Women’s recovery after a first myocardial infarction from an organisational, a relational and an individual perspective

Inger Wieslander
Abstract

The overall aim of this thesis was to explore and describe women’s recovery after a first myocardial infarction (MI) from an organisational, a relational and an individual perspective. In this thesis a longitudinal, explorative and descriptive design combining both quantitative (papers I- II) and qualitative (papers III- IV) methods has been used. Data was collected from healthcare professionals at 18 acute hospitals (paper I), which on two occasions answered a questionnaire dealing with cardiac rehabilitation efforts. From these 18 hospitals, 240 women who had suffered a first MI (paper II) were consecutively chosen to answer a questionnaire on three occasions on the subject of social support and social network. Descriptive and inferential statistics were used to analyse data over time. Paper III and IV had an explorative and descriptive design based on an inductive, qualitative content analysis approach. Interviews were conducted with 20 cardiac rehabilitation nurses (CRN) (paper III) and with 26 women suffering a first MI (paper IV).

The results showed that patients with MI, and their next of kin, were offered a well-functioning cardiac rehabilitation on both measurement occasions. None of the hospitals offered a CRP that was specifically designed for women (paper I). The women perceived that the extent of general support, support from relatives, and professional support changed positively over time (paper II). The CRNs experienced that women’s recovery was influenced by their ability to cope with the stresses of life, if they wanted to be involved in their own personal care and how they related to themselves, and their opportunities to receive support (paper III). Women experienced that ability to approach a new perspective of life depended on how they embraced the three dimensions; behaviour, i.e. women’s acting and engaging in various activities, social i.e. how women receive and give support in their social environment, and psychological i.e. their way of thinking, reflect and appreciate life (paper IV). In conclusion, the four studies show that women’s recovery after a first MI is depending on factors emerging from an organisational, a relational and an individual perspective. Using knowledge from these three perspectives the possibility of a holistic approach to women’s recovery process to health will increase and the risk of a reductionist thinking will decrease.
Original papers

The thesis is based on the following papers, which are referred to by their Roman numerals in the text:

**Paper I**


**Paper II**


**Paper III**


**Paper IV**

Wieslander I., Mårtensson J., Fridlund B. & Svedberg P. (2013). Women’s experiences of how the recovery process is promoted after their first myocardial infarction. Submitted

The articles have been reprinted with the kind permission of the respective journals.
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Acknowledgements

Finally is my Ph.D. thesis finished and I have reached the end of this long journey. Now it is time to move on. The journey has sometimes been arduous, but not least instructive and stimulated, as it has left me with many insights. I hope my thesis will contribute with knowledge about women’s recovery after a myocardial infarction. During the journey, I have had many companions and I wish to express my deep gratitude to everyone who has contributed to this thesis and all those who have supported me over the years spent working on the thesis. Primarily thanks to all the healthcare professionals and women who participated in this thesis. Without you it would have been impossible to finalize this thesis.

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Halmstad August 2014,

Inger Wieslander
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CHD</td>
<td>Coronary heart disease</td>
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<td>CR</td>
<td>Cardiac rehabilitation</td>
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<td>CRP</td>
<td>Cardiac rehabilitation programme</td>
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<td>CRN</td>
<td>Cardiac rehabilitation nurse</td>
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<td>CABG</td>
<td>Coronary artery bypass grafting</td>
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<td>MI</td>
<td>Myocardial infarction</td>
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<td>PCI</td>
<td>Percutaneous coronary intervention</td>
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<td>WHO</td>
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Introduction

To suffer a myocardial infarction (MI) is a traumatic experience, which is a life-challenging event. How do women with a first MI recover and move on in life? This thesis encompasses a period of time in Sweden when the emergency medical services in cardiac care have developed a great deal (Stenestrand et al. 2007). It is also important to note that secondary preventive care after an MI has not improved at the same rate as acute MI care during the same period of time (Swedeheart 2013). One reason for this could be that research and healthcare services focus more on risk factors, symptoms and treatment and not on the individuals’ perceptions of the recovery process after an MI (Johansson-Sundler 2008).

Coronary heart disease (CHD) is the major cause of death in the developed part of the world and is one of the leading causes of disease burden (Gaziano et al. 2010). A common type of CHD is MI. Approximately 15 000 men and 10 000 women in Sweden had a first-time MI in 2011 (Swedish National Board of Health and Welfare 2013a). Approximately 70 % of the women survive (Swedish National Board of Health and Welfare 2013b) and, after discharge from the hospital a recovery process follows (Johansson-Sundler 2008). Cardiac rehabilitation (CR) is recommended for patients following a cardiovascular event as a secondary prevention and health promotion strategy (Daniels et al 2012, Fridlund 2002, Swedish National Board of Health and Welfare 2008a). In spite of this, CR is an underutilized resource for patients with MI and women are significantly under-referred to this service, which is an issue compounded by factors such as age and socioeconomic status (Daniels et al. 2012). The concept of rehabilitation and recovery are often used interchangeably in healthcare, although there is a clear distinction between the concepts (Swedish National Board of Health and Welfare 2008a). An increased understanding of women’s recovery may lead to knowledge that enables personalizing CR so that it responds to their needs. Important issues in CR include strengthening social network and social support (WHO 2001) as this has been found to have a positive influence on the recovery process (Kristofferzon et al. 2005, Leifheit-Limson et al. 2012). Furthermore, women who have suffered an MI usually report a lower level of social support post MI than men (Kristofferzon et al. 2003,
Leifheit-Limson et al. 2010, Mendes de Leon et al. 2001). More knowledge is thus needed about social support from the women’s own perspective in order to develop interventions that are individually based and in accordance with women’s unique needs in their recovery process.

The change from a single focus on prevention to a focus on which factors strengthen the individuals’ own health and recovery (Svedberg 2011, The Swedish Society of Nursing 2008, Whitehead 2006) brings new challenges for cardiac rehabilitation nurses in clinical practice (Fridlund & Billing 2002, Johansson-Sundler 2008). Research regarding strengthening and contributing factors for the promotion of women’s recovery process is rare. More knowledge is thus needed about women’s recovery, in particular social support, after a first MI at the organisational, relational and individual level.

**Background**

**Women and myocardial infarction – an unsolved dilemma**

As long ago as the end of the 19th century, it was common practice among researching anatomists, physiologists and pathologists to scientifically establish biological gender differences and to employ data and results that built on the theory that the female is a distinct anatomical type with gender-specific characteristics that are not directly linked to the sexual organs. Great efforts were made to quantify observations and measurement results, which led to the view that it is easier to make generalizations with regard to women than men, i.e. that there is a greater similarity between women than between men and that female biology constitutes a different system to male biology, thus explaining women’s complicated nature (Johannisson 1994). This may explain why modern medical research - especially in the area of cardiology- was, for a long time only concerned with men, viewing women as complicated humans. Maybe that is also the answer to why women with coronary disease have historically been understudied (Lee et al. 2001). Women are still an underrepresented group in research
An increased awareness of CHD and MI among women

Coronary heart disease (CHD) has been considered as a male disease for many years (Jafar et al. 2005). During the last decades, it has been noticed that CHD concerning women has increased both in research, clinical practice and among the general public. The American Heart Association started the campaign “Go Red for Women” in 2003 and this campaign spread to several countries including Sweden to increase the knowledge that CHD is the most common cause of death among women. These campaigns have resulted in a greater awareness among women suffering CHD as the leading cause of death, but efforts must still be made to reach the risk-groups among women (Mosca et al. 2013). The number of first time MI has decreased by 25 % for men and by 31 % for women in Sweden between 2001 and 2012 (Swedish National Board of Health and Welfare 2013a). In Sweden the mortality among women with MI has decreased by approximately 2 800 women between 1996 and 2012, i.e. over 50%. The corresponding numbers for men during the same time period is nearly the same as for women (Swedish National Board of Health and Welfare 2013b). CHD is still, however, the leading cause of death of women (Gaziano et al. 2010, Singh et al. 2008). Based on mortality and morbidity rates, more men than women become ill, but a greater proportion of women die (Duenas et al. 2011), which is also true in an international perspective (Berg 2013). A reason for this might be women’s negligence concerning symptoms and the needs for hospital care, due to obligations in the home environment (Duenas et al. 2011).

From symptoms to treatment among women

A recent study (Thygesen et al. 2012) showed that central chest pain was the most common symptom in both women and men where symptoms associated with MI are concerned. Other common symptoms, among both women, and men were arm pain, jaw pain, upper abdominal pain, fatigue and dyspnea. The symptoms have a duration of more than 20 minutes and are usually not correlated with movement or position (Thygesen et al. 2012). In some national and international research, however, women have reported more nausea, back pain, vomiting, palpitations, dizziness, jaw pain and fatigue, but less chest pain and sweating than men (Berg et al. 2009, Chen et al. 2005). Furthermore,
women usually have a greater number of symptoms than men (Berg et al. 2009, Berg 2013), and generally become ill with MI, on average, five to ten years later than men (Anand et al. 2008, Rosengren et al. 2001).

MI is characterized by myocardial cell death which, due to coronary ischemia and atherosclerosis, is the most common cause (Thygesen et al. 2012). The emergency care can be crucial for both survival and future prognosis. The primary goal of acute medical treatment in patients with MI is focused on pain relief, removing and relieving ischemia using thrombolysis or percutaneous coronary intervention (PCI), reducing the risk of a new thrombosis building up and enabling the prevention of risks such as arrhythmias and failing pump functions (Swedish National Board of Health and Welfare 2008a). It is extremely important to initiate reperfusion as quickly and effectively as possible in order to ensure the greatest efficacy of the treatment. Fewer women in Sweden have MI with ST segment elevation (STEMI) on electrocardiograms (ECG) than men (Björck et al. 2010). Furthermore, women more frequently experience non-Q-wave infarctions and so-called silent infarctions. Another condition that mainly women are affected by is Broken Heart Syndrome. This syndrome has been known since 1991, it is a type of nonischemic cardiomyopathy and the etiology of this syndrome is still unclear. The onset of this disease is usually triggered by stressful incidents, especially emotional stress and the symptoms are often the same as MI and the prognosis usually good (Bielecka-Dabrowa et al. 2010, De Giorgi et al. 2014, Dote et al. 1991)

A woman's heart is smaller and the coronary vessels thinner in relation to her body weight compared to that of a man (Jacobs 2009, Regitz-Zagrosek et al. 2010). In terms of the medical treatment of women, it was shown in a recent study from Sweden and Canada that acute reperfusion therapy in STEMI was used less often in women than in men (Johnston et al. 2013). Swedish women also had a longer delay before receiving medication (aspirin) and admission to a coronary care unit, a lower rate of coronary angiography and less invasive strategy, especially in regard to CABG than men (Herlitz et al. 2009, Ravn-Fischer et al. 2012).
Risk-factors in general and for women in particular

In an INTERHEART study (Anand et al. 2008) nine modifiable risk factors for MI were found: smoking, abnormal lipids, hypertension, central obesity, diabetes, lack of exercise, alcohol, psychosocial factors and consumption of a high risk diet. These risk factors explained 90% of all MI in women and men, but hypertension, diabetes, alcohol intake and lack of exercise were risk factors strongly associated with MI in women (Anand et al. 2008). Another study showed smoking as an independent determinant in the case of STEMI especially in younger persons and women (Lawesson et al. 2010). Women who felt depressed prior to the MI have greater difficulties in both interpreting and estimating their symptoms because they did not believe that they had a serious MI (MacInnes 2006, Sjöström-Strand & Fridlund 2007, Turris & Finamore 2008, White et al. 2007). Psychosocially, more women than men who suffer an MI have depression, a low level of education with a low professional status, economic stress, relational stress, family stress including marital stress and other manifestations of stress, such as vulnerability, worry and frustration (Ahnquist et al. 2012, Claesson et al. 2003, Fridlund 2000, Orth-Gomér et al. 2000).

It thus appears essential to investigate MI from the perspective of women, as they are under-represented in research (Beswick et al. 2005, Lee et al. 2001, Tsang et al. 2012). Moreover, it is clear that there are differences between men and women in terms of risk factors, symptoms, mortality, morbidity and treatment. This knowledge is needed in order to promote women's recovery process.

The cardiac rehabilitation process

Cardiac rehabilitation: definition and content

The definition of CR has changed during the last decades, both nationally and internationally. The World Health Organization (WHO) defined CR in 1993 as: the sum of activities required to favorably influence the underlying cause of the disease as well as to guarantee the best possible physical, mental and social conditions for patients, so that they may, by their own efforts, maintain or regain, as far as possible, their normal position in the life of the community (WHO 1993). The American Heart Association (2014) defines CR as follows: "Cardiac rehabilitation is a professionally supervised program to help people
recover from heart attacks, heart surgery and percutaneous coronary intervention (PCI) procedures such as stenting and angioplasty. Cardiac rehabilitation programs (CRP) usually provide education and counseling services to help heart patients increase physical fitness, reduce cardiac symptoms, improve health and reduce the risk of future heart problems, including heart attack” (American Heart Association 2014). The Swedish National Board of Health and Welfare (2008a) defined CR as an important part of secondary prevention after MI, in order to prevent disease progression and reduced death by focusing on lifestyle factors and the medical treatment of risk factors. CR should involve multiple interventions for increasing the individual’s physical, psychological and social functioning in order to change the negative regression of the underlying atherosclerotic processes, thereby decreasing the patient morbidity and mortality (Swedish National Board of Health and Welfare 2008a). These international and national definitions or guidelines have developed over time, but are still primarily focused on prevention. In particular, the Swedish definition focuses more on prevention and the attainment of physical, mental and social functioning than on the person’s experiences of health from a holistic perspective. However in order to facilitate the patients’ recovery, both a preventive and health promotion perspective should be taken into consideration (WHO 1986). The change from a single focus on prevention to a focus on which factors strengthen the individuals’ own health brings new challenges for nurses in clinical practice (Fridlund & Billing 2002, Svedberg 2011, The Swedish Society of Nursing 2008, Whitehead 2006).

The goals of CR are to promote secondary prevention and to improve quality of life. CR can be described as a lifelong process, which begins at the onset of the illness and remains a continuing component of the long-term care (Hellerstein 1968, Wenger & Hellerstein 1992). CR is offered to patients after cardiac events in order to facilitate recovery. Behavioral modification and a healthy lifestyle, including exercise, play a great role in reducing both cardiac and total mortality, the risk of recurrence in MI and behavioral modification should be given priority immediately after an acute coronary syndrome (Chow et al. 2010, Taylor et al. 2004). A recent Swedish study (Perk et al. 2014) revealed that more than 60% of patients perceived themselves cured and healthy directly after undergoing a percutaneous coronary intervention (PCI). They perceived that age and heredity (non-modifiable risk factors) were attributed a higher rating as the cause of the disease compared to modifiable factors and only approximately 25% reported that they still had cardiovascular disease and needed behavioral change (Perk et al. 2014). This result
highlights the importance for patients with CHD of understanding the disease and the need for rehabilitation, in order to facilitate recovery.

The cardiac rehabilitation process is usually divided into three (Ehsani 1984, Giannuzzi et al. 2003) or four stages (LI Lloyd 2009), where the first stage is initiated during admission to the hospital and includes treatment and disease prevention. The next stages, including the second and/or third stages, start when the patient returns home and comprises telephone advice and information and an active rehabilitation course in order to promote regular training and the implementation of recommended lifestyle changes. These stages cover a period of 8 - 10 weeks or until the patient returns to work and are usually administered from the hospital. The third and/or fourth stage is aimed at maintaining the patient’s physical condition and at reducing the risk of CHD. In order to be effective, this stage requires long-term co-operation between the patient and rehabilitation staff (Ehsani 1984, Giannuzzi et al. 2003), and is usually undertaken in primary care (LI Lloyd 2009). During this process, the cardiac patient needs varying amounts of information, education and support. These needs are not only dependent on the level of anxiety and mental strain resulting from the disease and its subsequent treatment, but also on the reaction of people in the patient’s immediate environment (Todd et al. 1992). Research has emphasized that, in order for the CR to be successful, it needs to be adapted not only to the diagnosis but also to the individual person (e.g. gender, age, education, socio-economic status) and their next of kin (e.g. spouse), who may have an important role to play in the recovery process (Daniels et al. 2012, Fridlund 2011, Hill et al. 1992, Anderson et al. 2013, Svedlund & Axelsson 2000, Svedlund et al. 2004, Sjöström-Strand et al. 2011, Wamala et al. 1999). In 1998, the Swedish National Board of Health and Welfare indicated the need for greater adaptation to the individual person when designing tailored cardiac rehabilitation programs (CRP) (Swedish National Board of Health and Welfare 1998). In spite of this, the national guidelines are still not tailored for women (Swedish National Board of Health and Welfare 2008a).

**Cardiac rehabilitation programs**

There is a large variation in approaches to CRP in Europe (Bjarnason-Wehrens et al. 2010, Humphrey et al. 2014, McGee et al. 1999). The Nordic countries have well-developed CRPs and can be considered pioneers in this field (Hedbäck et al. 1993, Hämäläinen et al. 1989,
Hämäläinen et al. 1995, Maeland & Havik 1989). These CRPs are usually multiphase, multifactorial and interdisciplinary. The healthcare services, including cardiac rehabilitation, are facing major challenges with great expectations of quality good and safe care (The Swedish Society of Nursing 2013). In order to meet these expectations, it is necessary to have a multidisciplinary approach in a CRP. The cardiac rehabilitation nurse (CRN) has, over time, had an essential role in CRPs and contributes to continuity and co-ordination in the multidisciplinary team. Other professionals from the multidisciplinary teams are physicians and physiotherapists. In recent years, other professional groups, such as behavioral scientists, have also been included in the team (Egan 1999, Ekman et al. 2000, Fridlund 1994, Hildingh et al. 2000, Pieplo et al. 2010). When CRNs encounter women on a number of occasions after the MI, both individually and in the CRP, they have a great potential to be able to support women in their recovery process. In order to do this, the CRNs need greater knowledge of the health promotion perspective i.e. how they can promote the women’s experiences of health despite suffering from the disease.

In Sweden, most patients are offered participation in a CRP after an MI (Bellman et al. 2009), but historical data has clearly showed that women have been less likely to be referred to a CRP and, furthermore, tend to drop out and fail to complete CRPs to a greater extent than men. One reason could be that today’s CRPs are not well suited for women (De Feo et al. 2012, Neubeck et al. 2012). Research has, however, shown that women would like to have contact with professionals in cardiac care more than one year after the MI in order to obtain support to continue their changes in daily lives (Sjöström-Strand et al. 2011). The goals of CRP are to reduce the risk of relapse, promote lifestyle and health behavior changes as well as to facilitate the patients’ recovery (Bellman et al. 2009, Perk et al. 2012). The aim of CRP, which in some places is termed Heart School, is usually to provide education and counseling services (Chow et al. 2010) and in Sweden this is often carried out in groups with traditionally predetermined educational content and organized physical exercise (Bellman et al. 2009), with the focus on healthy lifestyle changes. Internationally, CRP has been developed to include home-based CRPs (Corazza et al. 2014) and to be targeted at socially vulnerable groups (Nielsen et al. 2013), in order to engage more patients. CRP for women in Sweden has developed to include interventions with a focus on psychosocial and stress factors (Anderson et al. 2010). Another type of CRP includes peer support groups, which are lay, mutual support groups where the patient meets people with
similar experiences and which may be important for long-term rehabilitation following CHD (Hildingh 1996). An ongoing European collaboration project that started in 2003, “The Euroaction program” is a nurse-led CRP which aims to prevent cardiac disease by involving all family members of CHD patients in the rehabilitation (Berra et al. 2011, European Society of Cardiology 2003).

**Cardiac rehabilitation programs for women**

Women experience a higher level of stress and more restrictions in their daily activities than men (King 2002, Orth-Gomér et al. 2000, Schenck-Gustafsson 2009), a fact that underlines the importance of encouraging women to take part in CRPs and supporting them in continuing physical training and promoting activities to recover. Several studies have shown that fewer women than men are provided with information about CRPs and that fewer women than men actually participate in a CRP (Brezinka & Kittel 1996, Brown et al. 2009, Grace et al. 2002, Thomas et al. 1996), although a small number of studies from the early 1990s has revealed the opposite (Cannistra et al. 1992, Hamilton & Seidman 1993). Women are also less inclined to participate in conventional CRPs than men (Brown et al. 2009, Graves & Miller 2003, Hamilton & Seidman 1993) and are therefore sometimes offered CRPs that comprise stress management including actions to combat vital exhaustion (Andersson et al. 2010, Claesson et al. 2003). It has been established that, at the start of rehabilitation, women exhibit more psychosocial symptoms, such as social inhibition, vital exhaustion - a state characterized by extreme fatigue, loss of energy, irritability and depressive symptoms - and a low level of social support in addition to a lower functional status, which may also explain the lower participation and higher drop-out rates compared to men (Brezinka et al. 1998, Claesson et al. 2003, Grace et al. 2002, Gulliksson et al. 2007, Piepoli et al. 2010).

The CRPs should be available for all people, not least for women as they are underrepresented in CRP. The CRN has a great potential to support women’s motivation to participate in CRP. Earlier research has shown that a nurse-delivered strategic referral and information process, when the patient is at the hospital, where the CRN discusses with the patient about the benefits and importance of participating in CRP, has increased participation for women (Daniels et al. 2012, Meillier et al. 2012, Tiller et al. 2013).
Benefits of participating in cardiac rehabilitation programs

Research has shown that participation in CRP promotes patients’ health and quality of life as well as preventing new cardiac events (Piepoli et al. 2010); moreover, CRP tailored for women significantly improved quality of life compared with traditional CR (Beckie & Beckstead 2010).

Participation in regular physical activity in CRP is associated with a decrease in cardiovascular mortality (O’Connor et al. 1989, Hammill et al. 2010, Lavie & Milani 1995, Li Lloyd 2009, Perk et al. 2012, Piepoli et al. 2010, Taylor et al. 2004), especially CRP with high intensity and long duration (Beauchamp et al. 2013, Strid et al. 2012). The beneficial effect of physical activity on persons suffering from CHD was recognized as long ago as the 18th century (Parry 1802). This knowledge was lost, however, and it was not until the mid-1960s that physical activity was again used in the treatment of CHD (Hellerstein 1968) with the introduction of the first CRPs based on physical training, although the first Swedish guidelines were not issued until 1980 (Ekelund et al. 1980). There is also evidence that CRP with physical activity is cost-effective (Fidan et al. 2007). Participating in CRP provides benefits in terms of behavioral changes, e.g. dietary change, smoking cessation and stress management (Andersson et al. 2010, Anjo et al. 2014, Bellman et al. 2009, Jennings et al. 2014, Oldenburg et al. 1995), particularly for long duration participation in the CRP (Lisspers et al. 1999, Lisspers et al. 2005, Strid et al. 2012).

Extended CRPs, for socially vulnerable groups, showed better results in terms of multiple medical parameters, body mass index and a higher level of adherence with medications and CRP than controls (Nielsen et al. 2013). In other studies women who participated in CRP were able to eliminate their risk factors, including smoking, unhealthy diets and inactivity to prevent another MI, (Schou et al. 2008) and obtained greater benefit in terms of a reduction in the number of rehospitalisations over a 4-year period in contrast to those in the non-CRP group (Winberg & Fridlund 2002). Women who managed to change their lifestyle experienced less fear in life with improved inner strength and self-esteem which facilitated a focus on continued lifestyle changes and their medication regime (Mendes et al. 2010).

Although research has shown the benefits of CRP in both men and women (Lavie & Milani 1995, Sanderson et al. 2010), CRP is still underutilized in women (Brown et al. 2009, Neubeck et al. 2012,
Sjöström-Strand et al. 2011). Research has also shown that women experience a higher level of stress and seem more vulnerable in their daily activities than men. Participation in a CRP is a good support for them (Orth-Gomér et al. 2000, Schenck-Gustafsson 2009, Sjöström-Strand & Fridlund 2006, Sjöström-Strand et al. 2011, Stevens & Thomas 2012), which is a fact that underlines the importance of gaining knowledge about how to support women to take part in CRPs in order to promote their recovery process.

Recovery

What generates recovery is a matter of ongoing debate both in theory, practice and in research. The concept of recovery began to develop within psychiatric rehabilitation from the late 1980s in the United States (Deegan 1988). It is now a widely used concept in the psychiatric care context, but still underdeveloped in other care areas such as cardiac rehabilitation. It has been stated that professionalized clinical models focus on treatment and on improvement regarding symptoms and functions, while recovery models tend to put more emphasis on empowerment and on the person's own experience of health (Meuser et al. 2002, Slade & Hayward 2007). It does not thus only refer to the remission of clinical symptoms and functions; it is also described as being a broader concept that incorporates the person's whole life situation.

