectation than men. However, this did not appear to effect attendance at the cardiac rehabilitation programme investigated.

**Education Needs**

There is a growing awareness of the importance of providing cardiac rehabilitation programmes that meet the learning needs of both men and women. Ashton (1997) set out to see how American men and women rated the importance of learning needs related to heart diseases. Results indicated that the men and women participating in
this study had different learning priorities. For example, women rated learning about medications as most important whereas men rated risk factor education. Ashton also found that a higher percentage of women preferred to receive information from the physician and a higher percentage of men preferred gaining information from the nurse.

It has been suggested that recovery after a cardiac event does not proceed in the same way for every participant, implying that the individual’s needs should be assessed prior to attending rehabilitation programs (Lukkarinen, 1999). Individualized teaching plans that may include gender specific information would be an important step in promoting behaviour change if it is required (Ashton, 1997; Goodman, 1997; Halm et al., 1999; Noy, 1998). Individualised cardiac rehabilitation plans formulated to meet the needs of the patient and the family should be included in this process (Dinnes, 1998; Miller et al., 1989).

There are a variety of both research and non-research articles that look at women’s needs in relation to cardiac rehabilitation. These authors stress the need for research to increase understanding of women’s experiences of cardiovascular disease (Fleury and Cameron Go, 1997; Parchert and Creason, 1989), perceptions of symptoms and illness (McSweeney, 1998), learning needs (Boogaard, 1984; Romeo-Ashton and Saccucci, 1996), stress related to illness (Arnold, 1997), risk factor modification (Fleury and Cameron Go, 1997), physical and psychosocial recovery in women (Fleury et al., 1995; Parchert and Creason, 1989). For cardiac rehabilitation to be an effective strategy for improving the recovery and quality of life of women who have suffered an acute myocardial infarction it is necessary to have an understanding of women’s
experience of cardiac rehabilitation, so that the development of rehabilitative strategies that enhance the health of women can occur (Fleury et al., 1995).

**Conclusion**

Coronary heart disease can have a large physical and social toll on sufferers. It may result in loss of work, alterations in physical abilities and changes in social and family dynamics. Nurses and other health professionals have a responsibility to help those who survive myocardial infarction to gain the quality of life they had previously or to attain the best quality of life they possibly can. A programme such as cardiac rehabilitation is one way that this may be achieved (Hijeck, 1984). To achieve an improvement in the recovery of women who have suffered an AMI it is necessary to establish what their needs are and provide education programmes that meet these needs.

Although there has been a lot of research about different aspects of cardiac rehabilitation, there is a need for research which attempts to gain understanding of women’s experiences of cardiovascular disease (Fleury and Cameron Go, 1997), factors that affect individual’s decisions about cardiac rehabilitation attendance (Conn et al., 1992; Murdaugh, 1990), and research that seeks to identify specific problems encountered by women with heart disease to enable cardiac rehabilitation for women to be improved (Parchert and Creason, 1989; Romeo-Ashton and Saccucci, 1996).
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