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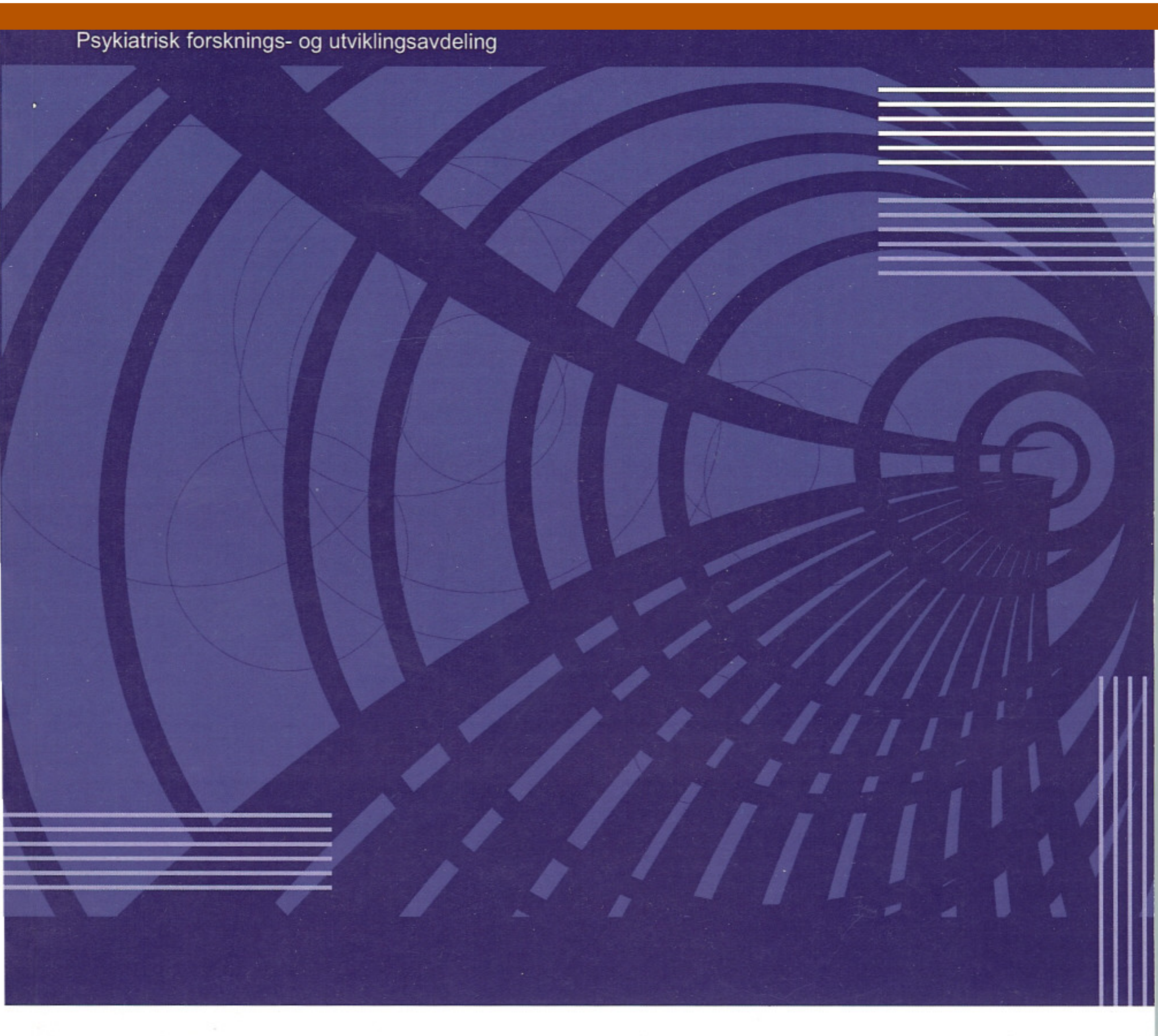

Psychological factors in the recovery of Coronary Artery Disease patients in Northern Norway