Different ways to understand the concept of recovery

The concept of recovery has been defined in different ways and there is no consensus on what nurses do when they promote patients' recovery. There is some ambiguity around the definition (Slade 2009) and therefore it is important to emphasize the different interpretations of the concept of recovery. Recovery can be explained as a process (Slade & Hayward 2007, Tomko 1988), or as an outcome, and in some cases it incorporates both a process and an outcome (Beaton et al. 2001, Meuser et al. 2002). What may be critical with the concept of recovery is the subjective meaning that each individual puts into the concept (Meuser et al. 2002).

There is a distinct difference between recovery and rehabilitation, but they are often used interchangeably in healthcare (Deegan 1988). In order to overcome this ambiguity about the concept, Slade and Hayward
(2007) point out that recovery includes both clinical recovery and personal recovery. Clinical recovery corresponds to rehabilitation and the professional perspective that focuses on reducing symptoms and increased levels of function (Mancini et al. 2005, Slade & Hayward 2007). Personal recovery is seen as each person’s unique journey (Anthony 1993, Deegan 1996, Slade & Hayward 2007) and a multidimensional ongoing holistic process of health (Mancini et al. 2005, Meuser et al. 2002). The process is not linear, and is interspersed with both achievement and setbacks (Topor 2004), and the patients need to get support in order to promote their personal journey (Meuser et al. 2002, Schön 2009). The knowledge regarding personal recovery has been developed from both the experience of people who have used services and from longitudinal research. This has provided evidence that recovery is possible (Deegan 2001, Harding et al. 1987, Harding 2003, Ridgway 2001). Common and essential dimensions described by people with lived experience of mental illness are the importance of hope, being able to take responsibility for oneself, being supported by others, having meaningful activities, and establishing a positive identity (Davidson et al. 2005, Mancini et al. 2005, Slade 2009). The recovery process is about the individual’s ability to adapt to the new situation after a disease and at the same time having the power to develop his or her own new life situation. The person needs to have the opportunity to choose different ways in his/her own recovery process in order to gain health (Anthony 1993, Deegan 1996, Slade & Hayward 2007). The personal recovery thus contributes to a further important aspect of the women’s recovery and it is not simply enough that healthcare professionals have a focus on only clinical recovery. Davidson (2008) maintains that a recovery-oriented approach in healthcare represents a movement away from a primarily biomedical view of illness to a holistic health-promoting approach to health (Davidson 2008). It is thus of great importance for cardiac healthcare not only to alleviate and reduce illness, but also to work actively to promote the personal recovery of the women. In this respect, it is important to underline that the concept of recovery does not contain critique of medical treatment, but rather desires to contribute to a broader dimension in order to give high quality care in the multidisciplinary development for the women with myocardial infarction (Cornett 2005, Falk Andersen 2005).

In order to establish a holistic view of women’s recovery process after a first MI, it could be essential to understand and view this phenomenon from different perspectives; the organisational, the relational and the individual. What seem to be competing perspectives are often in fact
different ways of looking at the same thing (Wilber 2000). If the world is seen from different perspectives, it could lead to a more holistic view of the world. Through applying different perspectives in healthcare the patients could get a more holistic and high quality care (The Swedish Society of Nursing 2013). One way to describe this is through the concept of evidence-based care, which means that decisions taken in healthcare should be based on three components: the best available scientific data, the staffs experiential knowledge and the patient’s own knowledge, needs and preferences (The Swedish Society of Nursing 2011). Starnino (2009) and Schön (2009) have tried to describe mental health recovery including different perspectives in order to deepen the understanding and defining of mental health recovery in a contemporary context. One perspective, could be described as organisational; this includes the medical care and rehabilitation perspective and this is about what healthcare provides and what interventions are available in healthcare (Starnino 2009). This perspective corresponds to the earlier described clinical recovery (Slade & Hayward 2007). Another perspective, which could be called relational, includes the relation and the cooperation between the staff and the patient as well as the patient’s social network. This perspective is essential in the person’s ability to recover because the human is creating his or her health in connection with others (Parse 2007, Schön 2009). The third perspective, which could be called the individual one, represents the individual’s subjective perspective, experiences and knowledge (Starnino 2009, Schön 2009) and this correspond to the personal recovery (Slade & Hayward 2007). All perspectives are dependent on one other in women’s recovery process after a first MI.

Recovery in women with MI

A number of studies regarding women’s experiences of their situation after an MI focus on lived experiences and daily life; these studies show that their everyday life is in some way interrupted and the limitations this causes in their life (Johansson et al. 2003, Sjöström-Strand et al. 2011, Stevens & Thomas 2012, Svedlund et al. 2004). Even though some studies with a recovery perspective described the women’s recovery after a MI, they primarily focus on only some aspects in relation to the recovery process, not on the women’s whole life situation; i.e. CRP (Day & Batten 2006), patient education (Perry & Rosenfeld 2005), health behavior changes (McSweeney & Coon 2004) and intimate relations (Arenhall et al. 2011). One study that has investigated women’s perspective of recovery from MI show that recovery entails a gradual
and personal ongoing process that includes learning to adapt to a new life situation (Tobin 2000). In a meta-synthesis of previous research (Hildingh et al. 2007), the findings revealed both factors promoting women’s recovery and difficulties that arise during women’s recovery process. It is experienced as a complex process where they have to cope with the tension between being oriented towards oneself and towards others. However, research focusing on strengthening and contributory factors for the promotion of women’s recovery process is rare. One study has shown that changing priorities, receiving good treatment and care, making lifestyle changes and taking more care of oneself and others were shown to be health-promoting factors in the women’s recovery process after an MI (Norekvål et al. 2008).

As emphasized previously, the concept of recovery is still underdeveloped in other care contexts than psychiatric care. A greater understanding of the concept of recovery among women with MI could be an important contribution to the development of cardiac rehabilitation. Support has been shown to be an essential component in patients’ recovery process, and therefore further research is needed in order to understand how to support the women’s recovery process. Furthermore, it can be assumed that it is important to study the perspective of both women and nurses concerning which factors contribute to recovery.

Social support and social network

Access to a social network as well as to social support is associated with beneficial effects on physical health as well as decreased mortality (Uchino 2004). The WHO (2001) has identified the strengthening of social network and social support as a health promotion strategy (WHO 2001). Social support is a multi-dimensional concept as well as an interactive process. The importance of social support for how individuals cope with difficult life situations was documented more than 35 years ago (Cassel 1976, Cobb 1976). As the concept of social support is used in different contexts, and by many disciplines, it is essential to increase knowledge and understanding of its meaning in order to promote women’s recovery after MI.
Different ways to understand the concept of social support

There are several definitions of social support. The common denominator in these definitions is the connection to a person’s health and well-being, and how social support through relationships helps people to cope with difficulties and crises that he/she encounters in life (Vangelisti 2009). The concept of social support rests on three pillars: social comparison, social exchange and social competence (Langford et al. 1997). Self-image is developed by comparing oneself with other people in one’s surroundings (Swann & Brown 1990). This comparison forms an important part of the development of the sense of identity, coping mechanisms, emotional adaptation in relationships with other people, self-esteem and mental well-being (Cohen 1981, Stewart 1993). However, social comparison alone is not sufficient; it has to be combined with social exchange. Tilden and Galyen (1987) maintain that human behavior consists of an exchange of mutually rewarding activities, where rewards take the form of reciprocal services (Tilden & Galyen 1987). According to Stevens (1992), there is an association between the degree of satisfaction with life and the amount of social support received and provided to others (Stevens 1992). Social comparison and the ability to give and take indicate an individual’s degree of social competence. Social competence denotes the ability to interact effectively with the people in one’s environment. Social competence is necessary for forming and maintaining relationships, which in turn are necessary for health (Stevens 1992). Without social competence, the individual becomes isolated, resulting in negative psychological consequences, which may contribute to mental health problems.

Two different theoretical models of social support have been used; the stress-related and the direct-effect model. The stress-related perspective includes the stress-buffering and stress-prevention models. The stress-buffering model indicates that social support is above all beneficial for individuals under high levels of stress, which is the situation that has been most widely researched (Cohen & Wills 1985). The direct-effect model indicates that social support is beneficial across a range of life situations. Both these models have been criticized for various reasons (as neither of them is perfect) and there are gaps in the understanding of the models. The effects of the stress-buffering model are more likely to be seen in relation to functional measures of support, i.e. social support, while the direct effects are more obvious with structural measures of support, i.e. social network (Cohen & Wills
However, functional measures of support can have direct effects while structural measures can have stress-buffering effects (Barrera 1988). The stress-buffering model concurs with a Swedish definition of social support as a positive resource constituted by an individual’s social relationships. Support provided by interhuman contact can serve as a buffer against mental stress caused by, for example, severe life crises and high levels of strain (Billing 2000).

Support from next of kin would appear to be particularly important after a life-threatening event, e.g. MI, but they can have either a positive or negative effect on the patient’s recovery. Well-functioning social supports enabled the women to feel courage and to prioritize themselves in their recovery process (Astin et al. 2008, Condon & McCarthy 2006, Goldsmith et al. 2006, Hilding et al. 2007, Kristofferzon et al. 2008, Kärner et al. 2005). Social support can be seen as communication between people and the social interaction is central here (Vangelisti 2009). In the relationship between next of kin and the person affected by MI, it has emerged that it is of great importance that the next of kin are conscious of the way and the tone the conversations should take place. A positive support was felt when the conversational tone was encouraging and interested and not critical (Goldsmith et al. 2006).

Support is a central concept within healthcare. As long ago as 1860, Florence Nightingale (Nightingale 1992) stated that social support has a central role in nursing care. Professional support is defined as listening, seeing and showing interest as well as creating social network with the support of relatives and friends (Stewart 1993). The concept of social support is, in most cases, described as consisting of four attributes: emotional support and appreciation; information and assistance in orienting oneself in the surrounding world and successfully dealing with problems; friendship characterized by shared interests and values; and material or instrumental support, which is the provision of practical and concrete services (Cohen 1981, House 1981, Tilden & Weinert 1987). A distinctive feature is that these attributes describe supportive functions. For an act to be considered as social support, it should encompass one or several of these attributes, and for social support to be satisfactory, give and take is required (Barrera 1986, Cohen 1981, House 1981). Social support is a functional concept that describes the quality of an individual’s social relations, i.e. the possibility of obtaining social support when required (House 1981). Social support can be provided by a social network, which is a structural concept that describes
individuals’ relationships with their social environment, i.e. contact with family, friends, neighbors, colleagues and society (Taylor et al. 1988). It provides information about the size, contact frequency, density and composition of the network, whether it contains a confidant or not and how the support is perceived. However, the concept does not reveal anything about its function (Bowling 1991). The social network is important not only for the creation of identity, self-esteem and a sense of belonging but also for its capacity to provide different types of social support (Cohen & Syme 1985). In spite of the above mentioned factors, the social network can both enable and hinder health-promoting behavior (Fleury et al. 1995).

Women who have suffered an MI usually report a lower level of social support post-MI than men (Grace et al. 2002, Kristofferzon et al. 2003, Leifheit-Limson et al. 2010, Mendes de Leon et al. 2001). It is thus necessary to gain more knowledge about social support from the women’s own perspective in order to develop interventions that are individually based, according to women’s needs in their recovery process.

**Rationale for the study**

Recent years have witnessed a rapid improvement in emergency medical services where MI is concerned. There is, however, a lack of an adequate understanding of the factors involved in successful recovery, beyond the initial stages in emergency care among patients, especially among women. Similarly, little is known about the extent of cardiac rehabilitation services in Sweden. In order to develop “successful” CRPs, further research on what promotes recovery after an MI is needed. Furthermore, given that MI has long been considered a typically male disease, the need for research specifically aimed at the personal experiences of women is necessary.

Although there is little research regarding women’s personal recovery, it is known that fewer women than men receive information about, and participate in, CRPs. They also tend to report lower levels of social support post-MI. This suggests a need for programs actively targeting women. CRPs that address the needs characteristic of women who have
suffered an MI, that take into account their families, social network and social support, may have a positive impact on the recovery process.

Furthermore, the experiences of women who have had an MI and those of CRNs appear to be essential when exploring and understanding those factors that contribute to recovery after a first MI. Such knowledge may help to better develop interventions that are individually based, according to women’s needs in their recovery process, i.e. how do they rediscover themselves when the circumstances change?

Nevertheless, the cardiac rehabilitation efforts for women seem to vary from a national and international perspective, and there is a large knowledge gap regarding women’s recovery process. Therefore, there is a need to increase the knowledge regarding women’s recovery from several perspectives such as the organisational, relational and individual ones. This knowledge probably leads to a greater holistic view of how to promote women’s recovery after a first MI.

**Overall and specific aims**

The overall aim of the thesis was to explore and describe women’s recovery after a first myocardial infarction from an organisational, a relational and an individual perspective.

The specific aims of the different studies were:

- To compare different cardiac rehabilitation approaches regarding patients with ischaemic heart disease and their next-of-kin during a 5-year period in five counties in Western Sweden (paper I).
- To describe and compare social support and network changes over a 4-year period in women with a MI based on social demographic and situational data with focus on cardiac rehabilitation (paper II).
- To explore cardiac rehabilitation nurses’ experiences of the factors that influence female patients’ recovery after their first MI (paper III).
To explore how women’s recovery process is promoted after a first MI (paper IV).

**Materials and methods**

**Study design**

In this thesis, a longitudinal, explorative and descriptive design combining both quantitative (papers I- II) and qualitative (papers III-IV) methods has been used. The combination of quantitative and qualitative methods allows the researcher to give a more comprehensive account. This thesis relies on a nursing science perspective that is grounded in an ontology where people creating their health in connectedness with other humans (Parse 2007). Nursing science is based at humanistic perspective where the human being is seen as a whole person and as an active creator of meaning and health (Keegan & Keegan 1992, Parse 2007). This perspective is suited to deal with recovery as a wider concept that incorporates the person’s whole life situation, in addition to the clinical symptom and functions (Parse 2007, Slade & Hayward 2007). Since the women’s recovery cannot be seen as an isolated unit without relation to the context, this thesis firstly describes the rehabilitation efforts in Sweden and investigates women’s social support and social network changes over time after a first MI (papers I - II), and then to more deeply understand the phenomenon of recovery from both CRN’s and women’s experiences with a qualitative inductive approach (papers III - IV).

*Longitudinal and descriptive design (papers I-II)*

Longitudinal design can be used when the data is collected at more than one point in time and to examine changes in the same subjects over an extended period prospective (Polit & Beck 2014). In both paper I and paper II a longitudinal design was used at two (paper I) and three different time points respectively (paper II). One common problem with a longitudinal design is the drop-out that may be large, which can cause a bias since those remaining in the study may be different from the drop-out (Polit & Beck 2014).
**Explorative and descriptive design (papers III-IV)**

An explorative descriptive design, based on an inductive, qualitative content analysis approach, was selected in this thesis in order to explore cardiac rehabilitation nurses’ experiences of the factors that influence female patients’ recovery after their first MI (paper III) and to explore how women’s recovery process is promoted after a first MI (paper IV). Content analysis was originally developed for the analysis of quantitative data, based on the written word; in a neutral and objective way and free from interpretations and values. It was further developed during the 1980s as a method that can be used in different ways for the interpretation of texts (Krippendorf 2004) and may well be used for interview texts that describe everyday experiences (Down-Warmboldt 1992, Krippendorff 2004). By interviewing people, knowledge can be gained about their individual experiences, and these can be described and interpreted and thus a greater understanding of, for example, patients’ differing experiences in a healthcare context can be gained (Krippendorf 2004, Polit & Beck 2014). Qualitative content analysis is a method that systematically reveals valid conclusions from oral and written statements with the aim of describing a certain phenomenon and which is based on formulating the content of a text through a process of classification and, by these means, identifying patterns (Hsieh & Shannon 2005). Content analysis describes similarities and differences. The final interpretation will be a reasonable conclusion but not universally prevailing (Graneheim & Lundman 2004, Hsieh & Shannon 2005). Given that there were underlying meanings in the transcribed texts from the interviews, these were worked on using an interpretational form of analysis (Graneheim och Lundman 2004). The actual text analysis process was carried out in accordance with that described by Graneheim and Lundman (2004), who were inspired by Krippendorf and Down-Warmboldt.

**Context**

The two first studies (papers I–II) in this thesis were carried out between 1993 and 1998 within five counties of Western Sweden with a total catchment area of almost two million people, out of a total population of 8.5 million for Sweden as a whole (SCB 2004). Papers III and IV were carried out in 2010 within six other counties (one county was the same as in paper I) of southern and central Sweden, with a total catchment area of approximately three million people out of a
population of 9.6 million for Sweden as a whole (SCB 2013). These settings include both an urban and rural area, in order to provide a map of the rehabilitation efforts for Sweden (Swedeheart 2013). An outline of the papers in the thesis is shown in Table 1.

**Table 1.** Overview of the methodological framework of the thesis - design, sample, instruments, data collection and data analyses used in the papers.

<table>
<thead>
<tr>
<th>Paper</th>
<th>Design</th>
<th>Sample (n)</th>
<th>Instrument and data collection</th>
<th>Data analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Descriptive Comparative Longitudinal</td>
<td>18 hospitals</td>
<td>Questionnaire 11 questions with accompanying sub-questions (in all, 58 questions). 2 occasions with a 5-year interval</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>Brief follow-up study 2014</td>
<td>Descriptive Cross-sectional</td>
<td>15 hospitals</td>
<td>Telephone contact</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>II</td>
<td>Descriptive Comparative Longitudinal (non-randomized)</td>
<td>200/186/153 women with a first MI</td>
<td>Questionnaire 18 items 3 occasions including pre-test (baseline) and post-tests (1 and 4 years after MI)</td>
<td>Descriptive and inferential statistics Wilcoxon Signed Rank test Student t-test Chi-2</td>
</tr>
<tr>
<td>III</td>
<td>Descriptive Explorative Qualitative design</td>
<td>20 cardiac rehabilitation nurses actively working with CRPs</td>
<td>Interviews 1 occasion</td>
<td>Qualitative content analysis</td>
</tr>
<tr>
<td>IV</td>
<td>Descriptive Explorative Qualitative design</td>
<td>26 women with a first MI</td>
<td>Interviews 1 occasion</td>
<td>Qualitative content analysis</td>
</tr>
</tbody>
</table>
Participants, inclusion criteria and drop-outs

Papers I and II

All hospitals (N=19) within the five counties were asked by the researcher (BF) to participate in paper I. These hospitals were found to be representative of Sweden as a whole with regard to the prevalence figures of ischaemic heart disease (MI, angina pectoris and CABG) as well as cardiac rehabilitation efforts (Nerbrand et al. 1991). One hospital declined to participate which resulted in 18 participating hospitals. Two of the 18 hospitals were university hospitals, six were county hospitals and ten were district county hospitals, both in 1993 and in 1998. From the remaining 18 hospitals, 240 women were consecutively chosen for Paper II. These women were Swedish born and Swedish speaking who had suffered a first MI, being less than 70 years of age, who lived independently and whose recovery had not been hindered by any other serious illness. The number of dropouts in Paper II at baseline was 17 % (n=40). One year later, another 14 women (thus a total of 22%) dropped out, whereby 186 women remained. An additional 33 women (thus a total of 36 %) dropped out 4 years later. Accordingly, 153 women were still participating in Paper II after four years (figure 1). The age of the 200 women who participated in paper II at baseline varied between 36 and 70 years (mean 60 years). One hundred and fifty-eight women (79%) were cohabiting, 146 women (73 %) had completed their education at elementary school level and 124 (62 %) women planned to take part in a CRP. One year after the MI, 186 women took part in the study with a mean age of 61 years, 138 women (74 %) were cohabiting, 138 women (74 %) had completed their education at elementary school level, and 104 women (56 %) participated in a CRP. Four years after the MI, 153 women participated in the study. Their mean age was 63 years, 105 women (69 %) were cohabiting, 103 (67 %) had completed their education at elementary school level, and 98 women (64%) had participated in a CRP some stage during the 4-year period (Table 2).
19 hospitals were asked to participate

One hospital declined to participate

18 hospitals participated at baseline and 5 years later

240 consecutively chosen Swedish women with MI was asked to participate

Dropouts: n=40 (17%)
Reason:
Lack of interest  26
Uncertainty regarding the diagnosis  14

200 participated at baseline

Dropouts: n=14 (22%)
Reason:
Lack of interest  3
Death  11

186 participated one year later

Dropouts: n=33 (36%)
Reason:
Lack of interest  14
Death  4
Relocation to another part of Sweden  8
Being too ill  7

153 participated four years later

Paper I

Paper II

Figure 1. Hospitals as well as women with a first myocardial infarction who dropped out in Paper I and II.
Table 2. Socio-demographic data of women with a first myocardial infarction (MI) in study II and IV.

<table>
<thead>
<tr>
<th></th>
<th>Study II</th>
<th>Study IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline N=200</td>
<td>One year after MI n=186</td>
</tr>
<tr>
<td><strong>Age</strong> mean (range)</td>
<td>60 (36-70)</td>
<td>61 (37-71)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>146 (73%)</td>
<td>138 (74%)</td>
</tr>
<tr>
<td>Secondary school</td>
<td>54 (27%)</td>
<td>48 (26%)</td>
</tr>
<tr>
<td>University</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Living situation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>42 (21%)</td>
<td>48 (26%)</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>158 (79%)</td>
<td>138 (74%)</td>
</tr>
<tr>
<td><strong>Cardiac rehabilitation programme Participated</strong></td>
<td>124 (62%)</td>
<td>104 (56%)</td>
</tr>
<tr>
<td><strong>Place of residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work situation before / after first MI</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability pension/Retired</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Papers III and IV**

In paper III, the inclusion criteria were CRNs, who were actively working with comprehensive CRPs in which physical training, education, risk factor modification, medical checks-ups, pharmacological
treatment, psychological support and counseling, as well as vocational rehabilitation were included. The CRNs also had to be members of a multidisciplinary cardiac rehabilitation team (e.g. cardiologist, nurse, and physiotherapist) and fully understand, read and speak Swedish. The heads of the cardiology departments at 10 different hospitals were contacted and asked by the researcher (IW) to give permission for CRNs to participate in the study. All 10 Heads gave their approval and forwarded the names of the CRNs who met the inclusion criteria. Twenty-one CRNs were informed and asked to participate, only one declined; due to time constraints. In total, 20 CRNs participated and they were females and ages ranged between 28 and 65. The time they had worked in cardiac care was between 4 and 25 years and between 2 and 23 years within cardiac rehabilitation.

In paper IV, the inclusion criteria were women suffering a first MI during 2009, participating or not participating in CR, understanding, reading and speaking the Swedish language. Cardiac rehabilitation nurses at the 10 hospitals asked those who had met the criteria whether they were interested in being informed about this study. The researcher (IW) contacted by telephone those 28 women who accepted the invitation. Twenty-six women agreed and two women declined; due to time constraints. Agreement was made with each of the 26 women about a time and place for the interview. Ages ranged between 45 and 74 (Table 2).

Data collection

Papers I and II

In paper I, the questionnaire was distributed on two occasions, in 1993 and 1998, i.e. with an interval of five years, to the chief physician of the medical department, who answered the questionnaire with the assistance of typical members of the rehabilitation team (cardiologist, nurse, physiotherapist), and returned it within fourteen days. Most of the respondents were the same on both occasions. During June 2014, a brief follow-up study of the hospitals in paper I (n=18) was conducted through telephone contact (IW) with CRNs at the 15 hospitals still existing (three hospitals have closed since 1998). This was done in order to update how CR for patients with MI is organized today.
In paper II, research nurses assisted in the data collection and, before the study, they were provided with written and verbal information about technical and practical matters, as well as pedagogical support. This included, among other things, guidelines on how to perform the data collection in a correct and ethical manner. The purpose was to enable good patient–nurse research relationships and to facilitate the nurses to adopt a scientific approach. Having consented in writing to take part, the women with a first MI answered the questionnaire in 1994, with the help of a research nurse, at the time of their discharge from the ward. The women completed an identical questionnaire at year 1, in 1995, and at year 4, in 1998, either in their home or during a visit to the hospital.

**Questionnaires**

*Cardiac rehabilitation efforts (paper I)*

A questionnaire including eleven closed questions with accompanying sub-questions was created, based on a literature review (Hämälainen et al. 1989, Hedbäck 1989, Perk 1989, Maeland & Havik 1989) of cardiac rehabilitation efforts and a research team's knowledge of the area of cardiac rehabilitation. In all, 58 questions with yes/no answers were formulated to obtain descriptions of existing cardiac rehabilitation efforts for patients with ischaemic heart disease. The questions dealt with the organisation of, and access to, CRP (15 questions), possibilities for next of kin to participate (9 questions), types of cardiac rehabilitation efforts (18 questions) and healthcare professionals (16 questions). Face validity, as well as content validity, was tested on an interdisciplinary cardiac rehabilitation team (Cardiologists, CRNs, Physiotherapists), after which some questions were reformulated to incorporate their views. The questions in the brief follow-up study in 2014 dealt with the organization of CR for patients with MI, CRP specifically designed for women, possibilities of next of kin to participate in CR, age limit, types of cardiac rehabilitation efforts and healthcare professionals.

*Social support and social network (paper II)*

A questionnaire was created, comprising questions dealing with social support and social network based on a literature review (Bowling 1991, Cohen 1985) and the researchers’ (IW, AB, CT, BF) own experience in the area of cardiac rehabilitation and social support and social network. The questionnaire consisted of 18 items of ordinal scale character, where positive alternatives had the highest value and negative
alternatives the lowest; Yes=3, Do not know=2 and No=1 which followed
the principle of the weighting with agreement among the research team. 
Face validity as well as content validity was tested on a group of 50
CRNs as well as on 10 women with MI, which led to some adjustments.
The sample of 200 women with a first MI was assumed to be
approximately normally distributed and, therefore, an explorative factor
analysis could be helpful to determine the construct validity. Then an
explorative factor analysis (rotated, varimax) (Burns & Grove 2001) was
conducted, resulting in four factors with factor loadings >0.4; General
support, Social support from relatives, Social support from friends,
Professional support, with an Eigenvalue >1.0, cumulatively explaining
54% of the total variance. Four questions were not compatible with the
factor analysis and therefore excluded, hence the final questionnaire
consisted of 14 questions. Internal consistency reliability was tested by
means of the Cronbach’s coefficient alpha showing a figure of 0.63 for
the entire questionnaire and 0.53-0.67 for each of the four factors. The
final questionnaire concerned questions from situational data regarding
the relationship with, and how often the women see (in real life) and
talk on the phone with, their family members, friends, healthcare
professionals. The questions also concerned if someone other than a
family member offered them support in the event of illness, if there was
an established acquaintance of friends that they could see regularly and
if they have a confidant with whom they could share their innermost
thoughts. Furthermore, the questions include if the women have a
sufficient number of people (professional; for example clergymen,
nurses, psychologists, physicians and lay persons; spouse, female
friends, children) that provide them support and if they feel appreciated
for their work in the home.

Socio-demographic data (paper II)
Four socio-demographic questions on the subject of age, civil status,
education level and CRP participation were added at baseline and
follow-up.

Papers III and IV
In papers III and IV, each informant was interviewed on one occasion in
2010, at her preferred choice of location. In paper III all interviews were
conducted at the informants’ place of work, while in paper IV thirteen of
the women were interviewed face to face, either at their home, the
hospital or the researcher’s workplace, and the remaining 13 were
interviewed by telephone. The interviews were conducted by the researcher (IW). First of all, the researcher clarified the aim of the studies. Written informed consent including permission to record the interviews was obtained from all participants before the interviews started. They were informed that all data would be kept confidential and of their right to withdraw from the study at any time. Then the interviews started with an open main question as a means of ensuring that similar data was gathered from all participants and the interviews took the form of a dialogue (Kvale & Brinkman 2009). The following open main question was used in paper III: “What do you think about women’s recovery after a first myocardial infarction?” In paper IV, the interviews started with an open question: “Can you describe what a typical day looks like now after the MI”, followed by the main question “What do you think has promoted your recovery?” In order to probe more deeply into the question, the researcher asked the participants follow-up questions such as: “What do you think when you say...?” and “Can you explain more about...?” Four pilot interviews were conducted in paper III and two in paper IV. All pilot interviews were then included in the analysis. All interviews (paper IV) were carried out 7 – 12 months after the women’s acute MI. The interviews lasted between 35 and 85 minutes and were transcribed verbatim (papers III-IV).

Data processing and analysis

**Statistical analysis (papers I - II)**

Descriptive statistics in the form of cross tables and frequency tables supported by SPSS™ were used to illustrate the information in paper I. The analysis revealed an internal drop-out rate for individual questions corresponding to less than 5%.

In paper II the response alternatives were of an ordinal scale character although three alternatives had different values. A preliminary analysis of the response alternatives indicated the appropriateness of a shift from a 3- to a 2-point scale. Factor analysis was used to reduce the questions to sensible factors. Then the items in each factor were totalled, resulting in one index for each factor, i.e. a total of 4 indices. The socio-demographic items were also dichotomised: age: <60 years (younger) /≥60 years (older); civil status: cohabiting/single, education level: lower (up to secondary school) /higher (from upper secondary
school) and CRP: participation/non participation. Supported by the SPSS™ programme, descriptive statistics were used to illustrate the findings and the nonparametric Wilcoxon Signed Rank test procedure was employed for the newly created factors, which were the total of highly correlated variables in each cluster (Siegel & Castellan 1988). This test makes no assumptions about the sharpness of the distributions of the two variables. Instead, it provides information about the magnitude of the differences within pairs and gives more weight to pairs that show large differences than to pairs with small differences. Student’s t-test was used for comparison of age while the Chi-2 test was employed for comparison of civil status and education level, as the data were on ratio and nominal levels respectively (Siegel & Castellan 1988). To reduce the risk of Type 1 error, statistical significance was set at 5% (Siegel & Castellan 1988).

**Qualitative content analysis (papers III - IV)**

Data was processed using qualitative content analysis (papers III-IV), where the manifest content (what the text says) and the latent content (the interpreted meaning) were analysed in accordance with Graneheim and Lundman (2004). The qualitative content analysis consists of several steps in the interpretation of the text. The interviews were read through several times to gain familiarity, and meaning units related to the respective aim of the studies were placed in an analytical matrix. These were then condensed without losing the core of the content. In the next step, the condensed meaning units were abbreviated to codes that were compared, based on differences and similarities, and 12 sub-categories were created forming four categories (paper III) respectively 9 sub-categories and three categories (paper IV) on a manifest level. Based on the content of these categories, an overall theme emerged (papers III-IV), which expressed a latent meaning of the content (Downe-Wamboldt 1992, Graneheim & Lundman 2004). Throughout the analysis process, the research group (IW, BF, JM, PS) had a continuous open and critical dialogue until such time as the final categories and theme were determined by consensus.
Methodological considerations

Trustworthiness in quantitative studies (papers I-II)

Validity issues

Internal validity
Since the design of a study is dictated by the research questions and aim, it seemed only natural to make use of a prospective, longitudinal design in both paper I and II. Thereby the participants constituted their own control. Quantitative methods have their strengths and limitations (Burns & Grove 2001, Polit & Beck 2014). However, the strengths of a longitudinal study lie in following a phenomenon over time and comparing the development by repeated measurements (Burns & Grove 2001, Polit & Beck 2014). Another advantage is that a longitudinal study explores the course of change in order to show developmental advances (Howlin et al. 2004).

Validity has a relationship to the statistical power of analyses performed and to the drop-out rate in a study (Burns & Grove 2001, Polit & Beck 2014). The study population consisted of all patients who accepted being part of the investigation. Because of that fact no power estimation was performed (paper II). In paper I, 18 of 19 possible hospitals participated with both measurements. One county hospital refrained from participating due to lack of time. In paper II the sample consisted of 240 consecutively chosen Swedish-born and Swedish-speaking women suffering a first MI under 70 years of age and who were recruited from the 18 acute care hospitals involved. Uncertainty about drop-outs can constitute a limitation (Burns & Grove 2001, Polit & Beck 2014). The drop-out rate was acceptable and understandable; <40 % for the whole study period (a 4 year period), mostly due to the women’s lack of interest or death. Another limitation of the sample in paper II may be the 70-year age limit. A higher age limit would probably have led to a greater number of participants, as women generally suffer their first MI 10 years later than men (Anand et al. 2008, Culic et al. 2002, Rosengren et al. 2001).
External validity

An external validity issue concerns whether the findings can be generalized to encompass other samples, settings and situations (Polit & Beck 2014). As the sample represented both urban and rural areas, with disparities of rehabilitation possibilities, the findings can be generalized in Sweden (paper I). In Paper II, however, as the questionnaire has not been tested on a normal population or any other patient group, the results should be considered with caution. Nevertheless, they are important, as this was the first longitudinal investigation of women who have suffered their first MI, studying how their social support and network changed over time as a consequence of age, civil status, education level and participation in a CRP. The sample consisted of a consecutive and homogeneous group of women, who lived in a well-defined area containing one-fourth of the Swedish population.

Another threat to validity concerns how the information and instruction are given in the data collection situation (Polit & Beck 2014). There can be a risk that the patients’ willingness to participate in the study is affected by their relationship to the nurse that collects the data. To minimize this threat, nurses at each unit were selected to be “responsible research nurses”, and then educated in the study design in order to achieve precision and accuracy. This was done in order to guarantee that the patients were given the same information before the decision to participate in the study and on every occasion, but also to ensure that the nurses did not influence the patients’ own answers. This strengthens the fact that the data is built on the patients’ own self-reported experiences and choices (Bue-Björner et al. 1996).

Face and content validity

Another reason why the validity should be considered satisfactory is that the questions were constructed by an experienced healthcare researcher based on two literature reviews and thereafter scrutinized by an interdisciplinary cardiac rehabilitation team (papers I-II). The face and content validity of the questionnaire in paper II ought to be guaranteed through testing the meaning and wording of the items in a sample of 50 CRNs and 10 women who suffered an MI before the study was done. Some small adjustments were made.
Construct validity

Construct validity concerns with what the instrument is really measure (Polit & Beck 2014). In order to investigate the construct validity of a questionnaire the statistical procedure factor analysis is recommended (Polit & Beck 2014). In paper I no factor analysis was carried out because this study’s aim was to describe different cardiac rehabilitation approaches; the aim was not to study a phenomenon or a concept. The questionnaire was специально constructed to suit the aim of the study and, due to the structured and standardized nature of the questions, was deemed an appropriate data collection method. In paper II, the construct validity cumulatively explained 54 %, which is somewhat low (Burns & Grove 2001). An extension of the questionnaire to five items per factor would probably improve both internal consistency reliability and construct validity. The limitations in the factor analysis may be due to the number, content and the choice of alternatives of the questions. Under normal circumstances, factor analysis is employed for variables with relevant mean values and standard deviation (normal distribution). As the sample size in paper II was satisfactory (n=200), the ordinal scale has been approximated to a normal distribution, which may diminish the precision of the consistency reliability ratings (Kim Jae-On & Meuller 1978, Kim Jae-On & Meuller 1991).

The questionnaire in paper II was not tested for criterion-related validity (Polit & Beck 2014) and this can be seen as a shortcoming. In order to establish that the questionnaire has a good validity this must be done. However, at the time when the study was conducted, there were not to our knowledge many established and validated instruments that measure social support.

Reliability issues

The reliability of a questionnaire is concerned with the internal consistency, stability and equivalence (Polit & Beck 2014). The reliability can be deemed acceptable, as the internal dropout rate was less than 5 % for some items, and only one hospital (5%) declined to participate (paper I). In paper II the internal consistency reliability was 0.63, which can be considered acceptable for this newly established questionnaire, although it does not indicate a perfect figure accuracy (Burns & Groves 2001, Kerlinger 1986). Moreover for the four factors that emerged from the factor analysis, internal consistency reliability varied between 0.53 - 0.67. According to Polit and Hungler (1993), a low
reliability coefficient does not necessarily relate to the quality of the instrument since a low reliability coefficient could be due to a homogeneous sample (Polit & Hungler 1993). In this paper, the sample consisted of a homogeneous group of women who had suffered a first MI and who lived in a well-defined area, which could influence the internal reliability. None of the questionnaires were tested for stability or equivalence and this could be seen as a threat to reliability. In order to establish that the questionnaire has good psychometric properties the stability over time must be investigated. In these papers the equivalence in terms of inter-rater reliability was not relevant (Polit & Beck 2014).

**Trustworthiness in qualitative studies (papers III-IV)**

*Credibility*

Credibility refers to confidence in the truth concerning data collection and analysis (Lincoln & Guba 1985, Polit & Beck 2014) The main researcher (IW) performed all the interviews (papers III-IV). There could be both strengths and weaknesses with this course of action. The strength could be that the interviews were performed in the same way. A weakness could have been that the researcher gained more knowledge during the interviews, which could have affected the formulation of follow-up questions. The purposive selection of 20 CRNs, who had different experiences (age, different working experience in cardiac care, different hospitals) of female patients’ recovery, increased the potential for achieving rich variation of the phenomenon under study, which strengthens the credibility. Twenty-six purposive selection women with a first MI were selected for paper IV. Nevertheless, there are no established criteria for the number of interviews and sample size in qualitative research; the sample size in papers III and IV could be seen as satisfactory since the data was rich and the phenomenon well described. The women in study IV were asked by the CRN at the hospitals if they wanted to participate. A weakness may be that the CRNs selected the women they considered most suitable for the study. It is possible that others aspects of the phenomenon would have appeared if the selection had been performed otherwise. In paper IV another aspect of credibility was the data collection procedure. The women were free to choose if they wanted to be interviewed by telephone or face to face. This could be a limitation; however there were no differences in
duration or in the content between the two different approaches. The interviewer neither knew the women nor was involved in practical care (paper IV), which could strengthen the credibility. Another aspect of credibility was seeking agreement between the researchers (papers III-IV) concerning, how well the codes, categories and the theme covered the data. The researchers worked both individually and together during the analysis process until a consensus was reached. Credibility was strengthened by the fact that pilot interviews were conducted.

**Dependability**

Dependability can be regarded as reliability (Lincoln & Guba 1985, Polit & Beck 2014) and was strengthened due to frequent discussions and a continuous dialogue among the researchers (IW, BF, JM, PS) taking place, so that the standpoints concerning differences and similarities of content were consistent over time (Graneheim & Lundman 2004). Dependability was also strengthened by the fact that the interviews were done with the same main question and the follow-up questions stimulated both the CRN (paper III) and the women (paper IV) to reflect and further expand their thoughts regarding the recovery process (Graneheim & Lundman 2004).

**Confirmability**

Confirmability refers to the objectivity of the research (Lincoln & Guba 1985, Polit & Beck 2014). It is important that the data is based on the information provided by the informants. Repeated reading, identification of, and reflection on, the content were performed. The quotations presented enhance and illuminate the confirmability and offer the reader an opportunity to determine the trustworthiness of the data (Graneheim & Lundman 2004).

**Transferability**

From a transferability perspective, the results can be of interest. The experiences from CRNs’ as well as from the interviewed women can be useful in cardiac clinical nursing and for the ongoing discussion connected with female patients’ recovery after an MI. The findings of qualitative studies are generally not transferable to the population at large but highly plausible as to other afflicted adults with CHD. The results would also serve as a valuable reference for nurses to promote
better understanding and recovery for individuals with CHD (Polit & Beck 2014). In order for the reader to assess if the study can be applied to other settings, a clear description of both the participants and the context is necessary (Lincoln & Guba 1985, Polit & Beck 2014), as the researchers have tried to describe clearly in papers III and IV.

**Ethical considerations**

This research conforms to the ethical principles expressed in the World Medical Association Declaration of Helsinki (2008) and to the guidelines for nursing research issued by the Northern Nurses’ Federation (2003). The studies were approved by the Head of the Cardiology Clinic at each hospital and by the Committee for Ethics in Medical Investigations of the Universities of Göteborg, Lund and Örebro, Sweden (2/9/1993 Doc. no. 314-93) (papers I-II). The Heads of the Cardiology Clinics have approved paper III and The Regional Ethics Committee in Linköping, Sweden (12/6/2007, Doc. no. 104-07) approved paper IV.

This thesis is guided by the four ethical principles: autonomy, non-maleficence, beneficence and justice (Northern Nurses’ Federation 2003). In keeping with the principle of autonomy, all participants were fully informed about the aim of the study and the voluntary nature of participation, as well as their right to withdraw at any time (e.g. in papers I and II they were given the opportunity to decline participation on each data collection occasion). This was done by some women (paper II). In papers II – IV, the women and CRNs also gave informed written consent before taking part. To respect the non-maleficence principle, all data was treated confidentially. In papers III and IV, care was taken to minimize the encroachment on participants’ time. The interviews were conducted on a single occasion and at a place of the participants’ choice. The Beneficence principle has been honored since the studies are expected to result in a better understanding of the factors that contribute to women’s recovery after a first MI, which in turn can be used to improve the secondary preventive care for women with MI. In addition, the participants may have benefited from the opportunity to reflect on their personal situation occasioned by the interviews. The justice principle has been considered since the analysis in papers II and IV was based on the patients’ own self-reported experiences and
choices, which is the most important factor in their recovery process, irrespective of the views of the healthcare professionals. Likewise, the CRNs described their experiences about women’s recovery and not how the healthcare is organized today. The research into women with heart disease is neglected in comparison to the research into men. Therefore this is a contribution which reinforces a subordinated group.

Summary of the findings

This thesis explored and described women’s recovery after a first MI from an organisational, a relational and an individual perspective. The studies focus on CR and social support changes during a 4-year period, CRNs’ experiences of factors that influence female patients’ recovery and how women’s recovery process is promoted after a first MI.

Cardiac rehabilitation efforts for patients with ischaemic heart disease – a 5-year comparative review in five counties in western Sweden (paper I).

Five counties in Western Sweden offered patients with MI and their next of kin a well-functioning CR including multiphase, multifactorial and interdisciplinary intervention programmes both in 1993 and in 1998 at the university, county and district county hospitals. For patients who had undergone bypass surgery and their next of kin, the cardiac rehabilitation possibilities were fewer, mainly at the county and district county hospitals, while for patients with angina pectoris and their next of kin, the cardiac rehabilitation was less developed, at the university, county and district county hospitals (Table 3). No CRP was specially designed for women, and the CR which had been most developed during the 5-year period was education about stress and stress management. The healthcare professionals most frequently engaged in the cardiac rehabilitation teams at the university and district county hospitals were dieticians, cardiologists, physiotherapists and nurses. At the county hospitals, the corresponding categories were cardiologists, social workers, clergymen, physiotherapists and nurses.
Findings from the brief follow-up study in June 2014 showed that all hospitals (n=15) offered CR for patient with MI and their next of kin, without age limit. None of the hospitals provided CRP specifically designed for women. However, today all the hospitals offer an one-hour consultation with a CRN 2-4 weeks after discharge, where, among other things, the patients receive information about CRP. The CRP provides education, counseling and organized physical training with a CR team consisting of CRN, cardiologist, dietician, physiotherapist and social worker. The CRP also provides, in most of the hospitals, information from The Swedish Heart and Lung Association.
<table>
<thead>
<tr>
<th>Cardiac rehabilitation programme after returning home</th>
<th>Patient group</th>
<th>University hospitals</th>
<th>County hospitals</th>
<th>District hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Angina pectoris</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CABG</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>With age limit/without age limit*</td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Angina pectoris</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CABG</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Exercise/counselling/education</td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Angina pectoris</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CABG</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Participation of next-of-kin</td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Angina pectoris</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CABG</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
| MI = Myocardial Infarction, CABG=Coronary Artery Bypass Grafting, *=age limitations of 65 or 70 years of age
Women’s social support and social network after their first myocardial infarction; a 4-year follow-up with focus on cardiac rehabilitation (paper II).

This Swedish longitudinal study of women comprising a first MI showed an increased support from either baseline or one year to 4 years after the MI, with regard to general support, support from relatives, and professional support (Table 4).

Among those of women who participated in a CRP, the results revealed an increased support from relatives from baseline to 4-years after the MI as well as professional support, both during the first year after the MI and between 1 and 4 years after the MI. For the group of women who not participated in a CRP, the results showed an increased general support between 1 and 4 years after the MI as well as an increased perceived professional support during the first year after the MI and for the whole 4-year period (Table 5). Participating in CRP was dependent on the women’s age and was more frequent among the under 60-year age group (p= 0.050).

The results indicate that the women with lower educational level perceived that they were given increased general support, between 1 year to 4 years after MI and from relatives from baseline to 4 years after the MI. These women also showed an increased perceived support from the healthcare professionals for the whole 4-year period following the MI. The women with higher education did not perceive any change in support for the whole 4-year period (Table 6).

For the women below 60 years of age, professional support increased for the first year after the MI. For the women over 60 years of age, general support, support from relatives and professional support increased from either baseline or one year to 4 years (Table 6). For the cohabiting women, the results indicated an increased perceived general support between 1 year and 4 years after MI. These women also exhibited increased professional support during the first years following the MI as well as during the whole 4-year period. For the group of single women, an increased support from relatives was found for the whole 4-year period following the MI (Table 6).
Table 4. Comparison in time with regard to social support and social network in women with a first myocardial infarction in Western Sweden (N=200).

<table>
<thead>
<tr>
<th>Factors</th>
<th>Z-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-1.520</td>
<td>0.128</td>
</tr>
<tr>
<td>Between one year and four years after MI</td>
<td>-2.704</td>
<td>0.007</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-0.910</td>
<td>0.363</td>
</tr>
<tr>
<td><strong>Support from relatives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-1.058</td>
<td>0.290</td>
</tr>
<tr>
<td>Between one year and four years after MI</td>
<td>-0.291</td>
<td>0.771</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-2.591</td>
<td>0.010</td>
</tr>
<tr>
<td><strong>Support from friends</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-1.570</td>
<td>0.116</td>
</tr>
<tr>
<td>Between one year and four years after MI</td>
<td>-0.990</td>
<td>0.322</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-0.231</td>
<td>0.817</td>
</tr>
<tr>
<td><strong>Professional support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-5.307</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Between one year and four years after MI</td>
<td>-1.745</td>
<td>0.081</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-3.501</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Wilcoxon Signed Ranks Test; significant differences were in favour for the women over time with regard to increased social support and social network.
Table 5. Comparison in time and participating and non-participating in a cardiac rehabilitation programme (CRP) with regard to social support and social network in women with a first myocardial infarction in Western Sweden (N=200).

<table>
<thead>
<tr>
<th></th>
<th>Participation in CRP</th>
<th>Non-participation in CRP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z-value</td>
<td>p-value</td>
</tr>
<tr>
<td><strong>General support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-0.735</td>
<td>0.462</td>
</tr>
<tr>
<td>Between one and four years after MI</td>
<td>-1.732</td>
<td>0.083</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-0.684</td>
<td>0.494</td>
</tr>
<tr>
<td><strong>Support from relatives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline – one year after MI</td>
<td>-0.994</td>
<td>0.320</td>
</tr>
<tr>
<td>Between one and four years after MI</td>
<td>-0.602</td>
<td>0.547</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-2.509</td>
<td>0.012</td>
</tr>
<tr>
<td><strong>Support from friends</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-1.948</td>
<td>0.051</td>
</tr>
<tr>
<td>Between one and four years after MI</td>
<td>-0.840</td>
<td>0.401</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-1.154</td>
<td>0.248</td>
</tr>
<tr>
<td><strong>Professional support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - one year after MI</td>
<td>-4.028</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Between one and four years after MI</td>
<td>-2.863</td>
<td>0.004</td>
</tr>
<tr>
<td>At baseline – four years after MI</td>
<td>-1.798</td>
<td>0.072</td>
</tr>
</tbody>
</table>

Wilcoxon Signed Ranks Test; significant differences were in favour for the women over time with regard to increased social support and social network.
Table 6. Comparison in socio-demographic factors with regard to social support and social network in women with a first myocardial infarction (MI) in Western Sweden (N=200).

<table>
<thead>
<tr>
<th></th>
<th>Low education</th>
<th>High education</th>
<th>&lt; 60</th>
<th>≥60</th>
<th>Cohabition</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z-value</td>
<td>p -value</td>
<td>Z-value</td>
<td>p -value</td>
<td>Z-value</td>
<td>p -value</td>
</tr>
<tr>
<td><strong>General support</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - 1 year after MI</td>
<td>-1.773</td>
<td>0.076</td>
<td>-0.816</td>
<td>0.414</td>
<td>-0.945</td>
<td>0.345</td>
</tr>
<tr>
<td>Between 1 year and 4 years after MI</td>
<td>-2.684</td>
<td>0.007</td>
<td>-0.378</td>
<td>0.705</td>
<td>-1.733</td>
<td>0.083</td>
</tr>
<tr>
<td>At baseline – 4 years after MI</td>
<td>-0.584</td>
<td>0.559</td>
<td>-1.633</td>
<td>0.102</td>
<td>-0.497</td>
<td>0.619</td>
</tr>
<tr>
<td><strong>Support from relatives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline - 1 year after MI</td>
<td>-1.349</td>
<td>0.177</td>
<td>-0.921</td>
<td>0.357</td>
<td>-1.761</td>
<td>0.078</td>
</tr>
<tr>
<td>Between 1 year and 4 years after MI</td>
<td>-0.183</td>
<td>0.854</td>
<td>-1.000</td>
<td>0.317</td>
<td>-1.188</td>
<td>0.235</td>
</tr>
<tr>
<td>At baseline – 4 years after MI</td>
<td>-2.549</td>
<td>0.011</td>
<td>-0.378</td>
<td>0.705</td>
<td>-0.940</td>
<td>0.347</td>
</tr>
<tr>
<td><strong>Support from friends</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>At baseline - 1 year after MI</td>
<td>-1.917</td>
<td>0.055</td>
<td>-0.986</td>
<td>0.324</td>
<td>-0.342</td>
<td>0.732</td>
</tr>
<tr>
<td>Between 1 year and 4 years after MI</td>
<td>-1.281</td>
<td>0.200</td>
<td>-0.851</td>
<td>0.395</td>
<td>-0.426</td>
<td>0.670</td>
</tr>
<tr>
<td>At baseline – 4 years after MI</td>
<td>-0.220</td>
<td>0.826</td>
<td>-0.138</td>
<td>0.890</td>
<td>-0.64</td>
<td>0.949</td>
</tr>
<tr>
<td><strong>Professional support</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>At baseline - 1 year after MI</td>
<td>-5.553</td>
<td>&lt;0.0001</td>
<td>-0.412</td>
<td>0.681</td>
<td>-2.613</td>
<td>0.009</td>
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<tr>
<td>Between 1 and 4 years after MI</td>
<td>-1.858</td>
<td>0.063</td>
<td>-0.343</td>
<td>0.732</td>
<td>-1.027</td>
<td>0.305</td>
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<tr>
<td>At baseline – 4 years after MI</td>
<td>-3.608</td>
<td>&lt;0.0001</td>
<td>-0.106</td>
<td>0.916</td>
<td>-1.674</td>
<td>0.094</td>
</tr>
</tbody>
</table>

Wilcoxon Signed Ranks Test; significant differences were in favour for the women over time with regard to increased social support and social network.
Factors influencing female patients' recovery after their first myocardial infarction as experienced by cardiac rehabilitation nurses (paper III)

The CRNs experienced that women's recovery after an MI was influenced by factors that were both related to their surroundings as well as by their own individual factors. The underlying meaning of women's recovery is characterized as the transition process to the recovery to health (overall theme). This transition process is influenced by four categories; Being in a supportive context, Coping with the stresses of life, Wanting to be involved in their care and Relating to yourself (Figure 2).

The category Being in a supportive context referred to the experience of the CRNs that women's opportunities of receiving support could either help or hinder the women's recovery process. A major requirement for recovery was access to a good social network, where family, relatives, peers and friends had a supportive attitude, as well as support from healthcare and the workplace.

The category Coping with the stresses of life described the CRNs' experiences of how women's recovery was influenced by their ability to cope with the stresses of life e.g. concern for oneself and returning to work, the fear of dying and not doing enough for the family. It showed also that women's recovery was affected by whether the woman had: a socially vulnerable situation with high demands, lack of finances, additional diseases and intensive treatments, and also whether they had experienced previous severe life events.

The category Wanting to be involved highlighted the CRNs' experiences of how the women's recovery was influenced by their interest and desire to know how they themselves affect their new life situation and make sure that they prioritized themselves. Through the women's involvement in their care, the awareness of their own capacity was strengthened and this led them not to see themselves only as “sick persons”. Many women were interested in getting help and support in order to change their lifestyles, therefore prioritizing participation in various CRPs.

The category Relating to yourself highlighted the CRNs' experiences of that women's recovery was influenced by the way they related to
themselves. It emerged that there were women who expressed embarrassment over both their smoking habits and their overweight. The women’s approach to life could affect their recovery and the women who had a positive attitude experienced, in general, less anxiety than those with a pessimistic attitude.

**Figure 2.** Illustration of the transition process to the recovery to health through theme, categories and subcategories.
Women’s experiences of how the recovery process is promoted after their first myocardial infarction (paper IV)

In the women’s recovery process they approached a new perspective of life by using external and internal resources to varying extents as well as in different situations. External resources included families, friends, work, institutional settings and environmental factors (place of residence, work situation, access to gym and access to nature). Internal resources included own empowerment, courage, communication and motivation to actually do things. The women’s ability to approach a new perspective on life depended on how they embraced different dimensions; the behaviour dimension as well as social and psychological dimensions. The behaviour dimension concerned engagement in activities both privately and professionally (e.g. participating in CRP) to promote recovery. The social dimension concerned how women, in their social environment, both received and gave support but also experienced reciprocity in their relationships to people in the social network. The psychological dimension included their way of thinking, reflecting and appreciating life. By embracing these dimensions, to varying extents, their good mood had returned as well as their belief in a long life. The women integrated a new perspective, which included enjoying and valuing the small things in life, valuing the good moments in everyday life and not taking everything for granted. This recovery process did not just concern their hearts, but also their views of existence and transition to a different life than before (Figure 3).
Figure 3. Illustration of the recovery model through theme, categories and subcategories.

Discussion

Earlier empirical studies of recovery, where cardiac care among women is concerned, are limited; the foremost concern of this thesis was to increase knowledge regarding women’s recovery after a first MI from an organisational, a relational and an individual perspective.
Women’s recovery after an MI from an organisational perspective

The findings in paper I showed that CR, in both 1993 and 1998, for patients with MI and their next of kin were well developed including multifactorial and interdisciplinary intervention programmes. During this period there was a change regarding the content in the education, to also include stress and stress management in 1998. However, the result revealed that no hospital offered specially designed CRP for women despite the fact that studies have shown that women are less inclined than men to participate in conventional CRP (Brezinka & Kittel 1996, Brown et al. 2009, Grace et al. 2002, Neubeck et al. 2012, Sjöström-Strand et al. 2011, Thomas et al. 1996). Even today most patients are offered participation in conventional CRP after an MI in Sweden (Bellman et al. 2009, Brief follow-up study 2014), which can affect women’s recovery negatively after an MI (De Feo et al. 2012, Neubeck et al. 2012). Women experience a higher level of stress and more restrictions in their daily activities than men (King 2002, Orth-Gomér et al. 2000, Schenck-Gustafsson 2009). This underlines the importance of encouraging women to take part in CRPs that are designed and based on women’s own needs and preferences.

The results in paper I also showed that next-of-kin were offered participation in CRP, which can contribute to the women’s recovery after an MI. The earlier national Swedish guidelines for coronary heart disease care (1998) recommended that next of kin should participate both in planning and implementation of the CR which the current national guidelines (2008a) do not emphasize. Support from next of kin was also found to be a beneficial factor for the women’s recovery in both papers III and IV. Although it is not obvious that next of kin feel that they have enough knowledge and understanding in order to support the woman concerned. To feel involved, to be able to support and to take an active part in the women’s rehabilitation and recovery after an MI, next of kin should be offered information about the disease and health promotion factors (Andersson et al. 2013, Fridlund 2011). This indicates that it is important that next of kin receive support from healthcare professionals in order to have the strength to give support to the ill person (Ziegert 2011).

Another important issue that the cardiac healthcare should take into consideration today is to work for an equal care in women’s recovery
after an MI (Swedish National Board of Health and Welfare 2004, 2008b). In paper III, CRNs highlighted that the women’s ability to cope with their new life situation was affected by whether they had a socially vulnerable situation i.e. poor finances and lack of time. These women did not have the opportunity to focus on themselves and their own situation. This could be one of the reasons why the women do not participate in CRP, which is also underlined in others studies (Kerr & Fothergill- Bourbonnais 2002, Sjöström-Strand et al. 2011). Research has also shown that acute cardiac care, where both male and female patients from lower income groups did not undergo intervention as often as high earners, is a fact which affected their recovery (Rosvall et al. 2008). Therefore, nurses must attach importance to being aware of socio-economic disparities when it comes to providing access to both acute care and secondary prevention (Haglund et al. 2004). To address the barriers related to the access to secondary prevention, due to e.g. poor finances and place of residence, new innovative methods such as mHealth and eHealth need to be developed (Pfaeffli et al. 2012, Varnfield et al. 2011)

In paper III the CRNs highlighted the importance of counseling and support for the women from the healthcare professionals during the recovery process. Also the length of time that the women needed support during their recovery process varied. It could therefore be important that the healthcare not put a time limit for CRP and individualized support from CRNs, because there could be critical points and events after an MI that can affect the women’s recovery process (Meleis et al. 2000). In paper II the women perceived that the professional support increased over time, and it was influenced by socio-demographic factors. Therefore, it is important that the heads of the organisations provide CRNs with the opportunity to support these women, both in their clinical and personal recovery (Anthony 1993, Deegan 1996, Slade & Hayward 2007, Tobin 2000) in order to offer an individually designed secondary prevention to the women.

Women’s recovery after an MI from a relational perspective

A common and essential dimension in women’s recovery is their relation to others (papers II-IV). An essential requirement for recovery
for the women was access to support from healthcare professionals and their surroundings such as family, relatives, friends, and workplace as well as from other women with the same experiences (papers II-IV). The results demonstrated that women, during 1994 to 1998, showed an increased support after the MI with regard to general support, support from relatives, and professional support but not from friends (paper II). In the studies performed more than ten years later, 2010, it became evident that contributory factors to women’s recovery were that they willingly spoke more to their friends, especially female friends, than to their partners when it came to their innermost thoughts and feelings (papers III-IV). This is interesting in relation to the results in paper II, where it was not obvious what impact peer support has on the women’s recovery. The women’s perception regarding support from friends showed no significant differences during the 4-year period, 1994-1998. Today, it is evident that peer support is a contributing factor to patient’s health (Sjöström-Strand & Fridlund 2006, White et al. 2007). This should be further investigated in order to increase the knowledge regarding whether the society has changed since the 1990s. Maybe it has become more difficult to access to healthcare as well as increased information on the web that the women wish to discuss and therefore friends have become more important for women with an MI during their recovery process.

The results in papers III and IV showed that the women with MI were engaged in activities both privately and professionally in order to promote recovery. The experience of CRNs was that many women were interested in getting help and support from other people in order to change their lifestyles, and therefore prioritizing participation in CRPs. This emphasizes the need for CRNs to be reflective about how they perform their nursing interventions in order to promote the women’s recovery process. Merely increasing the knowledge of different risk factors is not enough but they ought to work with a more health-promoting approach (Davidson 2008).

The results also demonstrated that the women, both during the 1990s and 2010, wanted counseling and support from the healthcare professionals during their recovery process (papers II-IV). This is supported by Meleis et al. (2000) and by Carrol et al. (2007), who describe that confirmation, counseling and feedback are preconditions in order to achieve a successful transition to health. A common feature of CRNs’ work in general is education and support in living habits. However, many nurses experience difficulty in giving individual health
counselling that actually leads to improved health (Doherty et al. 2011, Ekman et al. 2000,) and it is important that CRNs are aware that transition, after an MI, is a personal journey. Therefore, nursing should be person-centered in order to promote the women’s unique recovery process.

**Women’s recovery after an MI from an individual perspective**

The results from both papers III and IV highlighted some essentials individual dimensions regarding how the women develop and approach new perspectives in life during their recovery process. These concern how women with MI mobilized their own resources, including their way of thinking, reflecting and appreciating life (papers III - IV). Another meaningful part of their recovery process was how they use their inner strength to feel good about themselves and their ability to cope with the stresses of life such as: concerns for themselves, the fear of dying and not doing enough for the family. These findings correspond to earlier studies that indicate that women with MI may experience this worry and anxiety, especially during the first four months (Alsén et al. 2010, Kerr & Fothergill- Bourbonnais 2002, Sjöström-Strand et al. 2011, Svedlund et al. 2001, Tobin 2000). Therefore, it is important that CRNs meet the women’s needs and discuss their concerns so that the anxiety does not become pathological and negatively interfere in their ability to recover for a longer time.

Women’s recovery was influenced by their interest and desire for knowledge on how they themselves could affect their new life situation and how they prioritized their own (papers III-IV). If the women learned that they should not see themselves as ill and that they could take control of their lives by changing their situation into something better, the recovery process was affected positively. The individual recovery process is all about learning to live with the changes that an MI entails (Schumacher & Meleis 1994, Tobin 2000, Tod 2008), as well as a high degree of involvement in, and knowledge of, their own care. All this promotes a successful personal transition process (Meleis et al. 2000, Schumacher & Meleis 1994).

The women’s recovery can be described as a personal recovery process which is multidirectional. This incorporates the desire to develop and
approach a new perspective on life which does not entail returning to
the previous situation (paper IV). This emphasizes the need for CRNs to
be reflective about how they perform their nursing interventions in
order to promote all dimensions in the women’s recovery process.
When CR is done in groups, with traditionally predetermined education
material and organized physical exercise (Perk et al. 2012, Piepoli 2010,
Swedish National Board of Health and Welfare 2008a, WHO 1993), the
focus is primarily on the behavioural and social dimensions and less on
the psychological dimension.

During the women’s recovery, they make various active choices and
change their priorities as well as taking more care of themselves (paper
III and IV). This contributes to the possibility of enjoying everyday life to
a greater extent and approaching a new perspective on life, which is also
described by women in earlier research (Mendes 2010, Norekvål 2007).
A further contribution from paper IV is that the women also highlighted
meaningful, and in some cases also new activities, such as singing in a
choir, reading books and travelling were essential for promoting their
recovery. This underlines the need for CRNs to not only focus on
lifestyle changes and social support, but also to work actively with the
women’s inner strength and resources in order to promote their
personal recovery. It is, thus, of great importance for CRNs to build their
actions on a recovery-oriented approach with a holistic perspective on

**Comprehensive understanding**

From a comprehensive perspective, the four studies show that women’s
recovery after a first MI can be explored and described from an
organisational, a relational and an individual perspective. Using
knowledge from these three perspectives the possibility of a holistic
approach to women’s recovery process to health will increase and the
risk of reductionist thinking will decrease. Based on the findings of this
thesis, it can be assumed that the CRNs need comprehensive knowledge
in order to promote a more holistic care for women’s recovery. All
perspectives are interdependent and should be taken into consideration
in order to improve the nursing care of women’s recovery process.
Therefore, the CR should not only pay attention to clinical recovery and
the primarily biomedical view of illness. The healthcare service should also offer a CR that focuses on personal recovery and the women’s experiences of what promotes their health, including behaviour, social and psychological dimensions, from a holistic point of view (Figure 4). The changes required in order to focus on factors that strengthen the individuals’ own health bring new challenges for CRNs in clinical practice.

**Figure 4.** The relation between the three perspectives in the promotion of women’s recovery process after a first myocardial infarction (MI) from a holistic point of view.

The CRNs have a tradition of working with the patient’s clinical recovery, but it is not obvious that CRNs have strategies for working with personal recovery. The individual perspective corresponds to personal recovery and deals with how the women mobilize their internal resources, how they relate to themselves, and the wish to be
involved in their own care. The women ability to express their thoughts and feelings, i.e. experiences of shame and guilt, is influenced by how other people in their surrounding are able to engage with them, supporting and encouraging them to cope with the new situation. The CRNs can support the women’s recovery by being attentive to the women’s feelings and giving them time to discuss these concerns. When CRNs listen with empathy to women’s stories and needs and also focus on their whole life situation, there are prerequisites entries for a holistic approach to women’s recovery process to health. In this process women need and appreciate the support from their social network. When the women feel that their families are listening and responding to them, and showing an understanding this promotes recovery. Maintaining a dialogue with female friends is important for the women; they have a need to share their innermost thoughts and feelings with them. Thus, the CRN should give the women’s social network the opportunity to participate in the women’s CR, both as a resource for the woman and also for personal benefit in terms of informational- and emotional support. Women’s support from their social network, their own resources and view of themselves can influence their willingness and ability to participate in CR. This knowledge underlines the importance of including relational and individual perspectives in CR in order to achieve a broader holistic view of how to promote women’s recovery after a first MI. These perspectives can have a considerable impact on how women handle their clinical recovery.

An important issue for healthcare services to consider is to strive for equal cardiac care because women’s ability to cope with their new life situation and participate in CRP may be affected by whether they are in a socially vulnerable situation or not. The need for professional support during the women’s recovery process varies over time. It is therefore likely to be important that healthcare services do not set a time limit for CRP and for individualized support from CRNs. There is thus a need for well-established cooperation between hospitals and primary care so that women have the support they need throughout the duration of their recovery. It is important that cardiac care organisations and healthcare professionals, especially nurses, work on improving strategies of long-term co-operation in order to support the women both in their clinical and personal recovery. How the organisation is structured affects women’s recovery since women, as patients, can only receive what is on offer. Since CRP usually follows a particular structure and schedule similar for all patients, this could mean that women are unnecessarily passive in their personal recovery. It is important that
healthcare not underestimate the patient’s inner resources and the ability to be active in their own care. The women should be given the opportunity to participate in the organisation of CR. The women’s knowledge of their own personal recovery should have an impact on the development of new policies and strategies as well as on the design of the interventions to be offered. The CRNs can work to strengthen a holistic approach to women’s recovery within the organisation by using both their knowledge and experiences of women’s individual perspective (personal recovery) and their evidence-based knowledge (clinical recovery) to support women in the transition to health and the development of a new perspective on life after their first MI.

This thesis adds a new dimension to the understanding of recovery among women after a first MI and can be useful in cardiac nursing care as a contribution to the current improvement of nursing care. CRNs need to consider all the three perspectives as well as how they can support women’s clinical and personal recovery in order to offer an individually designed secondary prevention to the women. The CRNs can themselves influence the relationship with the patient in such a way as to make it more person-centered and recovery-oriented, and based on the woman’s own view of what promotes her recovery process to health. This is not enough, however. Organisational changes are required in order for cardiac nursing care to provide recovery-oriented care. The key to implementing these changes is to consider women’s own perspectives, and women also need to have a say in the design of new interventions and strategies for a more recovery-oriented practice.

**Conclusion**

- There are no specially designed CRPs for women in Sweden (paper I including brief follow-up study).
- More younger (< 60 years) than older women with an MI took part in a CRP (paper II).
- The women perceived that the extent of general support, support from relatives, and professional support changed in a positive direction over time after an MI (paper II).
• Women’s recovery after an MI was influenced by their ability to cope with life stress factors, by whether they wanted to be involved in their own personal care, by how they related to themselves, and by their opportunities for receiving support (paper III).

• The women’s ability to approach a new perspective on life depended on how they embraced the three dimensions; behaviour, i.e. women’s acting and engaging in various activities, social i.e. how women receive and give support in their social environment, and psychological i.e. their way of thinking, reflecting and appreciating life (paper IV).

• The next of kin’s participation in CRP was described as a contribution to the women’s recovery after an MI (papers III-IV).

• Professional support, including participating in CRP and individual counseling and support from healthcare professionals were essential to the women’s recovery process (papers II-IV).

• The findings suggest that CRNs should focus and build their actions on a recovery-oriented approach with a holistic perspective on health in order to support women in their transition to health after an MI.

• It is essential that cardiac care provide women who have had an MI and their next of kin a holistic and individually designed secondary prevention in order to promote recovery.

• Healthcare services need to take efforts toward equal cardiac care into account, because women’s recovery process and participation in CR after an MI may be affected by whether they are in socially vulnerable situation or not.
Clinical and research implications

This thesis adds a new dimension to the understanding of recovery among women after a first MI and can be useful in cardiac clinical nursing as a contribution to the current improvement of nursing care. The clinical implications for CRNs and other healthcare professionals that deliver CR to women with MI are the following:

• apply a recovery-oriented approach with a holistic view on health including the individual, relational and organisational perspective.

• offer an individually designed secondary prevention that focuses on women’s experiences of health, including behaviour, social and psychological dimensions.

• work towards an equal cardiac care, in which women’s ability to cope with their new life situation and participate in CRP will not be limited by socially vulnerable situations.

• develop new innovative methods in order to address barriers to access to CRP and increasing its accessibility.

Based on the findings of this thesis the implications for further research are to:

• assess and evaluate the existing clinical guidelines, strategies and programs in CR in Sweden

• carry out a new longitudinal study of how social support and social network can affect women’s recovery including what kind of supp recovery-oriented approach with a holistic view on health ort they prefer.

• examine the views of women and stakeholders e.g. patient organisations, heads of cardiology clinics, physicians and nurses from both hospital and primary care, as a part of the development and implementation of an appropriate CRP.
• investigate how a recovery-oriented approach with a holistic view on health including the individual, relational and organisational perspectives can be used and operationalized in CR and how this implementation impacts on women’s recovery.

**Summary in Swedish/Svensk sammanfattning**

**Titel:**
Kvinnors återhämtning efter en första hjärtinfarkt ur ett organisatoriskt, relationellt och individuellt perspektiv.

**Bakgrund:**
Att drabbas av en hjärtinfarkt är en traumatisk upplevelse och innebär stora förändringar i livet. Hjärt- och kärlsjukdom är den ledande dödsorsaken i den industrialiserade världen för såväl kvinnor som män. Myten om att hjärtinfarkt är en sjukdom som vanligtvis drabbar män har lett till att mindre resurser har satsats på prevention, rehabilitering och forskning gällande kvinnor med hjärtinfarkt. I Sverige insjuknade cirka 15 000 män och 10 000 kvinnor i en första hjärtinfarkt år 2011, cirka 70% av de drabbade kvinnorna överlevde. Efter utskrivning från sjukhuset följer en återhämtningsprocess. Man kan därför ställa sig frågan; Vad är det som bidrar till att kvinnor med en första hjärtinfarkt kan återhämta sig och komma vidare i livet?

egen erfarenhet av sjukdom, eftersom de ansåg att den kliniska återhämtningen inte var tillräcklig för att stödja en återhämtningsprocess. En ökad förståelse för begreppet återhämtning inom hjärtsjukvården kan vara ett viktigt bidrag till utvecklingen av en kvalitativt god och holistisk vård.


De fyra delstudierna – syften, metoder och resultat:


Syftet var att jämföra hjärtrehabiliteringsinsatser för patienter med ischemisk hjärt sjukdom och deras anhöriga under en 5-års period i 5 län i västra Sverige. Studien hade en beskrivande, komparativ och


Syftet var att beskriva och jämföra det sociala stödet och sociala nätverkets förändringar under en 4-års period hos kvinnor med en första hjärtinfarkt utifrån sociodemografiska data med fokus på hjärtrehabilitering. Studien hade en beskrivande, komparativ, longitudinell design och analyserades med såväl deskriptiv som analyserande statistik. Ett frågeformulär konstruerades och 200 konsekutivt utvalda kvinnor från de 18 sjukhusen besvarade frågeformuläret vid tre tillfällen (vid insjuknandet, 1 respektive 4 år efter hjärtinfarkt). Studien var godkänd av klinikchefer vid respektive sjukhus och Forskningsetikkommittéerna vid universiteten i Göteborg, Lund och Örebro. Resultatet visade att kvinnorna erhöll ökat allmänt stöd, stöd från anhöriga, och professionellt stöd under 4-årsperioden. Stödet från vänner förändrades inte över tidsperioden. Fler kvinnor <
60 år i jämförelse med äldre kvinnor deltog i hjärtrehabiliteringsprogram.


deras upplevelse av skuld och skam i relation till att de drabbats av en hjärtinfarkt.

**Delstudie IV: Wieslander I., Mårtensson J., Fridlund B. & Svedberg P. (2013). Women's experiences of how the recovery process is promoted after their first myocardial infarction. Submitted.**


**Avhandlingens kunskapsbidrag:**
Sammanfattningsvis bidrar denna avhandling med fördjupad kunskap och ökad förståelse för kvinnors återhämtning efter en första hjärtinfarkt utifrån ett organisatoriskt, relationellt och individuellt perspektiv. För att kunna utveckla hjärtrehabiliteringen så att den är
återhämtningsorienterad, inkluderande både klinisk och personlig återhämtning, är det av betydelse att anamma och ta alla perspektiv i beaktande. Hjärtrehabiliteringssjukskötterskor kan i sin omvårdnad påverka relationen med sina kvinnliga patienter så att den blir mer personcentrerad och återhämtningsorienterad genom att ta tillvara kvinnans egen uppfattning om vad som främjar hennes återhämtningsprocess. För att en återhämtningsorienterad vård ska vara möjlig krävs även förändringar i ett organisatoriskt perspektiv som t.ex. att ge kvinnorna möjlighet att deltaga i utformningen av nya insatser och strategier. Det är viktigt att genom vidare forskning undersöka hur en återhämtningsorienterad intervention i en organisation ges till individen och hur den i sin tur påverkar möjligheten till en framgångsrik återhämtning.

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Swedish National Board of Health and Welfare (2008b) Mot en mer jämställd vård och socialtjänst – Uppföljning av jämställdheten i hälso- och sjukvård och socialtjänst (in Swedish). Towards a more equal healthcare and social services – follow up the equality


Cardiac rehabilitation efforts for patients with ischaemic heart disease – a 5-year comparative review in five counties in western Sweden

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SUMMARY. Today's cardiac rehabilitation programmes are multiphase and interdisciplinary. The aim of the study was to compare different cardiac rehabilitation approaches available to patients with ischaemic heart disease and their next-of-kin during a 5-year period in five counties in western Sweden. Questionnaires were answered on two occasions, in 1993 and 1998, dealing with the cardiac rehabilitation organization, the target groups invited, rehabilitation efforts, and the health-care professionals involved in the cardiac rehabilitation. The results show that patients with myocardial infarction and their next-of-kin were offered a well-functioning cardiac rehabilitation, both in 1993 and in 1998, at the university, county and district county hospitals. For patients who had undergone bypass surgery and their next-of-kin, cardiac rehabilitation was only available to a lesser extent. Patients with angina pectoris and their next-of-kin had the least possibility of receiving cardiac rehabilitation during the 5-year period. No cardiac rehabilitation programmes were specially designed for women, and an age limit existed in some cases. The most developed cardiac rehabilitation effort was the stress management education. The health-care professionals most frequently included in the cardiac rehabilitation teams at university and district county hospitals were dieticians, cardiologists, physiotherapists and nurses, both in 1993 and in 1998. The corresponding health-care professionals at the county hospitals were cardiologists, social workers, clergymen, physiotherapists and nurses. A research implication can be to identify who the next-of-kin are, what their experiences are of participating in a cardiac rehabilitation programme and how important they are to these patients. © 2001 Harcourt Publishers Ltd

INTRODUCTION

Cardiac rehabilitation has been described as a lifelong process, starting at the onset of the disease and continuing throughout life (Wenger & Hellerstein 1992). The cardiac rehabilitation process is divided into three stages, where stage one is initiated during the hospital stay and includes treatment and rehabilitation. Stage two starts when the patient returns home and comprises regular training and the realisation of a recommended change of lifestyle, so-called secondary prevention. Stage two covers a period of 8–10 weeks or until the patient returns to work. The third stage is aimed at maintaining the patient's physical condition and at reducing the risk of contracting an ischaemic heart disease. This stage demands long-term cooperation between patient and rehabilitation staff in order for the rehabilitation to have an effect (Ehsani 1984, Bethell et al. 1999). During this process, the cardiac patient is, to varying degrees, in need of help and information in the form of support and education. This help depends not only on the level of anxiety and mental strain that the disease and its consequent medical treatment give rise to during the different stages, but also on the response from people in the patient's immediate environment (Todd et al. 1992, Wang 1994). In Europe, great variations exist concerning cardiac rehabilitation programmes (CRPs), where the Nordic countries are considered to have the most developed CRPs (Gohike & Gohike-Bärwolf 1998). In these countries, cardiac rehabilitation has, among other things, resulted in financial gains for both the health care (Levin et al. 1991) and the social insurance system, in the form of reduced sick leave in connection with myocardial infarction (MI), bypass surgery

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grafting and balloon dilatation (Israelsson et al. 1995). In addition, secondary prevention in the form of cardiac outpatient rehabilitation has on several occasions been shown to give lasting psychosocial and lifestyle gains. This type of prevention is established practice at many Nordic hospitals today (Maeland & Havik 1988, Hämäläinen et al. 1989, Hedbäck et al. 1993, Lidell & Fridlund 1996, Wamala et al. 1999). These CRPs are usually multiphase, multifactorial and interdisciplinary, and include physical training, social support and health education (Fridlund 2000). Interdisciplinary teams comprising physicians, nurses and physiotherapists have been responsible for the cardiac rehabilitation, where the nurse has contributed continuity and co-ordination (Fridlund 1994, Thompson & Bowman 1997, Egan 1999, Ekman et al. 2000, Hildingh et al. 2000). In order for the rehabilitation to be successful, recent studies have emphasized the need to adapt the cardiac rehabilitation not only to the diagnosis, but also to the individual patient (e.g. gender, age, education) and their next-of-kin (e.g. spouse) (Hill et al. 1992, Svedlund & Axelsson 2000, Wamala et al. 1999). As recently as 1998, the National Board of Health and Welfare confirmed the Swedish shortcomings, pointing to the need for greater adaptation of the CRPs regarding patients with angina pectoris, MI, bypass surgery grafting and balloon dilatation. To date, very few studies have documented such programmes, and it is, therefore, of interest to study the prevalence and development of these in Sweden. Hence, the aim of the study was to compare different cardiac rehabilitation approaches available to patients with an ischaemic heart disease and their next-of-kin during a 5-year period in five counties in western Sweden. The following specific questions were asked:

1. How is the cardiac rehabilitation organized?
2. Which target groups are invited to participate in the cardiac rehabilitation?
3. What cardiac rehabilitation measures are offered?
4. Which health-care professionals participate in the cardiac rehabilitation?

METHOD

Design and setting
The study had a comparative, descriptive design. It was performed in 1993 and 1998 within five counties in western Sweden with a total catchment area of almost two million people. Sweden has a total population of 8.5 million. This setting includes both an urban and a rural area, which limits the access to rehabilitation programmes in the same way as for the rest of Sweden (National Association for Heart and Lung Patients 2000). The study was approved by the respective ethical committee for each hospital and by the Committee for Ethics in Medical Investigations, Göteborg University.

Sample
All of the hospitals (n = 19) within five counties in western Sweden were asked whether they would like to participate in the study. These hospitals were found to be representative for Sweden as a whole with regard to prevalence of ischaemic heart disease as well as the established cardiac rehabilitation efforts (Nerbrand et al. 1991, National Guidelines for Ischaemic Heart Disease 1998).

Instrument
Based on a literature review and the researchers’ knowledge of the subject, a questionnaire was designed that included 11 closed questions with accompanying sub-questions. In all, 58 questions with yes/no answers were formulated to obtain descriptions of existing cardiac rehabilitation efforts for patients with ischaemic heart disease. The questions dealt with the organization of and access to CRPs (15 questions), possibilities of next-of-kin participation (nine questions), different cardiac rehabilitation efforts (18 questions), and health-care professionals (16 questions). The questions were tested on an interdisciplinary cardiac rehabilitation team, after which some questions were reformulated to incorporate their views.

Data collection
The questionnaire was distributed on two occasions, in 1993 and 1998, i.e. with an interval of 5 years, to the chief physician at the medical department, who, together with the existing cardiac rehabilitation team (cardiologist, nurse, physiotherapist, etc.), answered the questionnaire within 14 days. Most of them were the same personnel on both occasions. One clinic at a county hospital refrained from participating in the study due to lack of time.

Data analysis
Descriptive statistics in the form of cross tables and frequency tables supported by SPSS were used to illustrate the preliminary information (Norusis 1993). The analysis revealed an internal dropout for individual questions corresponding to less than 5%.

RESULTS

Characteristics
Two of the 18 hospitals included in the study were university hospitals, six were county hospitals and 10 were district county hospitals both in 1993 and in 1998.
The organization for rehabilitation of cardiac patients (Table 1)

Both university hospitals had, in 1998, a cardiac outpatient department with a special intervention programme, without age limit, for patients with angina pectoris, MI, patients who had undergone bypass surgery and patients with a high-risk level. For patients with angina pectoris as well as patients who had undergone bypass surgery, this represented an increase compared to 1993, and for patients with MI and patients with a high-risk level, age limits existed in 1993 but not in 1998. Both university hospitals had, in 1993, a special cardiac rehabilitation department as well as a follow-up programme in the department of medicine. One of the university hospitals had a special cardiac rehabilitation department in 1998. In 1993, one of the university hospitals had a CPR without age limit for patients with angina pectoris after discharge. By 1998, however, none of the hospitals offered cardiac rehabilitation any longer for patients after discharge. A CRP without age limit after discharge was offered to patients with MI and to bypass surgery patients at both university hospitals in 1998. For patients having undergone bypass surgery, this represented an increase compared to 1993, while there was an age limit for patients with MI in 1993 but not in 1998.

At the county hospitals, there was a cardiac outpatient department with a special intervention programme, with or without age limit, for patients with MI at all hospitals both in 1993 and 1998. There were more cardiac outpatient departments with a special intervention programme in 1998, with or without age limit, for patients with angina pectoris and without age limit for patients with a high-risk level, compared to 1993. For patients who had undergone bypass surgery, the number of cardiac outpatient departments with or without age limit was the same in 1993 as in 1998. All county hospitals had a special cardiac rehabilitation department in 1998, representing an increase compared to 1993. The number of follow-up programmes in departments of medicine was the same in 1993 as in 1998. CRPs after discharge were available at all county hospitals in 1998, with or without age limit, for both patients with MI and bypass surgery patients. For the latter, this meant an increase compared to 1993. Patients with angina pectoris were offered a CRP without age limit after discharge by more county hospitals in 1998 than in 1993.

The number of district county hospitals, where the cardiac outpatient department offered a special intervention programme, was equal for patients with angina pectoris and patients with MI on both occasions, however, the number without age limit was larger in 1998. For patients who had undergone bypass surgery and patients with a high-risk level, the number of cardiac outpatient departments with a special intervention programme was smaller in 1998 compared to 1993. More district county hospitals had a cardiac rehabilitation department in 1998 compared to 1993, at the same time as the number of follow-up care programmes in the departments of medicine was lower in 1998 compared to 1993. CRPs after discharge, with or without age limit, for patients with MI were offered by all district county hospitals, both in 1993 and in 1998. For patients having undergone bypass surgery, such programmes were offered after discharge at fewer hospitals in 1998 and without age limit, compared to 1993. For patients with angina pectoris, cardiac rehabilitation was offered after discharge, without age limit, at an equal number of district county hospitals in 1993 and 1998. At none of the university, county or district county hospitals was a special CRP available to women.

Table 1 The organization of cardiac rehabilitation for patients with ischaemic heart disease in western Sweden in 1993 and 1998 (n = 18)

<table>
<thead>
<tr>
<th>Cardiac rehabilitation</th>
<th>Patient group</th>
<th>University hospitals</th>
<th>County hospitals</th>
<th>District county hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n = 2</td>
<td>n = 6</td>
<td>n = 10</td>
</tr>
<tr>
<td>Cardiac outpatient</td>
<td>Angina pectoris**</td>
<td>1–</td>
<td>2–</td>
<td>2–</td>
</tr>
<tr>
<td>department with a</td>
<td>MI**</td>
<td>2(1+, 1–)</td>
<td>2–</td>
<td>6(2+, 4–)</td>
</tr>
<tr>
<td>special intervention</td>
<td>Bypass surgery**</td>
<td>1–</td>
<td>2–</td>
<td>5(1+, 4–)</td>
</tr>
<tr>
<td>programme with (+) or</td>
<td>High risk level**</td>
<td>2(1+, 1–)</td>
<td>2–</td>
<td>1–</td>
</tr>
<tr>
<td>without (–) age limit*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A special cardiac</td>
<td>**</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>rehabilitation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>department</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up programme in</td>
<td>**</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>a medical ward</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac rehabilitation</td>
<td>Angina pectoris**</td>
<td>1–</td>
<td>0</td>
<td>1–</td>
</tr>
<tr>
<td>programme after</td>
<td>MI**</td>
<td>2(1+, 1–)</td>
<td>2–</td>
<td>6–</td>
</tr>
<tr>
<td>discharge home with (+)</td>
<td>Bypass surgery**</td>
<td>1–</td>
<td>2–</td>
<td>5–</td>
</tr>
<tr>
<td>or without (–) age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>limit**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MI: myocardial Infarction; *: age limitations of 65 years of age or 70 years of age; **: no special rehabilitation for women available.
Organization for participation by next-of-kin (Table 2)

At both university hospitals, a special intervention programme was offered not only to patients with ischaemic heart disease but also to their next-of-kin. The programme was conducted in a cardiac outpatient department covering education in ischaemic heart diseases, diet, exercise, smoking, alcohol and stress management. At all county hospitals, next-of-kin were also invited to participate in a special intervention programme covering ischaemic heart diseases, diet, exercise, smoking, alcohol and stress management, which represented an increase compared to 1993. Concerning the district county hospitals, more hospitals offered next-of-kin participation in a special intervention programme in a cardiac outpatient department in 1998 compared to 1993. At the university hospitals, the next-of-kin of patients with angina pectoris only were not offered participation in a CRP after discharge, neither in 1993 nor in 1998. The next-of-kin of patients with MI or who had undergone bypass surgery were offered participation in a CRP after discharge at both regional hospitals. This represented an increase for the next-of-kin of patients with MI compared to 1993. In 1998, regarding the county hospitals, more hospitals offered the next-of-kin of patients with angina pectoris, MI and of patients having undergone bypass surgery, participation in a CRP after discharge, compared to 1993. At two of the district county hospitals, the next-of-kin of patients with angina pectoris were offered participation in a CRP after discharge both in 1993 and in 1998. Concerning the next-of-kin of patients with MI and bypass surgery patients, more district county hospitals offered them participation in a CRP after the patient's return home in 1998 compared to 1993.

Rehabilitation interventions offered to cardiac patients

Both in 1993 and 1998, the cardiac outpatient departments at the two university hospitals had an intervention programme including an education component covering ischaemic heart diseases, diet, exercise, smoking, alcohol and stress management, as well as a sampling component concerning blood lipids. At all the county hospitals in 1998, an education component including ischaemic heart diseases, diet, exercise, smoking and alcohol as well as stress management was available. This represented an increase compared to 1993. A sampling component concerning blood lipids was available at more county hospitals in 1998 compared to 1993. At the district county hospitals, an education component covering ischaemic heart diseases, diet, exercise and stress management was available at more hospitals in 1998 compared to 1993. Concerning smoking and alcohol, the rehabilitation interventions were the same in 1993 and 1998. A sampling component concerning blood lipids was offered less frequently in 1998 compared to 1993 (Table 3).

CRPs offered by the university hospitals in 1998 after discharge comprising exercise, social support and education were available to patients with MI and patients who had undergone bypass surgery. For the latter, this represented an increase compared to 1993. No corresponding CRPs for patients with angina pectoris were available at the university hospitals in 1998, which represented a decrease compared to 1993. The county hospitals offered CRPs after discharge including exercise, support and education for patients with angina pectoris and MI as well as for patients who had undergone bypass surgery, both in 1993 and in 1998. For patients with MI, the rehabilitation efforts were the same in 1993 as in 1998. For patients with angina pectoris and patients who had undergone bypass surgery, this represented an increase in 1998 compared to 1993. All district county hospitals offered, in 1998, CRPs after discharge comprising exercise, social support and education for patients with MI. Concerning the education component for patients with MI, this represented an increase in 1998.

Table 2  Participation of next-of-kin in the cardiac rehabilitation for patients with ischaemic heart disease in western Sweden in 1993 and 1998 (n =18)

<table>
<thead>
<tr>
<th>Participation of next-of-kin in special intervention programmes in a cardiac outpatient department</th>
<th>University hospitals n = 2</th>
<th>County hospitals n = 6</th>
<th>District county hospitals n = 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>2 2 5 6</td>
<td>8 9</td>
<td></td>
</tr>
<tr>
<td>Diet</td>
<td>2 2 5 6</td>
<td>8 9</td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>2 2 4 6</td>
<td>8 8</td>
<td></td>
</tr>
<tr>
<td>Smoking and alcohol</td>
<td>2 2 5 6</td>
<td>8 8</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>2 2 4 6</td>
<td>7 8</td>
<td></td>
</tr>
<tr>
<td>Participation of next-of-kin in cardiac rehabilitation programmes after the patient's return home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient with angina pectoris</td>
<td>0 0 1 3</td>
<td>2 2</td>
<td></td>
</tr>
<tr>
<td>Patient with MI</td>
<td>1 2 4 5</td>
<td>8 9</td>
<td></td>
</tr>
<tr>
<td>Patient with bypass surgery</td>
<td>2 2 2 4</td>
<td>6 8</td>
<td></td>
</tr>
</tbody>
</table>

MI: myocardial infarction.
### Table 3  
Cardiac rehabilitation efforts directed towards patients with ischaemic heart disease in western Sweden in 1993 and 1998 at cardiac outpatient departments with special intervention programmes \((n = 18)\)

<table>
<thead>
<tr>
<th>Cardiac rehabilitation (information, education, sampling)</th>
<th>University hospitals (n = 2)</th>
<th>County hospitals (n = 6)</th>
<th>District county hospitals (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Diet</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Exercise</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Smoking and alcohol</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Stress</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Lipids</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

### Table 4  
Content of cardiac rehabilitation programmes for patients with ischaemic heart disease after discharge in western Sweden in 1993 and 1995 \((n = 18)\)

<table>
<thead>
<tr>
<th>Content</th>
<th>Patient group</th>
<th>University hospitals (n = 2)</th>
<th>County hospitals (n = 6)</th>
<th>District county hospitals (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td>Angina pectoris</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Bypass surgery</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Counselling</td>
<td>Angina pectoris</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Bypass surgery</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Education</td>
<td>Angina pectoris</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MI</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Bypass surgery</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

MI: myocardial infarction.

### Table 5  
Health-care professionals working regularly with cardiac rehabilitation for patients with ischaemic heart disease in western Sweden in 1993 and 1998 \((n = 18)\)

<table>
<thead>
<tr>
<th>Health-care professionals</th>
<th>Cardiac rehabilitation</th>
<th>University hospitals (n = 2)</th>
<th>County hospitals (n = 6)</th>
<th>District county hospitals (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiologist</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Clergyman</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dietician</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Nurse</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Psychologist</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Social worker</td>
<td>Cardiac outpatient department with a special intervention programme</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Cardiac rehabilitation programme after discharge</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>
compared to 1993. For patients who had undergone bypass surgery, the cardiac rehabilitation efforts including exercise and support at the district hospitals were lower in 1998 compared to 1993. For these patients, the education component was unchanged on both measurement occasions. CRPs after discharge for patients with angina pectoris, including support and education, were available both in 1993 and in 1998 at two of the hospitals, while exercise was offered at more hospitals in 1998 compared to 1993 (Table 4).

Health-care professionals participating in cardiac rehabilitation (Table 5)
At the university hospitals, a dietician, a cardiologist, a physiotherapist and a nurse worked regularly at the cardiac outpatient department with special intervention programmes and with CRPs for cardiac patients after discharge, both in 1993 and in 1998. At the county hospitals, a cardiologist, a social worker, a clergyman, a physiotherapist and a nurse worked regularly with a special intervention programme at the cardiac outpatient department, both in 1993 and 1998. The availability of a clergyman was increased at these departments in 1998 compared to 1993. Those working regularly with CRPs after discharge at these hospitals were a dietician, a cardiologist, a social worker, a physiotherapist and a nurse. The availability of a cardiologist was lower in 1998 compared to 1993. At the district county hospitals, a dietician, a cardiologist, a physiotherapist and a nurse were the ones who worked regularly, both at the cardiac outpatient department having special intervention programmes and in CRPs after the patient’s return home. In 1998, these categories of health-care professionals had been extended at the cardiac outpatient departments having special intervention programmes, while the number of cardiologists was lower in 1998 in CRPs after discharge at these hospitals.

DISCUSSION

Methodological issues
The study concerned cardiac rehabilitation efforts within five counties serving 2000 000 of Sweden’s 8500 000 inhabitants, corresponding to one-quarter of the Swedish population. This allows the possibility to generalize the findings, as both urban and rural areas were represented having the same differences in rehabilitation possibilities as for Sweden as a whole (National Association for Heart and Lung Patients 2000). Using the questionnaire as the data collection method is appropriate in this case due to the structured and standardized questions being answered by the health-care professional most familiar with the issues. Concerning the accuracy in answering the questions, there is always a risk of under- or over-interpretation, which can affect the objectivity. However, the researchers were aware of this possibility and checked the answers by empirical verification, i.e. telephone calls. Another reason why the validity ought to be considered satisfactory is that the questions were constructed by initiated health-care professionals and scrutinized by an interdisciplinary cardiac rehabilitation team. Likewise, the reliability can be deemed to be acceptable, as the internal dropout rate was less than 5% regarding some items, and only one hospital (5%) declined to participate in the study.

Cardiac rehabilitation issues
Cardiac rehabilitation demands further development of both the care organization and the local programmes for ischaemic heart diseases. Regarding the organization of cardiac rehabilitation in western Sweden, the results show that, in 1998, the cardiac rehabilitation offered by university hospitals was satisfactory as well as without age limit, which is an improvement compared to 1993. However, CRPs which were available in 1993 for patients with angina pectoris after discharge were completely missing in 1998. Concerning the county hospitals, the results demonstrate that rehabilitation in the form of a cardiac outpatient department for patients with angina pectoris, as well as for patients with a high-risk level, existed at more hospitals in 1998 compared to 1993. However, the availability of such programmes needs to be improved still further. More county hospitals offered cardiac rehabilitation for the patients with angina pectoris and for the bypass surgery patients after discharge in 1998 compared to 1993. However, in this case, the rehabilitation for patients with angina pectoris also needs to be developed at more hospitals. No difference was found in the various CRPs at the district county hospitals for patients with angina pectoris, when comparing 1998 and 1993. However, many of the district county hospitals lacked cardiac rehabilitation for this patient group. This can be of importance especially to women, since their first manifestation of an ischaemic heart disease in the normal case is angina pectoris, while for men it is MI (Eaker et al. 1992).

The cardiac rehabilitation for patients with MI is well developed in western Sweden, while the cardiac care for patients with angina pectoris is less well developed, in spite of the recommendations in the national guidelines from the National Board of Health and Welfare (1998). It has to be regarded as vital to increase the rehabilitation efforts for the patient group with angina pectoris before their condition leads to an MI with consequent irreversible damage to the cardiac myocardium (Fridlund 1998). According to Thompson et al. (1997), patients in England and Wales with angina pectoris seldom participate in cardiac rehabilitation exercise programmes, despite the benefits that such exercise affords the patient. The explanation may be that they have not received the information that exercise is beneficial to them. None of the university, county or district
county hospitals in western Sweden offered special rehabilitation programmes to women with ischaemic heart disease on either of the measurement occasions. An age limit for certain cardiac rehabilitation existed both in 1993 and 1998, especially at the county and district county hospitals. Different diagnoses place different demands on, as well as give rise to different needs of, cardiac rehabilitation, which is true for both men and women, as well as young and old patients (O’Callaghan et al. 1984, Ginzel 1996, Fridlund et al. 1997, Egan 1999).

The results of this study show that although next-of-kin were offered participation in cardiac rehabilitation both in 1993 and in 1998, the extent of the rehabilitation was greater in 1998 than in 1993. However, the next-of-kin of patients with angina pectoris is a neglected group when it comes to cardiac rehabilitation after the patient’s return home, which is also pointed out in the national Swedish guidelines for coronary heart disease care (1998). The guidelines recommend that next-of-kin participate both in the planning and implementation of the cardiac rehabilitation. To feel involved and to be able to support the sick person, next-of-kin need to receive information about the disease and different risk factors. In addition, they need to be able to understand the situation of the sick person as well as their possibilities to help minimize the risks of the disease developing further. According to Dickerson and King (1998), patients have a special need of support from their next-of-kin on three occasions each of which also requires that one family members themselves be given support: when the diagnosis is being communicated to the patient, at this point the next-of-kin may feel uncertain and a loss of control over their lives; during the hospital stay, when the next-of-kin need to receive continuous support and education regarding the course of the disease; and after the patient’s return home, when family members need to take an active part in the rehabilitation programme, with the aim of the patient being able to resume a normal life. Another possibility of giving support to next-of-kin could be to use patient associations as well as primary health-care centres (Fridlund 2000).

The cardiac rehabilitation efforts in western Sweden for patients with ischaemic heart disease are multifactorial, including biomedical, behavioural and social components. The component which had been expanded the most in 1998 compared to 1993 is education about stress and stress management (Table 3). Patients with ischaemic heart disease frequently exhibit not only a special stress behaviour, so-called type A-behaviour, but also depression, anger, hostility, aggression and anxiety; emotions regarded as risk factors, or precursors to risk factors, for ischaemic heart disease (Friedman & Rosenman 1974, Booth-Kewley & Friedman 1987, Burell et al. 1994, Markowitz et al. 1997, Brunnell et al. 1998). Women with ischaemic heart disease experience considerably more stress, so-called social stress, compared to other women (Orth-Gomér & Chesney 1996, Wamala et al. 1999). Several studies (Burell et al. 1994, Denollet & Brutsaert 1995, Ericson et al. 1997) show that CRPs emphasizing behavioural medicine and long-term psychosocial support, preferably in groups, improve patients’ possibilities of managing stress behaviours in daily life, thereby resulting in improved quality of life and reduced risk of recurrence of the disease. This could be a good alternative for women, but there is little evidence that setting up separate programmes actually produces better results (Thompson & Bowman 1997, Schulz & McBurney 2000). The CRPs offered in western Sweden were characterized by a ‘smorgasbord’ type of thinking, both in 1993 and 1998, which best satisfies the needs of the MI patients. The needs of the patients who had undergone bypass surgery were partly satisfied, while those of patients with angina pectoris only to a lesser extent, both at the university, county and district county hospitals (Tables 3 & 4). To achieve lasting results, when it comes to cardiac rehabilitation of patients with ischaemic heart disease, participation in follow-up care is needed, including, among other things, patient education and social support for a very long period of time (Hämäläinen et al. 1989, Hedbäck et al. 1993, Lidell & Fridlund 1996, Thompson et al. 1997, Bethell et al. 1999). Patient education is of vital importance to enable the patient with ischaemic heart disease to gain the insight and motivation necessary to start the lifestyle changes that have been scientifically documented as vital for influencing and preventing recurrence (Wenger et al. 1995, Rutledge et al. 1999, Stokes 1999). A common feature of the nurse’s work in general, and that of the cardiac rehabilitation nurse in particular, is education in living habits. However, many nurses experience difficulty in giving individual health education that actually leads to improved health (Ekman et al. 2000). Merely increasing the knowledge of different risk factors is not enough; changes in attitudes and behaviours are also required to attain changes in lifestyle. Arborelius (1995) showed the importance of using a patient-centred approach in the education, i.e. the nurse or another health-care professional uses the patient’s conditions as the point of departure, and discusses, together with the patient, what is best for the patient. Group supervision led by a nurse may be one alternative, but in some cases individual supervision may be better. Education combined with boarding for patients with ischaemic heart disease, where theory and practice are sandwiched, also shows good results in terms of the possibility to influence risk factors through lifestyle changes (Lisspers et al. 1999).

This study shows that the health-care professionals most frequently engaged in the rehabilitation of cardiac patients are physiotherapists, nurses and cardiologists, i.e. health-care professionals who lack a deep behavioural knowledge. However, the results
indicate a clear tendency of several hospitals towards a ‘complete’ cardiac rehabilitation team employing more dieticians, social workers and clergyman during the 5-year period studied. The work of these health-care professionals belongs to the behavioural and psychosocial area. Moreover, the social worker acts as a liaison officer vis-à-vis employers and various personnel caring authorities (Isælsson et al. 1995) while it is the task of the nurse to listen, coach, and counsel as well as educate the patients and their families through emotional, advisory and informative support (Fridlund 2000). Lidell and Fridlund (1996) showed that 20% of patients with MI, who had participated in a CRP, still suffered from fear and anxiety after 5 years. The nurse is a trained expert with a perspective of both health promotion and illness prevention. The nurse must have, in addition to a good knowledge of cardiology, a command of behavioural science. This would include an empathetic ability, attentiveness and educational skills. According to Thompson and Bowman (1997), the nurse is the co-ordinator in 84% of the CRPs in England and Wales. The national Swedish guidelines for coronary heart disease care (1998) also suggest that the nurse should act as co-ordinator in the CRP. Consequently, the nurse can be regarded as the spider in the web (Fridlund 2000) when it comes to cardiac rehabilitation, with overall responsibility for contacts not only with other health-care professionals within inpatient and outpatient care, but also with the general population (Hildingh et al. 2000).

CONCLUSIONS

This comparative study shows that five counties in western Sweden offered patients with MI and their next-of-kin well-functioning cardiac rehabilitation including multiphase, multifactorial and interdisciplinary intervention programmes both in 1993 and in 1998 at the university, county and district county hospitals. For patients who had undergone bypass surgery and their next-of-kin, the cardiac rehabilitation possibilities were fewer, mainly at the county and district county hospitals, while for patients with angina pectoris and their next-of-kin, the cardiac rehabilitation was less developed, at the university, county and district county hospitals. No CRPs were specially designed for women, and the cardiac rehabilitation which had been most developed during the 5-year period was education about stress and stress management. Only the university hospitals offered cardiac rehabilitation without age limit in 1998, which represented an improvement compared to 1993. The health-care professionals most frequently engaged in the cardiac rehabilitation teams at the university and district county hospitals were dieticians, cardiologists, physiotherapists and nurses. At the county hospitals, the corresponding categories were cardiologists, social workers, clergyman, physiotherapists and nurses. In the cardiac rehabilitation in western Sweden, a tendency was noted towards more clergyman and social workers being involved in the CRP, that is, health-care professionals working on the basis of psychosocial and behavioural knowledge. Within cardiac rehabilitation, the nurse can be regarded as the central character both in terms of knowledge and organization.

CLINICAL AND RESEARCH IMPLICATIONS

The efficiency of cardiac rehabilitation in the case of ischaemic heart disease for preventing the development of the disease and the need for hospital care is well documented. It is, therefore, of great importance that health-care professionals within coronary heart disease care are aware that different diagnoses place different demands on, as well as gives rise to different needs for cardiac rehabilitation. Special CRPs need to be developed for patients with angina pectoris and their next-of-kin. The health-care professionals need to be made aware that the content of the cardiac rehabilitation needs to be differentiated for women and men as well as for young and old patients. Furthermore, a family member or next-of-kin should be given the possibility to participate in the planning and implementation of the individual cardiac rehabilitation, since the hospital stay of cardiac patients is becoming increasingly shorter. Besides the well-known recommendations aimed at bringing about behavioural changes, it is of critical importance to capture and deal with emotions. A research implication can be to identify who the next-of-kin are, what their experiences are of participating in a CRP and how important they are to these patients. It is of the utmost importance to carry out a randomized study of patients with angina pectoris and their next-of-kin, as well as of female patients, in order to produce results that can lead to improvements in cardiac rehabilitation.

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Women's Social Support and Social Network after Their First Myocardial Infarction; A 4-Year Follow-Up with Focus on Cardiac Rehabilitation
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What is This?
Women’s social support and social network after their first myocardial infarction; a 4-year follow-up with focus on cardiac rehabilitation

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Abstract

Background: Knowledge about women’s recovery following a myocardial infarction (MI) with focus on how their social support and network change over time as a result of participation in a cardiac rehabilitation programme (CRP) is not well established.
Aim: The aim of this study was to describe and compare social support and network changes over a 4-year period in women with a first MI, based on socio-demographic and situational data.
Method: A longitudinal, comparative study with a non-randomised design including pre- and post-tests (1 and 4 years after MI) was carried out in 18 hospitals in Sweden. Consecutively chosen women (N= 240) answered a questionnaire on the subject of social support and network.
Results: The women who participated in a CRP were mainly dependent upon professional support during the first year after MI (p < 0.0001), while those who declined to participate in a CRP needed professional support throughout the whole 4-year period (p = 0.001). Participation in CRP was dependent on the women’s age, those under 60 years (p = 0.050).
Conclusion: There is a need to develop CRPs that are specifically designed for women based on their age and family relationships. Nurses’ training programmes should place greater emphasis on cardiac rehabilitation from the perspective of women with focus on professional support.

Keywords: Cardiac rehabilitation programme; Coronary heart disease; Myocardial infarction; Social support and network; Women

1. Introduction

Coronary heart disease (CHD) is the most common cause of mortality in women in the industrialised world. Of the women in the USA and Western Europe who are afflicted by CHD, 25% die of a myocardial infarction (MI) each year. MI is also the most common cause of death in women over 55 years of age [1,2]. The risk of suffering an MI is greater for women than men in the 50- to-70-year-old group [3,4]. Women are also afflicted 10 years later than men [5,6], probably as a result of the protective effect of oestrogen. Early menopause increases the risk of CHD [7]. The traditional risk factors are in principle the same for women and men but the impact of these factors is different. Diabetes, high blood lipids and smoking seem to be even more dangerous for women [3,4]. However, knowledge of the female risk profile is still incomplete because most research pertaining to risk factors, prediction and rehabilitation of CHD has been conducted on men [4,8]. During the last two decades, there is increasing evidence that not only the traditional risk factors but also psychosocial factors are...
important in the cardiac rehabilitation (CR) progress, especially in women [9,10]. Psychosocial factors that influence CR are often related to occupational, psychological, behavioural and social (e.g. social support and network) motives and grounds [10,11]. With regard to CHD, access to a social network that provides social support is a predictive factor both in terms of primary and secondary prevention [12]. Women who had suffered an MI have been found to have less access to social support after the MI than men [12,13]. Access to adequate social support not only reduces the risk of suffering an MI [14,15] but also increases the benefits of CR [16]. Adequate social support reduces the risk of being struck by post-MI depression and may lead to reduced mortality [17,18]. Accordingly, it is necessary to place a greater focus on women’s need for CR and to be aware of the fact that psychosocial factors, symptoms, the course of the disease, as well as the prognosis of MI and outcome of CR, may differ with regard to age, marital status and education. The aim of the study was to describe and compare social support and network changes over a 4-year period in women with a first MI, based on socio-demographic and situational data with focus on cardiac rehabilitation.

2. Theoretical foundation

Social support is a multi-dimensional concept as well as an interactive process. The importance of social support for how different individuals cope with difficult life situations was documented more than 25 years ago [19,20]. As far back as 1860, Florence Nightingale stated that social support has a central role in nursing care. The concept of social support is in most cases described as consisting of four attributes: emotional support and appreciation; information and assistance in orienting oneself in the surrounding world and successfully dealing with problems; friendship characterised by shared interests and values with others; and material or instrumental support, which concerns the provision of practical and concrete services [21–23]. For an act to be considered as social support, it should encompass one or several of these attributes, and for social support to be satisfactory, give and take is required [22–24]. Social support is a functional concept that describes the quality of an individual’s social relationships, i.e. the possibility to obtain social support when required [22]. Social support can be provided by a social network. Social network is a structural concept that describes individuals’ relationship with their social environment, i.e. contact with family, friends, neighbours, colleagues and society [25]. The social network comprises information about the size, contact frequency, density and composition of the network, whether it contains a confidant or not and how the support is perceived. However, the concept does not reveal anything about its function [26]. The social network is important not only for the creation of identity, self-esteem and a sense of belonging but also for its capacity to provide different types of social support [27]. In spite of the above-mentioned aspects, the social network not only enables but also hinders health-promoting behaviour [28].

3. Patients and methods

3.1. Design and setting

A longitudinal, comparative study with a non-randomized design including pre- (baseline) and post-tests (1 and 4 years after the MI) was carried out between 1994 and 1998 in 5 counties in western Sweden and involved 18 acute care hospitals, serving 2 million out of a total population of 8.5 million. The study was approved by the institutional review boards of each hospital and by the Ethics Committee at the Universities of Göteborg, Lund and Örebro, Sweden.

3.2. Cardiac rehabilitation programmes

All 18 hospitals offered women who had suffered an MI and their next-of-kin participation in a cardiac rehabilitation programme (CRP). No hospital had a specific CRP for women. The programme included exercise, health education and psychosocial support. The most common categories of healthcare professionals involved in the CRP were nurses, physiotherapists, dieticians, cardiologists and social workers in said order. The usual duration of a CRP was 4–12 weeks [29,30].

3.3. Sample and drop-outs

The sample consisted of 240 consecutively chosen Swedish born and Swedish speaking women less than 70 years of age, who had suffered their first MI, who lived independently and whose recovery had not been hindered by any other serious illness [31]. The number of dropouts at baseline was 40 (17%) due to lack of interest (n = 26) or uncertainty regarding the diagnosis (n = 14). One year later, another 14 (in total 22%) women failed to complete due to lack of interest (n = 3) or death (n = 11), whereby 186 women remained. Another 33 (in total 36%) women dropped out 4 years later due to lack of interest (n = 14), relocation to another part of Sweden (n = 8), death (n = 4) or being too ill for continued participation (n = 7). Accordingly, 153 women participated after 4 years.
content validity was tested on a group of 50 CR-nurse specialists and on 10 women with MI, which led to some adjustments. An explorative factor analysis (rotated, varimax) [33] was performed to ensure construct validity, resulting in four factors with factor loadings > 0.4 (factor 1: General support, 4 items; factor 2: Social support from relatives, 3 items; factor 3: Social support from friends, 4 items; and factor 4: Professional support, 3 items) with an Eigenvalue > 1.0 cumulatively explaining 54% of the total variance. Four questions were not compatible with the factor analysis and therefore excluded, thus the final questionnaire included 14 questions. Internal consistency reliability was tested by means of the Cronbach’s α, which resulted in a figure of 0.63 for the entire questionnaire and 0.53 – 0.67 for each of the four factors. Another four socio-demographic questions were added with regard to CRP participation, age, marital status and educational level.

3.5. Data collection

Before the study, the research nurses were provided with written and verbal information about technical and practical matters, including among other things guidelines on how to perform the data collection in a correct and ethical manner. The purpose was to enable good patient–research–nurse relationships and to facilitate the nurses to adopt a scientific approach. Having given their written consent to take part in the study, the women who had suffered a first MI answered the questionnaire, with the help of a research nurse, at the time of their discharge from the ward. The women completed an identical questionnaire 1 and 4 years after their first MI, either in their home or during a visit to the hospital.

### Table 1

Comparison in time with regard to social support and social network in women with a first myocardial infarction in Western Sweden (n=200)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Z-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-1.520</td>
<td>0.128</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-2.704</td>
<td>0.007</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-0.910</td>
<td>0.363</td>
</tr>
<tr>
<td>Support from relatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-1.058</td>
<td>0.290</td>
</tr>
<tr>
<td>Between 1 year and 4 years after MI</td>
<td>-0.291</td>
<td>0.771</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-2.591</td>
<td>0.010</td>
</tr>
<tr>
<td>Support from friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-1.570</td>
<td>0.116</td>
</tr>
<tr>
<td>Between 1 year and 4 years after MI</td>
<td>-0.990</td>
<td>0.322</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-0.231</td>
<td>0.817</td>
</tr>
<tr>
<td>Professional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-5.307 &lt;0.0001</td>
<td></td>
</tr>
<tr>
<td>Between 1 year and 4 years after MI</td>
<td>-1.745</td>
<td>0.081</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-3.501 &lt;0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Wilcoxon’s Signed Ranks Test; significant differences were in favour for the women with regard to increased social support and social network.

3.6. Data processing and analysis

The response alternatives were of nominal character but included different score values. A preliminary analysis of the response alternatives indicated the appropriateness of a shift from scales with three alternatives to two. Factor analysis was used to reduce the questions to sensible factors. Then the items in each factor were added up, resulting in one index for each factor, i.e. a total of 4 indices. The socio-demographic items were also dichotomised: age: <60 years (younger)/>60 years (older); marital status: cohabiting (married)/single (e.g. divorced, widowed); educational level: lower (up to secondary school)/higher (from upper secondary school) and; CRP: participation/non participation. Supported by the SPSS programme™ [34], descriptive statistics were used to illustrate the preliminary findings, and the nonparametric procedure of Wilcoxon’s Signed Rank test was employed for the newly created factors, which were the sum of the correlation variables in each cluster [35]. Student’s t-test and χ² were used for comparison of CRP participation, age groups, marital status and educational level [35]. Statistical significance was set at 5% [33].

4. Results

4.1. Sample description

The age of the 200 women who participated in the study at baseline varied between 36 and 70 years (mean 60 years). 158 women (79%) were cohabiting, 146 (73%) had finished their education at secondary school level and 124 (62%) women planned to take part in a CRP. One year after the MI, 186 women took part in the study with a mean age of 61 years, 138 women (74%) were cohabiting, 138 (74%) of whom had secondary school level education, and 104 women (56%) had participated in a CRP. Four years after the MI, 153 women remained in the study. Their mean age was 63 years, wherein 105 women (69%) were cohabiting, 103 (67%) had secondary school level education, and 98 women (64%) had participated in a CRP at some stage during the 4-year period.

4.1.1. Social support and social network for all women

The results showed significant differences over time with regard to general support, support from relatives, and professional support. General support exhibited a significant difference during the 1- to 4-year period after the MI (p=0.007). Support from relatives showed a difference for the whole 4-year period (p=0.010). Professional support revealed a significant difference between the time of the MI and 1 year later (p<0.0001). This difference remained during the 1- to 4-year period after the MI (p<0.0001) (Table 1).
**4.1.2. Social support and social network related to women participating and not participating in a cardiac rehabilitation programme**

For those women who participated in a CRP, the result revealed significant differences both with regard to support from relatives and professional support. Support from relatives showed a significant difference for the whole 4-year period \((p=0.012)\). Professional support revealed a significant difference at the time of the MI and 1 year later \((p<0.0001)\) and during the 1- to 4-year period after the MI \((p=0.004)\). The result also showed a tendency towards a difference \((p=0.051)\) in respect of support from friends from the time of the MI to 1 year later. For those women who declined to participate in a CRP, the result showed a significant difference with regard to general support between 1 and 4 years after the MI \((p=0.024)\) as well as a significant difference in professional support for the whole 4-year period \((p=0.001)\) (Table 2). Participation in CRP was dependent on the women’s age, with a majority of participants belonging to the under 60-year-old group \((p=0.050)\).

**4.1.3. Social support and social network related to younger and older women**

For those under 60 years, professional support showed a difference for the first year after the MI \((p=0.009)\). Other types of support did not show any significant difference over time. For those over 60 years, general support exhibited a significant difference during the 1- to 4-year period after the MI \((p=0.037)\). Support from relatives revealed a significant difference during the whole 4-year period, especially during the latter part \((p=0.011)\). These women also reported differences in professional support for

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**Table 2**

Comparison in time and participating and non participating in a cardiac rehabilitation programme with regard to social support and social network in women with a first myocardial infarction in Western Sweden \((n=200)\)

<table>
<thead>
<tr>
<th></th>
<th>Participation in CRP</th>
<th>Non participation in CRP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z-Value</td>
<td>p-Value</td>
</tr>
<tr>
<td>General support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-0.735</td>
<td>0.462</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-1.732</td>
<td>0.083</td>
</tr>
<tr>
<td>Support from relatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-0.684</td>
<td>0.494</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-0.994</td>
<td>0.320</td>
</tr>
<tr>
<td>Professional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-1.948</td>
<td>0.051</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-0.840</td>
<td>0.401</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-1.154</td>
<td>0.248</td>
</tr>
<tr>
<td>Support from friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-4.028</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-2.863</td>
<td>0.004</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-1.798</td>
<td>0.072</td>
</tr>
</tbody>
</table>

Wilcoxon’s Signed Ranks Test; significant differences were in favour for the women with regard to increased social support and social network.

---

**Table 3**

Comparison in time and age with regard to social support and social network in women with a first myocardial infarction in Western Sweden \((n=200)\)

<table>
<thead>
<tr>
<th></th>
<th>≤ 60</th>
<th>&gt; 60</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z-Value</td>
<td>p-Value</td>
</tr>
<tr>
<td>General support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-0.945</td>
<td>0.345</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-1.733</td>
<td>0.083</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-0.497</td>
<td>0.619</td>
</tr>
<tr>
<td>Support from relatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-1.761</td>
<td>0.078</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-1.188</td>
<td>0.235</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-0.940</td>
<td>0.347</td>
</tr>
<tr>
<td>Support from friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-0.342</td>
<td>0.732</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-0.426</td>
<td>0.670</td>
</tr>
<tr>
<td>Professional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>-2.613</td>
<td>0.009</td>
</tr>
<tr>
<td>Between 1 and 4 years after MI</td>
<td>-1.027</td>
<td>0.305</td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>-1.674</td>
<td>0.994</td>
</tr>
</tbody>
</table>

Wilcoxon’s Signed Ranks Test; significant differences were in favour for the women with regard to increased social support and social network.
the whole 4-year period ($p=0.001$) but mainly during the first year ($p<0.0001$) (Table 3).

4.1.4. Social support and social network related to cohabiting and single women

For the cohabiting women, the result showed a significant difference in respect of general support between 1 and 4 years after the MI ($p=0.003$). Professional support exhibited significant differences during the whole 4-year period ($p=0.002$) but mainly during the first years following the MI ($p<0.0001$). For single women, a significant difference was found for the whole 4-year period following the MI with regard to support from relatives ($p=0.009$) (Table 4).

4.1.5. Social support and social network related to women with lower and higher education

Those women ($n=174$) with a lower level of education showed significant differences in respect of general support, support from relatives and professional support. For general support, the significant difference appeared between 1 and 4 years after the MI ($p=0.007$). Support from relatives showed a significant difference during the whole 4-year period but mainly between 1 and 4 years ($p=0.011$) while a significant difference was found for the whole 4-year period in respect of professional support ($p<0.0001$). For those ($n=26$) with higher-level education, no significant difference was found for any type of support during the 4-year period (Table 5).

Table 5
Comparison in time and education with regard to social support and social network in women with a first myocardial infarction in Western Sweden ($n=200$)

<table>
<thead>
<tr>
<th></th>
<th>Low education</th>
<th>High education</th>
<th>Z-Value</th>
<th>p-Value</th>
<th>Z-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General support</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>−1.773</td>
<td>0.076</td>
<td>−0.816</td>
<td>0.414</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>−2.684</td>
<td>0.007</td>
<td>−0.378</td>
<td>0.705</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>−0.584</td>
<td>0.559</td>
<td>−1.633</td>
<td>0.102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support from relatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>−1.349</td>
<td>0.177</td>
<td>−0.921</td>
<td>0.357</td>
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<tr>
<td>At baseline—4 years after MI</td>
<td>−0.183</td>
<td>0.854</td>
<td>−1.000</td>
<td>0.317</td>
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<td></td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>−2.549</td>
<td>0.011</td>
<td>−0.378</td>
<td>0.705</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional support</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—1 year after MI</td>
<td>−1.917</td>
<td>0.055</td>
<td>−0.986</td>
<td>0.324</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>−1.281</td>
<td>0.200</td>
<td>−0.851</td>
<td>0.395</td>
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</tr>
<tr>
<td>At baseline—4 years after MI</td>
<td>−0.220</td>
<td>0.826</td>
<td>−0.138</td>
<td>0.890</td>
<td></td>
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</tr>
</tbody>
</table>

Wilcoxon’s Signed Ranks Test; significant differences were in favour for the women with regard to increased social support and social network.

5. Discussion

5.1. Methodological issues

A study design can be scrutinised in relation to applicability, reliability, validity and accuracy. This study has a proper design and sampling as it was a prospective longitudinal study following women with a first MI during a 4-year period. However, as the questionnaire used has not been tested on a normal population or on any other patient group, the results should be treated with caution. Nevertheless, the results are important, as this is the first longitudinal study of women who have suffered their first MI that examines how their social support and network change over time as a result of CRP participation and in relation to age, marital status and educational level. The sample consisted of a consecutively chosen and homogeneous group of women, who lived in a well-defined area containing one-fourth of the Swedish population. A limitation of the sample was the 70-year age cut-off point. A higher cut-off point would probably have led to a greater number of participants, as women generally suffer their first MI 10 years later than men [5,6]. The drop-out rate was acceptable and understandable; <40% for the whole study period, mostly caused by the women’s lack of interest or death. Furthermore, the questionnaire, which was constructed for this study, was tested for reliability and validity. Internal consistency reliability of 0.63 measured by Cronbach’s $\alpha$ was acceptable for this newly established questionnaire [33]. Construct validity cumulatively explained 54%, which value is somewhat low [33]. An extension of the questionnaire to five items per factor would probably improve both internal consistency reliability and construct validity. The content validity of the questionnaire was ensured by the agreement between the specialist nurses, the literature reviewed [26,32] and the respondents. Furthermore, accuracy in terms of precision and conscientiousness was achieved by well-prepared nurse researchers, who systematically discussed the questionnaires with each patient both in conjunction with discharge from hospital and subsequent check ups. Finally, it is important to be aware of the fact that the analysis of this study was based on the patients’ own self-reported experiences and choices, which is the most important factor in their recovery, irrespective of the healthcare professionals’ views [36].

5.2. Result issues

Overall, the women perceived that social support, with the exception of support from friends, changed during the 4-year period following their first MI. This is consistent with the results of a qualitative study focusing on life after MI, which show that women are in need of support, especially professional support, leading to less uncertainty and improved health [37]. Other studies have also found that women with CHD lack adequate support from healthcare...
professionals during recovery and that support from considerate relatives, who listen, understand and are aware of their condition, is also lacking [38–40]. The present findings agree with studies showing that women need support for more than a year following an MI and that emotional belonging and appraisal support are the most important [41,42]. In the longer term, studies have shown that women with CHD require substantial support, in order to acquire a new perspective on life, overcome their worries and anxiety and to feel better physically [43].

This study shows that two thirds of the women participated in CRP at some stage during the 4-year period, which figure exceeds those previously reported [44–46]. The goal should be CRP participation by an even greater number of women, and one way to achieve this may be by repeated informational support from healthcare professionals. The fact that women are offered CRP does not necessarily mean that they avail of it, and it is important to acknowledge the distinction between referral and attendance [47]. Several studies performed during the 1990s demonstrate that women with CHD received less informational support than men in terms of different CRP alternatives [41,42,48]. In the present study, neither marital status nor educational level had any significant influence on CRP participation in comparison to a study carried out in the US, where women with a low level of education participated to a lesser extent [49,50]. About three-fourths of the women in this study were cohabiting during the whole 4-year period. Some women with CHD who have been married for a long time, i.e. 30 years and more, can experience more marital stress than men, which can result in a worse prognosis [51]. It is important for them to receive support and understanding from their family [51]. The cohabiting women in the present study showed no change with regard to support from family and friends during the 4-year period, which is in line with the results from the Stockholm Female Coronary Risk Study, indicating that married women perceived lower appraisal support as well as lower tangible support [52]. However, the age of the women seems to be of significance, as more women under the age of 60 took part in CRP than those aged over 60. The present study also shows that support from relatives changed, becoming increasingly important over the course of the 4-year period, while professional support primarily increased in importance during the first year following MI for women who participated in CRP. Studies carried out in the US show that increased support from relatives and friends and the availability of transport are necessary in order for more women with CHD to continue attending cardiac rehabilitation after hospital discharge [50,53]. However, other studies [49,54] have found that social support is no predictor of CRP participation.

The women who declined participation in a CRP expressed a need of professional support during the whole 4-year period. It is of the utmost importance that nurses assist the women and their relatives to become aware of emotions such as guilt and shame about feeling weak, which may also contribute to non-participation in CRP [55]. Furthermore, it is not unusual for women with CHD to care for others without thinking of their own health, while at the same time having little opportunity for pursuing leisure activities and achieving recovery [56]. Professional support is defined by Stewart [57] as listening, seeing and showing interest as well as creating social networks. The health service should be able to offer these women such support in order to increase CRP participation, thus reducing the need for other forms of professional support. Another way of motivating more women to take part in CRP is to inform them about so-called peer support groups, the activities of which are aimed at influencing lifestyles and quality of life. People with CHD who had participated in a peer support group reported better informational and professional support as well as increased support from relatives and friends 1 year after an MI compared with non-participants [58].

6. Conclusion and implications

This Swedish longitudinal study of women who suffered their first MI revealed a positive change during the 4 years following MI in terms of support from relatives as well as general and professional support. The women who participated in a CRP were mainly dependent upon professional support during the first year after MI, while those who declined participation needed professional support throughout the entire 4-year period. Participation in a CRP can therefore increase independence and the ability to cope with life following MI. The participation rate was related to age but not to marital status or education. These findings indicate that today’s CRPs are not sufficiently adapted to women. There is a need to develop CRPs that are specifically designed for women based on age and family relationships in order to better satisfy their need of emotional support, material support and support from friends. Another way of developing professional support in CRP for this group of women is by using IT to create a direct encounter between patient and nurse by means of sound and image, which allows the nurse to assess the patient’s condition. Therefore, the nurse will be in a better position to improve not only the medical care but also the emotional and informational support offered to women. Accordingly, nurses’ training programmes should place greater emphasis on CR from the perspective of women with CHD in order to improve professional support. There is a need for qualitative studies to investigate women’s perceived and actual support as well as what type of support they would like to receive after MI, followed by a randomised intervention based on these findings. In addition, the instrument would need to be further improved with regard to some low validity and reliability figures and for this reason caution has to be taken when generalising the results.
Acknowledgements

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Factors influencing female patients’ recovery after their first myocardial infarction as experienced by cardiac rehabilitation nurses

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ABSTRACT

Background: In the developed part of the world, coronary heart disease is the major cause of death and is one of the leading causes of disease burden. In Sweden, more than 30,000 people per year are affected by myocardial infarction and out of these approximately 40% are women. Nearly 70% of the women survive and after a myocardial infarction a recovery process follows. Today’s health care focuses more on treatment, symptoms and risk factors than on the individuals’ perceptions of the recovery process. Aim: To explore cardiac rehabilitation nurses’ experiences of factors influencing female patients’ recovery after their first myocardial infarction. Methods: Twenty cardiac rehabilitation nurses were interviewed. The study was conducted using qualitative content analysis. Results: The cardiac rehabilitation nurses experienced that women’s recovery after a first myocardial infarction was influenced whether they had a supportive context, their ability to cope with the stresses of life, if they wanted to be involved in their own personal care and how they related to themselves. Conclusions: Women’s recovery after a myocardial infarction was influenced by factors related to surroundings as well as own individual factors. The underlying meaning of women’s recovery can be described as the transition process of a recovery to health. Our findings suggest that a focus on person-centered nursing would be beneficial in order to promote the every woman’s personal and unique recovery after a myocardial infarction. Finally, the cardiac rehabilitation nurses’ experiences of factors influencing male patients’ recovery after their first myocardial infarction should be important to investigate.

Keywords: Cardiac Rehabilitation Nurses; Myocardial Infarction; Recovery; Transition Process; Women

1. INTRODUCTION

In the developed part of the world, coronary heart disease (CHD) is the major cause of death and is one of the leading causes of disease burden [1]. Myocardial infarction (MI) has long been seen as a male disease despite the fact that it is also a health problem for women [2]. In Sweden, more than 30,000 people per year are affected by MI and out of these approximately 40% are women. Nearly 70% of the women survive [3] and after an MI a recovery process follows [4].

European guidelines on cardiovascular health care emphasize the inclusion of secondary prevention [5]. It is important to note that secondary prevention care after an MI has not improved during the last 15 years at the same rate as acute MI care [6]. One reason could be that research and health care focus more on treatment, symptoms and risk factors and not on the individuals’ perceptions of the recovery process after an MI [4]. Today’s health care requires both preventative and health promotion interventions which emphasize that it is no longer enough to focus only on curing and alleviating disease [7]. A central part of secondary prevention is cardiac rehabilitation programs [CRP] in order to improve quality of life among patients [8]. The goals of CRP are to reduce the risk of relapse, promote lifestyle and health behaviour changes as well as to facilitate the patients’ recovery [3,5]. Research has shown that participation in CRP promotes patients’ health and quality of life as well as preventing new cardiac events [9]. However, women
do not participate in CRP to the same extent as men [10, 11]. Women’s life situation after an MI is more likely to be affected negatively as they are, to a greater extent, more concerned about new cardiac events [12].

The concept of recovery can be defined in different ways depending on in which context, profession and culture it is used [13]. Recovery and rehabilitation are often used interchangeably [3], even though there is a distinct difference between them. Slade and Hayward [14] describe that recovery includes both personal recovery and clinical recovery. Clinical recovery, as well as the rehabilitation, focuses upon the reduction of symptoms and increased levels of functioning, which are more in line with the professional perspective [14,15]. Personal recovery can be seen as a multidimensional process [15] and as each person’s unique journey [14,16,17]. This unique journey is about the individual’s ability to adapt to the new situation after a disease and at the same time to have the power to develop their own new life situation. The person needs to have the opportunity to choose different ways in the recovery process in order to gain health [14,16,17]. Research on recovery and MI, shows that patients and health care professionals describe recovery as an on-going and enduring process that includes learning to adapt to a new life situation [18]. Women, despite illness, describe recovery after an MI as a gradual and personal process in which they face challenges with a combination of strengths, weaknesses and available resources to gain health [19].

A cardiac rehabilitation nurse [CRN] is an expert in both health promotion and in illness prevention [20]. In addition to an adequate knowledge of cardiology and cardiovascular nursing, a CRN has a central role in CRP [20,21]. However, empirical studies concerning nurses’ experiences of women’s recovery after a first MI are rare. Most previous research focuses on recovery from the women’s and their partners’ point of view [12,22-30]. Since CRNs meet many women who have experienced an MI, their experiences of the women’s recovery process may be an important complement in the daily work to support counseling female patients through their recovery process after their first MI. Accordingly the aim of the study was to explore cardiac rehabilitation nurses’ experiences of the factors that influence female patients’ recovery after their first MI.

2. METHODS

2.1. Design and Setting

The study had an explorative and descriptive design based on qualitative content analysis [31]. The interviews were carried out between April and December 2010 at 10 different hospitals (4 university, 3 county and 3 district hospitals) in Sweden. The heads of the cardiology departments were contacted and asked to give permission for cardiac rehabilitation nurses to participate in the study. All 10 Heads gave their approval and forwarded the names of the CRNs who met the inclusion criteria.

2.2. Participants

The inclusion criteria were CRNs, who were actively working with comprehensive CRPs in which physical training, education, risk factor modification, medical checks-ups, pharmacological treatment, psychological support and counseling, as well as vocational rehabilitation were included. The CRNs also had to be members of a multidisciplinary cardiac rehabilitation team (e.g. cardiologist, nurse, and physiotherapist) and fully understand, read and speak Swedish. Twenty-one CRNs were informed and asked to participate by the main author (IW), only one declined; due to time constraints. All CRNs were females and ages ranged between 28 and 65. The time having worked in cardiac care was between 4 and 25 years and between 2 and 23 years within cardiac rehabilitation.

2.3. Data Collection

Data was collected through interviews conducted and recorded by the main author (IW). The main author phoned the CRNs and asked them to choose a place and time for the interview. All interviews were conducted at the informants’ work place. Four pilot interviews were conducted, which then were included in the analysis. The interviews started with an open main question: “What do you think when you say women’s recovery after a first myocardial infarction?” In order to reach depth in data follow up questions such as “What do you think when you say…?” and “Can you explain more about…?” were asked. The interviews lasted between 35 and 75 minutes. All the interviews were transcribed verbatim.

2.4. Data Analysis

Data was processed by the main author, in collaboration with the co-authors, using qualitative content analysis which consists of several analysis steps as described by Graneheim and Lundman [32]. The interviews were read through several times to become familiar with the text. Meaning units that were related to the aim of the study were placed in an analytical matrix. These meaning units were then condensed without losing the core of the content. In the next analysis step, the condensed meaning units were abbreviated to codes. These codes were compared, based on differences and similarities, and 12 subcategories were created forming 4 categories at a manifest level. Based on the content of these categories an overall theme emerged, which expressed the latent mean-
ing of the content (Figure 1) [32].

2.5. Ethical Consideration

The ethical principles of the study were according to the requirements of the world medical association declaration of Helsinki [33] and the heads of the cardiology departments have approved the study. After the participants were fully informed, both verbally and in writing, of the aim of the study and the voluntary nature of participation, as well as the possibility of withdrawing, an informed consent was obtained.

3. RESULTS

3.1. Being in a Supportive Context

This category described that CRNs’ experiences that women’s opportunities to receiving support could either help or hinder the women’s recovery process. A major requirement for recovery was access to a good social network, where family, relatives, peers and friends had a supportive attitude, as well as support from health care and workplace.

The newly found situation involved not only the woman, but the whole family so therefore it was important how the support from the family was. The women, who had a functioning family life, where they felt safe and harmonious, generally recovered more easily. “The family, home, and how they have it at home, has an impact” ... (n3). It was important that the female’s partner was actively involved in the recovery process, as well as a well-functioning dialogue between family members. Interaction with children and grandchildren could distract the women from having negative thoughts. In cases where the children helped with practical things also created better possibilities for the women to recover. Likewise, when the family took into account, that it is not always the woman, the mother, who has to do everything in the

Figure 1. Illustration of the transition process to the recovery to health through theme, categories and subcategories.
family, this influenced the woman’s recovery in a positive way. However, the women’s recovery was negatively influenced when they lacked support from their families as well as unsympathetic partners and family members who, neither understood, nor took into account the new situation. Many women, I’ve heard this many times by women who say that “Yes, but you were in hospital for four days, now you’re all right. What is wrong with you”? (n1). The families did not take time to listen, but instead, perceived the women as somewhat whining. Furthermore, they wanted everything to work in the home as before and desired the traditional female role. The women had more difficulty to implement the necessary recommended lifestyle changes. However, women became passive, especially in cases where women were overprotected by their family and were not allowed to do any daily work or exercise at all; which did not help the recovery process.

Support from work where the women were given possibilities to participate in various rehabilitation groups during working hours affected their recovery positively. “... it all depends on... what they are working with. Large companies often let them go, but small, private companies, where they often do not have many employees, therefore more dependent upon staff, where it is a little harder to take one afternoon off a week ...” (n3).

The women’s recovery was facilitated when employers arranged more regular working hours and less planned overtime.

Regarding support from people with the same experience, it emerged that women usually experienced great gains when they met others in the same situation in the rehabilitation groups. “I’ve heard women say that really, to meet other women in the same situation is better than the entire health care! So it is of great importance” (n2). Friendships developed, for example at the exercise training during the months the group members met, which led the women to continue to meet and exercise together, share experiences and support each other, after the initial group training period had come to an end. The women emphasized the importance of meeting people who understood their situation which was perceived as an additional support, something that made them realize that they were not alone.

Concerning support from female friends, it became evident that women willingly spoke more to their friends than to their partners when it came to their innermost thoughts and their situation. “And then women have more than men, good friends who support each other, I am sure we can say ...” (n13). Since emotional support was important for the women with regard to recovery, it was important that there were female friends around when needed.

Support from healthcare professionals deals with counseling and support during the women’s recovery process. This involved: having an experienced nurse to turn to, having confidence and assurance in the nurse, as well as, continuity of care. The CRNs, as well as the team’s approach, were also important in regard to the women’s recovery. “The fact that we also provide support, that they can call us and get adequate and accurate answers to their, all the questions they have... that we have the expertise, that we have faith to give a correct answer. Both in medical terms, and to be able to encourage and help them when attempting to quit smoking…” (n11). The women’s recovery was also influenced when the nurses managed to get the women: motivated to exercise, to be aware of both their risk and health factors which resulted in the women feeling better and stronger after visiting the nurse. Even physical training, under supervision, gave the women security which stimulated them to do more physical exercise. Likewise, medical assistance was of great importance. Their recovery was also affected by them knowing that they were prescribed the appropriate medication, and that the physician spoke about what they should or should not do.

3.2. Coping with the Stresses of Life

This category described the CRNs’ experiences of that the women’s recovery was influenced by their ability to cope with the stresses of life such as: concerns for themselves and returning to work, the fear of dying and not doing enough for the family. Furthermore, the CRNs described that women’s recovery was affected by whether the woman had: a socially vulnerable situation with high demands, lack of finances, additional diseases and intensive treatments, as well as, whether they had experienced previous severe life events.

Regarding the feeling that life is threatened, it became clear that the women’s recovery was affected by the fear of dying and of being inadequate. The women admitted to keeping a closer watch on their own physical and mental symptoms which contributed to them noticing everything that felt different within the body compared with before. “There are ... many who talk about ... that they have, indeed a fear that it will happen again.” (n3). These thoughts came in the evening when it was quiet; therefore, sleeping habits could be adversely affected. Not infrequently, women had difficulty formulating their concerns into words and they avoided any discussions that they had been close to death. Instead, they had a need to dwell upon what had happened, to digest their new situation, in order to be able go forward in the recovery process. The women also had concerns about sexuality, and there were women who did not dare to have sexual intercourse as they were afraid that something could happen to the heart. The concern could also
be about the fear of being sexually inactive and that inactivity and loss of desire would be permanent. Furthermore, it was also found that women were concerned about how the family would manage, now that they had suffered from ill health and could not cope with everyday tasks in the same way as before. “But it also seems like there is much concern for ... for the family ... usually the first ... you could say the first three or four months” (n1). Even the thought of returning to work concerned the women. Work could be experienced as difficult, both physically and mentally. “Obstacles to recovery, that is, I often have the feeling, those who are working, they will have the same amount of stress, they often say, as before. What will happen?” (n7). Many times, the women wished to have a longer period of sick leave in order to have time to their recovery.

Coping with stresses in life was affected by whether the women had an exposed social situation. The women’s recovery was influenced by earlier completed traumatic life events, such as: abuse, divorce, serious illness within the family and death. “The fact that women have, quite often, experienced some rather severe life events which surface again when you have a heart attack. Yes, something from the past that you think you have got over, but it still pops up in your head, in connection with a heart attack. It can be anxiety, anguish; therefore, it becomes a tougher time before they recover.” (n14). Furthermore, it was also found that there were women who stated that they already had a reduced work capacity, due to illness, resulting in a partial or full disability pension. This could be an additional burden that affected their recovery after an MI. Previous mental illness, depression and the onset of depression during the recovery phase also contributed to the fact that some women often declined to participate in CRP. “If you have experienced a breakdown in the past or suffered from depression; you are, of course, more vulnerable” (n14). Another factor that affected the women’s recovery was which stage in life the women were in. The older women accepted, more easily, their illness, which they associated with age. They were not as easily affected by stress and often put more time and effort on lifestyle changes than younger women. Elderly women had more time and used it well, walking, as well as planning the purchase and cooking of healthy nutritious food; which made the recovery easier. Younger women who worked and had young children did not have time to think and act this way.

Moreover, women who have had Coronary Artery Bypass Surgery [CABG] had more often a longer and tougher recovery period than women who underwent Percutaneous Coronary Intervention (PCI) or any other intervention, in connection to their MI. This was the reason why they felt fatigued and could not face up to current situations in the same way as the women who had undergone PCI. Even certain drugs and their side effects affect the women’s daily life in a negative manner.

Furthermore, the women’s social situation with poor finances and a lack of time, regardless of age, contributed to the fact that they did not have the opportunity to focus on themselves and their own situation. This is a reason why the women did not participate in CRP, which also affect their recovery process. “You can be on low income, perhaps a single parent, you are struggling financially and you become sick too. Yes, things like that.” (n16). The women, intellectually, understood that CRP group meetings would be important to their recovery, but regardless of how hard they tried to plan their lives, there was a lack of time and money.

3.3. Wanting to Be Involved

This category described the CRNs’ experiences of how the women’s recovery was influenced by their interest and desire to know how they, themselves, affect their new life situation and make sure that they prioritized themselves.

The women’s recovery was affected by their own interest of information with regard to the desire to know of risk and health factors, and understanding what exactly an MI was and what they should think about in the future. “The experience is that women are more interested in finding out, getting knowledge than men. They have more questions and concerns and it feels like they care more” (n4). They wanted to learn about the importance of diet and exercise in order to recover, how their prescribed drugs worked and about the body’s normal physical and mental reactions. When the women had many questions concerning their new life situation, the new-found knowledge gave them a certain security. CRPs, which lasted for four to five weeks, gave them the opportunity to take in the knowledge gradually. The more information the women took in, the higher was their chance to recover.

Through the women’s involvement in their care, the awareness of their own capacity was strengthened and led them not to see themselves only as “sick persons”. They realized that they should be in charge of their own lives; therefore, changing their present situation into something better, which also led to a part of their recovery, “That you gain an insight into your illness and that you can accept this and get an understanding of what it implies” (n12). Likewise, when the women did group physical training, they became aware of what they managed without getting chest pain. This meant that they became less worried about straining themselves physically when they were on their own.

Regarding willingness to change, it was described that
many women were interested in getting help and support in order to change their lifestyles, and therefore, prioritizing participation in various CRPs. The women, who went to CRPs, were motivated to learn new things regarding: diet, exercise, medications, and just what research revealed concerning health factors; which helped in the recovery. “Women change their diet, exercise habits and weight” (n15). Women were particularly keen to change their diet. Those, who found it easy to get started with physical training, recovered more quickly. Women, who relatively quickly went back to work, possibly only part-time, and those who tried to change their work situation to prevent negative stress, generally recovered more quickly than women who continued to be on sick-leave. To effectively implement the changes in life was easier for the women who lived a somewhat carefree life when they fell ill and had a supportive family.

3.4. Relating to Yourself
This category highlighted the CRNs’ experiences of that women’s recovery was influenced by the way they related to themselves.

Regarding the feeling of shame and guilt, it emerged that there were women who expressed embarrassment over, both their smoking habits, and their overweight. They expressed an intention to stop smoking but they had relapsed and returned to their comforting smoking habits, which created a feeling of guilt. Not infrequently, they ended their participation in the CRPs which could affect their recovery adversely. Women also felt ashamed and guilty that they had fallen ill in the first place. “Women make themselves feel guilty ... I should not be doing this ... How did this happen? I should have foreseen” (n19). There were also women who felt guilty that their recovery took such a long time. These women needed to receive help to think through their life and work situation before they could continue their recovery.

The women’s approach to life could affect their recovery. The women who had a positive attitude experienced, in general, less anxiety than those with a pessimistic attitude. “It is individual how you recover. It depends on what kind of personality you have ...” (n13). Even women, who had to have total control over their home situation, and thought that everything would work as it always had done, otherwise their world around them would collapse, usually had difficulty in recovering. Having to be perfect was a common feature of these women. These women did not allow themselves to be sick and prioritized others before themselves; therefore, hampering their own recovery. “When it comes to women so maybe ... they have to fix it by themselves ... They must be the strong one in the family in some way, they do not have time to be sick and it could be the career. Such things influence” (n12). Furthermore, there were women who had difficulty accepting their illness. They had difficulty in seeing themselves as sick and did not understand the onset of the illness; despite the many risk factors. The women with a more positive outlook on life changed their lifestyles when they now had got a second chance. They expressed that they had been given a new lease of life; thanks to: a deeper understanding of their first MI, an altered diet, new exercise habits, and their letting go of certain everyday demands. However, there were women who reported finding it challenging to relax their demands on themselves regarding the performance of everyday tasks.

4. DISCUSSION
The CRNs experienced that women’s recovery after an MI was influenced by factors related both to their surroundings as well as by their own factors. The underlying meaning of the women’s recovery can be described as: the transition process to the recovery to health. This transition process agrees with Schumacher and Meleis [34] interpretation of the concept “transition” as a profound inner process that influences the whole person and implies a new appreciation of life. The transition process to the recovery to health of the women, according to the CRNs’ experiences in this study, depended on the women’s ability to cope with the new life situation, as well as if they wanted to be involved in their care and were interested in increasing their knowledge of their illness and their treatment options. The transition process also depended on whether they had a positive approach to life and if the women had a good supportive context. This is in line with Meleis et al. [35] who describe that transition requires that a person has the ability to absorb new knowledge, change their behavior and thus the definition of self. It is important that CRNs are aware, that transition after an MI is a personal journey; so therefore, nursing should be person-centered in order to promote the women’s unique recovery. Thus, CRNs should not put a time limit for the transition period because there are critical points and events which can affect the transition process [35]. An essential requirement for recovery for the women was access to support from their surroundings such as family, relatives, friends, and workplace as well as from other women with the same experiences. The women’s recovery was, however, influenced negatively when they lacked support from their families. This indicates that it is important that families receive support from health care professionals in order to have the strength to give support to the ill person, which is confirmed by Ziegert [36]. The results even show that the women wanted counseling and support from the health care professionals during their recovery process. This is
supported by Meleis et al. [35] who describes that confirmation, counseling and feedback are presumptions in order to get a successful transition to health. Earlier research has shown that the length of time of recovery for women, who received support from health care professionals throughout CRP, was shorter than for women who did not receive this support [37]. Therefore, it is essential that the CRNs support the women both in their clinical and personal recovery [14,16,17,19] and give the women the opportunity to an individually designed secondary prevention. Support from their surroundings, gives the women an opportunity to share their thoughts and gives people an understanding for the women’s new situation. Women also need to share their thoughts with people with the same experience. The importance of peer support for women is well-known in research [38,39] where women describe that peer support gives them valuable experiences when they have the opportunity to share their feelings with other women. This indicates that peer support is an essential intervention in order to promote the women’s recovery. Thus, the CRNs are faced with the challenge of how to best organize and integrate peer support interventions into the usual health care.

The results show that the women’s recovery was influenced by the fear of dying and the feeling of not being adequate, which is confirmed in earlier studies [12,18,19,22,40]. Fears of dying in our results show that the women felt anxiety and were afraid of suffering another MI. These findings correspond to earlier studies that indicate that women with MI can experience this worry and anxiety; especially during the first four months [12,19,22,40,41]. Therefore, it is important that CRNs meet the women’s needs and discuss their concerns so that the anxiety does not become pathological and negatively interfere their ability to recovery for a longer time. Furthermore, sexual concerns seem to induce worry and anxiety for the women. In Arenhall et al.’s study [42] male partners experienced that their partner was more fragile after an MI, which could result in male partners becoming more hesitant when it came to sexual intimacy. Research has shown that knowledge regarding sexuality after an MI is poor for both male and female patients. In fact, females have even lesser knowledge in comparison to males [43]. CRNs’ knowledge and counseling, related to sexual issues, can play a key role: both in a supportive manner as well as impeding women to feel safe to talk about sexual concerns during their recovery process. Therefore, CRNs need both knowledge and specific education in order to provide counseling and support when addressing sexual issues [44-46].

Other factors that affected the women’s ability to cope with their new life situation were whether the women had a socially vulnerable situation i.e. poor finances and lack of time. These factors, regardless of the women’s age, contributed to the fact that they did not have the opportunity to focus on themselves and their own situation. This could be one of the reasons why the women do not participate in CRPs, which is also underlined in others studies [12,22]. Research has also shown that acute cardiac care, where both male and female patients from lower income groups did not undergo intervention as often as high earners; is a fact which affected their recovery [47]. Therefore, nurses must attach importance to being aware of socio-economic disparities when it comes to having access to both acute care and secondary prevention [48]. To address the barriers related to the access to secondary prevention, due to e.g. poor finances and place of residence, new innovative methods such as mHealth and eHealth need to be developed [49,50]. As peer support seemed to be important for women’s recovery [38,39], support by telephone or internet from peers may provide sufficient support for women who for some reason are isolated and not able to attend CRPs at hospitals [51]. As research even has shown that eHealth has been suggested as a potential solution for health care professionals to connect to patients who not are able to participate to CRPs at hospitals, it is important that the nurses develop new innovative digital methods regarding eHealth for patients [52]. In addition, the development of digital CRPs present particular challenges as these services should be accessible to all patients in order to promote a more equitable care. This is important as low socio-economic status has been shown to be associated with increased heart disease incidence and mortality [24,53].

The results show that women’s recovery was influenced by their interest and desire of knowledge of how they, themselves, could affect their new life situation and how they prioritized themselves. If the women learned that they should not see themselves as ill and that they could take control of their lives by changing their situation into something better; the recovery process was affected positively. The individual recovery process is about learning to live with the changes that an MI entails [18,19,34], as well as a high degree of involvement in, and knowledge of, your own care. All this promotes a successful personal transition process [34,35]. Research shows that if patients are involved in their own recovery process it leads to better results of the treatment, and to a higher degree of satisfaction regarding the care [54]. It also shows how important it is that CRPs strive to care for the relationship with the patient, as research has found that the quality of the nurse-patient relationship is of great importance for the patient’s involvement [55]. Many patients have expressed the wish to have more involvement in the MI-care; certainly more than they are offered at present [56]. Therefore, this requires that the nurses encourage the patient to be involved in her own
process of recovery as well as nurses are aware of people’s different needs for tailored information to gather knowledge [57,58].

Furthermore, the results show that CRNs experienced that the women expressed embarrassment and feelings of guilt over their lifestyle and that they had fallen ill. They expressed an intention to stop smoking but many relapsed into their comforting smoking habits, often ending their participation in the CRPs and then were left with a feeling of guilt that their recovery had taken such a long time. The result of guilt due to illness also corresponds to earlier research [40]. It is important that CRNs acknowledge the women’s attempt to change their life situation and not to blame them if they do not succeed. If the women feel ashamed of their lifestyle and that they suffered a first MI, it will not lead to empowerment, but to the opposite. Results even show that women, who have to have total control over their home situation, usually experienced difficulty in recovering. The pressure of being perfect was a common feature of these women who did not allow themselves to be sick and put themselves last therefore, hampering their recovery. Research describes that it is common that women, during their recovery process, still continue to be responsible for much of the work at home; including keeping in contact with relatives and friends [28]. Schumacher and Meleis [34] describe that persons who can handle their new life situation regarding surroundings and who can manage the demands of the new situation promotes their transition more positively than those who cannot. Therefore, this suggests that the women’s difficulties in letting go of the household chores to their partner does not depend on their partner’s incompetence but because women want to keep their matriarchal gender role [28,29]. Worth noting is that CRNs, in this study, did not highlight women’s stress as a factor affecting women’s recovery, since earlier research shows that stress is a major factor for MI [12,38].

Methodological Consideration

In order to increase the variation in the material a qualitative content analysis was chosen [32]. The purposive selection of cardiac rehabilitation nurses, who have different experiences (age, different working experience in cardiac care, different hospitals) of female patients’ recovery, increased the potential for achieving rich variation of the phenomenon under study, which strengthen the credibility but among the respondents there were no male CRN and this could limit the credibility of the study. Qualitative interviews with the same main questions were deemed suitable for catch the aim. The follow-up questions allowed the CRNs to reflect and expand their views on the factors that influence female patients’ recovery after their first MI. Another aspect of credibility in the present study was seeking agreement between the authors, how well the codes, categories and the theme covered the data. The authors worked both individually and together during the analysis process until a consensus was reached. Likewise, if the chosen quotations reflect the content of each category, it offers the reader an opportunity to determine the credibility of the study [32]. To establish dependability frequent discussions and a continuous dialogue among the authors took place so that our standpoints concerning differences and similarities of content were consistent over time [32]. The results could be of interest from the transferability perspective, as the CRNs’ experiences can be useful in cardiac clinical nursing as a contribution to the ongoing discussion and improvement of nursing care connected with female patients’ recovery after an MI [32].

5. CONCLUSION AND IMPLICATION

Cardiac rehabilitation nurses experienced that women’s recovery after an MI was influenced by factors that were both related to their surroundings as well as by their own individual factors. The underlying meaning of women’s recovery is characterized as the transition process for a recovery to health. This transition process is influenced by the women’s ability to cope with the new life situation, if they wanted to be involved in their care, if they had a positive approach to life, as well as, if the women had a good supportive context. Our findings suggest that a focus on person-centered nursing would be beneficial in order to promote the every woman’s personal and unique recovery after an MI. The present study also emphasizes the importance of how new innovative digital methods could be developed in order to face the barriers related to the access to CRP and increasing its accessibility, in order to meet different patients’ needs. These findings also raise questions about the women’s own attitudes and experiences of how their recovery is promoted in the MI care. Finally, the CRNs’ experiences of factors influencing male patients’ recovery after their first MI should be important to investigate.

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Women’s experiences of how the recovery process is promoted after their first myocardial infarction

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Abstract

Background: After a myocardial infarction and discharge from the hospital a recovery process follows for the women. In order to facilitate their recovery, both a preventive and promotive perspective should be taken into consideration. Despite this, today’s healthcare focuses more on prevention and thus research into the promotion of women’s recovery process is needed.

Aim: To explore how women’s recovery processes are promoted after a first myocardial infarction

Methods: The study had an explorative and descriptive design based on qualitative content analysis.

Findings: The women’s recovery process was promoted through using external and internal resources as well as embracing behaviour, social and psychological dimensions. The women embraced these dimensions to a varying extent and this process led to them being able to take in a new perspective on life.

Conclusions: The women’s personal recovery is a multidirectional process with a desire to develop and approach a new perspective on life. It is important for cardiac rehabilitation nurses to not only focus on lifestyle changes and social support, but also on working actively with the women’s inner strength in order to promote the personal recovery of the women. Furthermore, it would be interesting to investigate men’s experiences of how their recovery process after a first Myocardial infarction is promoted.

Keywords: myocardial infarction, promote, qualitative content analysis, recovery process, women
Introduction

Coronary heart disease (CHD) is the major cause of death and disease burden among women in the world (1). In Sweden, more than 10,000 women annually are affected by a first myocardial infarction (MI) and approximately 70% of them survive (2). A recovery process for the women follows discharge from a hospital (3) and the impact of the MI as well as the support from healthcare professionals influence this process (3, 4). In order to facilitate their recovery, both a preventive and promotive perspective should be taken into consideration (5). To change from a focus on prevention to one on factors that can strengthen the individuals’ own health brings new challenges for nurses in clinical practice (6-8).

The concept of recovery can be defined in different ways depending on context, culture and profession (9). Some ambiguity exists about its definition (10) and despite there being clear distinctions between recovery and rehabilitation they are often used interchangeably in healthcare (3). Slade and Hayward (10) maintain that recovery includes both clinical recovery and personal recovery, where the former corresponds to rehabilitation and a professional perspective focus on reducing symptoms and improving functioning (10,11), while personal recovery is seen as each person’s unique journey (10,12,13) and a multidimensional ongoing holistic process of health (11).

Previous research into women’s experiences after an MI has focused on their daily lives and the interruptions and limitations that are caused (14-17). Other studies that have had a recovery perspective have primarily focused on single aspects of the recovery process e.g. cardiac rehabilitation program (18), patient education (19), health behaviour changes (20) and intimate relations (21) but not on the women’s whole life situation. A meta-synthesis of women’s recovery (22) concluded that the recovery process is experienced as complex where they have to cope with the tension between being oriented towards one self and towards others. Recovery is described by the women as a gradual and personal ongoing process that includes learning to adapt to a new life situation (23). Two studies with different perspectives have shed further light on the recovery process for women. In one study they themselves spoke of it being promoted by changing priorities, receiving good care, making lifestyle changes and taking more care of self and others (24), while other healthcare professionals saw the process as being influenced by both the women’s surroundings as well as individual factors (25). Overall there is a paucity of research into contributory factors for promoting recovery and thus the aim of this study was to explore how women’s recovery process is promoted after a first Myocardial infarction.

Methods

Design and setting

The study had an explorative and descriptive design based on qualitative content analysis with an inductive approach to gain knowledge and understanding of the investigated phenomenon
(26). The interviews were carried out between April and December 2010 at ten geographically distributed hospitals (4 university, 3 county and 3 district hospitals) in Sweden.

**Participants**

The inclusion criteria were women suffering a first MI during 2009, participating or not participating in cardiac rehabilitation (CR), being able to understand, read and talk the Swedish language. Rehabilitation nurses at the 10 hospitals asked those who met the criteria whether they were interested in being informed about this study. The first author contacted the 28 women who accepted the invitation by telephone, 26 agreed and two declined due to time constraints (see table 1). Agreement was made with each of the 26 women about a time and place for the interview.

Table 1. Socio-demographic data of women (n=26)

<table>
<thead>
<tr>
<th>Age (mean; range)</th>
<th>(60; 45-74)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>8</td>
</tr>
<tr>
<td>Secondary school</td>
<td>11</td>
</tr>
<tr>
<td>University</td>
<td>7</td>
</tr>
<tr>
<td><strong>Living situation</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>5</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>21</td>
</tr>
<tr>
<td><strong>Place of residence</strong></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>17</td>
</tr>
<tr>
<td>Rural</td>
<td>9</td>
</tr>
<tr>
<td><strong>Participating in cardiac rehabilitation</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
</tr>
<tr>
<td><strong>Work situation before and after first myocardial infarction</strong></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>3/3</td>
</tr>
<tr>
<td>75 %</td>
<td>0/3</td>
</tr>
<tr>
<td>100%</td>
<td>15/9</td>
</tr>
<tr>
<td>Unemployed</td>
<td>0/1</td>
</tr>
<tr>
<td>Disability pension/Retired</td>
<td>8/10</td>
</tr>
</tbody>
</table>

**Data collection**

Data was collected through interviews, conducted and recorded by the first author (IW), 13 by telephone and 13 face to face in an undisturbed place in the women’s homes, at the hospitals or the first author’s place of work. All interviews were carried out 7 – 12 months after the women’s acute MI. The interviews started with an open question “Can you describe what a typical day looks like now after the MI?” followed by the main question “What do you think has promoted your recovery?” In order to attain depth in data follow-up questions such as “What do you mean when you say…?” and “Can you explain more about...?” were asked. Two pilot interviews were conducted in order to test the opening questions and these
interviews were included as no amendment was required. The audio-taped interviews took the form of a dialogue (27), lasting 45-85 minutes and were transcribed verbatim.

**Ethical consideration**

The Regional Ethical Review Board in Linköping (2007-06-12, Dr. No 104-07) approved the study, which adhered to the requirements of the Declaration of Helsinki (28). Informed consent was obtained after the participants were fully informed, both verbally and in writing, about the aim of the study and the voluntary nature of participation, as well as the possibility of withdrawing. The heads of the cardiology departments approved the study.

**Data analysis**

Data was processed by the main author, in collaboration with the co-authors, using qualitative content analysis, where the manifest content (what the text says) and the latent content (the interpreted meaning) were analysed in accordance with Graneheim and Lundman (29). The interviews were read through several times to gain familiarity and meaning units related to the aim of the study were placed in an analytical matrix. These were then condensed without losing the core of the content. In the next step, the condensed meaning units were abbreviated to codes that were compared, based on differences and similarities, and 9 sub-categories were created forming three categories on a manifest level. Based on the content of these categories an overall theme emerged (Figure 1), which expressed the latent meaning of the content (29).

![Figure 1. Illustration of the recovery model with theme, categories and subcategories.](image-url)
Results

Approaching a new perspective on life

In the women’s recovery process they approached a new perspective of life by using external and internal resources to varying extents as well as in different situations. External resources included families, friends, work, institutional settings and environmental factors (place of residence, work situation, access to gym and access to nature). Internal resources included own empowerment, courage, communication and motivation to actually do things. The women’s ability to approach a new perspective on life depended on how they embraced different dimensions; behaviour, social and psychological dimensions. The behaviour dimension concerned engagement in activities both privately and professionally to promote recovery. The social dimension concerned how women in their social environment both received and gave support but also experienced reciprocity in their relationships to people in the social network. The psychological dimension included their way of thinking, reflecting and appreciating life. By embracing these dimensions to varying extents their good mood had returned as well as their belief in a long life. The women integrated a new perspective, which included enjoying and valuing small things in life, valuing the good moments in everyday life and not taking everything for granted. This recovery process did not just concern their hearts, but also their views of existence and transition to a different life than before.

Engaging in activities

This category comprised a behavioural dimension that primarily involved women’s external resources engaging in own and new interests included exercising, returning to work and participating in cardiac rehabilitation in order to promote their recovery.

Engaging in own and new interests concerned the women’s everyday life and recreation including physical activities. Activities that enhanced recovery were singing in a choir, reading books, solving crosswords, sewing and needlework, which provide distraction. Those who enjoyed travelling had continued to do so in order to see, learn, gain new experiences and meet other people. This was not only to deepen the interests the women had previously but also to engage in new interests and new activities, thus obtaining a new circle of friends “...and the tango course I attended, the joy, because I started to dance, it was a try-it-out course/an introductory course, so I started and as a result gained new friends” (n5). Exercising that contributed to recovery was cycling, both outdoors and on an exercise bike. The women walked long distances with or without poles, exercising regularly in a gym, swimming several times per week as well as gardening, riding, yoga and dancing. They exercised more regularly after the MI and realised that these types of activities created a sense of well-being.

Another factor highlighted as contributing to their recovery was returning to work. Some women changed work place due to previous conflicts and others received the opportunity to take courses that promoted recovery.
By *Participating in cardiac rehabilitation (CR)* the women learned more about their health and the importance of physical training. When participating in CR the women’s recovery was promoted by meeting the rehabilitation team; consisting of cardiologist, nurse, physiotherapist and social worker by accessing their knowledge and experiences and the easy-going atmosphere. "...I thought it would be really interesting, because I enjoy learning new things, I’ve always been interested in health. So I thought that attending the programme was a real bonus ...” (n 14). The women felt secure during the cardiac rehabilitation, as the staff members had a professional approach, were in control and structured the training. The atmosphere was relaxed and the women were instructed to run, jump, and move and did not have to worry about over-exerting themselves during the one hour of hard training led by a physiotherapist. The CR helped these women recover, and some municipalities provided them with bus passes, so they could more easily attend CR.

**Appreciating social life**

This category had a social dimension that included the women’s internal and external resources for promoting their recovery and included what they valued in terms of social networks, such as families, friends, next of kin, church, colleagues, healthcare professionals and meeting others who had suffered an MI.

Regarding *Valuing support from family and friends* the women spoke of the importance of their relationships with family and others in their social networks in everyday life and that this was essential for their recovery. Talking to their partner and children, experiences of being listened to as well as receiving help with housework generated feelings of support, being treated with respect, closeness, which thus inspired strength. Some stated that they valued their families more than previously and some of the women’s partners attended the CRP, thus gaining information about how women might feel following an MI, which the women found valuable. Spending time with their grandchildren and being allowed to help out meant a great deal to them. The women valued their friends (mainly female) for keeping in contact via the telephone, cards or text messages but also for practical advice that they could assimilate. Other contributory factors to their recovery were: being able to share their thoughts and feelings, experiencing closeness with their female friends, as well as support at work and church, from siblings, parents and spending long periods in their holiday home together with family and friends. "...then I got help ... support, ...from friends and .. but also from my family and .. then from work .. yes that's what it was like .. I really felt” (n2).

Talking with healthcare professionals was important for the promotion of their recovery process. In their conversations the women valued the healthcare professionals seeing, hearing and listening to them as persons and not just an MI diagnosis. The women valued easy accessibility, listening, and that they answered any questions the women had. The women perceived being supported and encouraged, which made them feel seen and that their concerns and questions were taken seriously. Moreover, they appreciated the consultation
about prescribed medication and it not leading to unpleasant side-effects. The combination of the warm atmosphere, knowledge and attentiveness provided by the healthcare professionals created a sense of security as well as an inspiration to work with their recovery process. “I received a lot of help from everybody, really.....the cardiac rehabilitation nurses ...As I can’t stand stressful situations” (n14).

**Sharing thoughts with peers** contributed to the women’s recovery through encountering others in the same situation and the happy atmosphere in the CR. The women shared experiences, encouraged and stimulated each other as well as joking together, which provided a sense of security. ”...and it’s very much about meeting other people in the same situation. We sort of pep each other a little. The atmosphere is quite good, everybody is in a cheerful mood. You never laugh at but with somebody and that’s a great difference. It also makes it less difficult for the person” (n1).

**Mobilising own resources**

This category had a psychological dimension that described how the women mobilized their internal resources promoting their recovery by developing new thinking, initiating a new approach and through educating inner strength.

**Developing new thinking** resulted in a different mind-set concerning their lives and that promoted their recovery. They had gained awareness of the importance of breathing in order to remain calm and realised that they would have to think differently in some situations, e.g. managing stress, and daring to assimilate new knowledge in order to develop an own understanding and explanatory models. Moreover, they had tried to learn to say no and not to please everyone else in an effort to obtain approval. Recovery was also facilitated by attempting to think more about their lifestyle and realising that different things take more or less time to work through as well as reflecting on their lives. ”I’ve always been like, if anyone says ‘I wonder where it is’ – Yes, I know! I can get it!” Now I’m learning to sit still, nobody says that you must do everything. And I realise that saying no is not a matter of life and death. But it’s strange, it’s always been that I have to feel appreciated, be told that I’m good” (n3 ).

**Initiating a new approach** concerned them starting to change their behaviour through acting differently regarding food, smoking, work and education. The women reduced their overweight and combined exercising with a new diet resulting in a normal blood sugar level. They mended their ways and stopped smoking and actively chose to reduce working hours and their evening activities as well as commitments outside the home. They stopped to consider how to proceed with their lives, continued previously interrupted education and started companies. They also coped with worry in a different way and did not allow it to take over. ”I’m 14 kg lighter and there’s a long way to go but it’s still 14 kg. At least it’s in the right direction.” (n20)

In **Educating inner strength** the women struggled to see opportunities and to consider
themselves first in order to realize that their lives concern them as persons. Their recovery process was facilitated by having a positive attitude to life, trying to make the best of a situation and focusing on opportunities instead of obstacles as well as being determined to look ahead. They trained themselves to do new things, gained new approach and broadened their horizons by making small changes in everyday life. They tried to be kinder to themselves, learned to say no and not end up as always being there for others and being “a good girl”. They felt that they had the right to consider themselves more and thus let go of a number of musts, such as cleaning and duties for various associations. “The children felt a bit like… that I shouldn’t do so much because I’m the kind of mother who has a guilty conscience about it because I feel… that it’s better for me to rest, sit down and read a book or just feel good… it has meant a lot to me”. (n14)

Discussion

Methodological consideration

In order to strengthen the credibility (29), a purposive selection of women with a first MI was chosen, a rich data based on 26 interviews including two pilot interviews was collected and the authors worked both individually and together during the analysis until a consensus was reached. The chosen quotations reflecting the content of each category offers the reader an opportunity to determine the credibility of the study (29). The women were free to choose if they wanted to be interviewed by telephone or face to face, which could be a limitation, however, there were no differences in the duration or in the content between the two different approaches. Dependability (29) was strengthened by the interviews being performed with the same main question and a continuous dialogue took place among the authors so that our opinions concerning differences and similarities of content were consistent over time. The transferability (29) is strengthened since the study was performed among a national sample of hospitals in Sweden and the research process is clearly described thus enabling the reader to determine whether the results are transferable to another context.

Results discussion

In the women’s recovery process they were approaching a new perspective on life by using external and internal resources as well as embracing behaviour, social and psychological dimensions. They embraced these dimensions to varying extents and their moods as well as their belief in the future were influenced by this process. Their personal recovery is a multidirectional process with the desire to develop and approach a new perspective on life, which does not entail returning to the previous situation. This thus emphasizes the need for cardiac rehabilitation nurses (CRN) to be reflective about how they perform their nursing interventions in order to promote all dimensions in the women’s recovery process. When CR is done in groups with traditionally predetermined education material and organized physical exercise (30-33) the focus is primarily on the behaviour and social dimensions and less on the psychological dimension. This could lead to women not receiving the possibility of and
support for reflecting on and reappraising their situation in order to feel strength and attain a new perspective on life. The National Board of Health and Welfare in Sweden (31) define CR as preventing disease progression and reducing death by focusing on lifestyle factors and medical treatment of risk factors. It is important to note that interventions, focusing on how women's self-perceived health can be promoted, can be lost if CRN equate the concepts of recovery with CR (6). The CRN encounter women several times after the MI and thus have the opportunity to support women in their personal recovery process if they employ a holistic health promotive approach when talking with the women to find out what they need for promoting their recovery process.

A further contribution from our study is that the women also highlighted that meaningful activities such as singing in a choir, reading books and travelling were essential for promoting their recovery. This has to our knowledge not emerged in previous research. The findings in this study demonstrated the value the support from family and friends, church as well as sharing thoughts with women in the same situation during their recovery process, which is confirmed in other studies (15, 23-25, 34-37). The women in our study also described that the support from healthcare professionals was very significant when the support was based on a dialogue with the CRN and when the women were seen as a person and not only as a heart. Women have in previous studies spoken of a lack of personalized information (14, 35, 37) leading to uncertainty and delaying them in their recovery process. This confirms the needs for a personal recovery approach where the support and information is individualized. Another meaningful part of their recovery process was the inclusion of the psychological dimensions in which they use their inner strength to feel good. They make various active choices and change their priorities as well as taking more care of themselves. This contributes to the possibility of them enjoying everyday life to a greater extent and approaching a new perspective of life, which is described by women in earlier research (24, 36). It is thus of great importance for CRN to not only focus on lifestyle changes and social support, but also to work actively with the women’s inner strength in order to promote their personal recovery. This highlights the need for CRN to build their actions on a recovery-oriented approach with a holistic perspective on health (5, 38).

Conclusions and implications

The women’s personal recovery is a multidirectional process with a desire to develop and approach a new perspective on life. The findings suggest that CRN should focus on a holistic health promotive approach in order to support women in their personal recovery process. This adds a new dimension to the understanding of recovery among women after a first MI and can be useful in cardiac clinical nursing as a contribution to the current improvement of nursing care. It would be interesting to investigate men’s experiences of how their recovery process after a first MI is promoted.
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References


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