Ph.D dissertation

Svein Bergvik

Tromsø, December 2008

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Ph.D dissertation

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Summary

The thesis comprises four studies of psychosocial factors associated with the recovery of patients following Coronary Artery Bypass Graft (CABG) surgery and Percutaneous Coronary Intervention (PCI) treatment in Northern Norway. Paper I describes an interview study of nine patients following CABG surgery. The patients reported extensive use of avoidant (e.g. neglecting symptoms, avoiding thoughts about illness) and approach coping strategies (e.g. persistently searching for a diagnosis, mentally preparing for surgery). In paper II, a Norwegian translation of the Type D personality measure (DS14) was tested in a survey of 432 CABG and PCI patients. The instrument showed acceptable psychometric properties. The prevalence of Type D personality was relatively low (18%) compared to other European and US studies. Based on the same survey, paper III describes a study of psychosocial and treatment factors associated with Return To Work (RTW) in 185 CABG and PCI patients that were working prior to hospitalization. Six independent and significant factors were associated with RTW, including age below 67 years, higher education and Internal Locus of Control (LoC) as positive predictors. CABG, smoking and Powerful Others LoC were negative predictors. Paper IV describes the development, training and implementation of a patient-centred information procedure provided by nurses to CABG patients. Using a qualitative method, a set of case descriptions was developed, illustrating difficult nurse-patient interactions and how the patient-centered approach could be applied in these situations. The nurses found the patient-centered approach useful in a range of communicatively challenging situations, including when patients asked a very high number of questions, when patients seemed to have difficulties expressing their worries, when patients had many complaints, and when spouses of patients expressed their own worries.

Abbreviations

BMI:	Body Mass Index
CABG:	Coronary Artery Bypass Graft Surgery
CAD:	Coronary Artery Disease
DIPS:	An electronic patient record system used by Norwegian hospitals (Distribuert Informasjons og Pasientdatasystem i Sykehus)
DS14:	Type D Scale-14, a standard measure of Type D personality
EM:	Expectation Maximization algorithm, an iterative procedure for replacing missing data. Provided by the SPSS software
HD:	Heart Disease
ICD-10:	International Classification of Diseases, 10th Edition
IPA:	Interpretative Phenomenological Analysis
LoC:	Locus of Control
LVEF:	Left Ventricular Ejection Fraction, a clinical indicator of heart function
MHLC:	The Multidimensional Health Locus of Control Scale (form A)
MI:	Myocardial Infarction
NA:	Negative Affectivity, a dimension of the Type D personality
NYHA:	New York Heart Association Functional Classification, a functional and therapeutic classification of patients' physical health
PCI:	Percutaneous Coronary Intervention
RFT:	Regulatory Focus Theory
RTW:	Return To Work
SCL10:	The 10 items version (anxiety and depression) of Symptoms Check List
SI:	Social Inhibition, a dimension of the Type D personality
SPSS:	Statistical Package for Social Sciences, a computer software for statistical analysis
Type D:	Distressed Personality Type
UNN:	University Hospital of Northern Norway
WCQ:	Ways of Coping, the original coping measure by Folkman & Lazarus
WCQ-R:	The Revised Ways of Coping Scale by Sørlie & Sexton

List of papers

I.

Bergvik, S., Sørlie, T., & Wynn, R. Approach and avoidance coping and Regulatory Focus in patients having Coronary Artery Bypass Graft surgery. *Submitted to Journal of Health Psychology.*

II.

Bergvik, S., Sørlie, T., Wynn, R., & Sexton, H. Psychometric properties of the Type D personality measure in a Norwegian patient population. *Submitted to Scandinavian Journal of Psychology.*

III.

Bergvik, S., Sørlie, T., Wynn, R., & Sexton, H. Psychosocial factors associated with return to work following CABG and PCI treatment in coronary patients in Northern Norway. *Submitted to Scandinavian Journal of Public Health.*

IV.

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Background

Coronary Artery Disease (CAD) and treatment

Coronary Artery Disease (CAD) is among the major causes of hospitalization and death in Europe (Allender et al., 2008) as well as in the US (Rosamond et al., 2008). Simply put, CAD involves atherosclerotic plaque building up in the coronary arteries, reducing the blood supply to the heart muscles and causing Angina Pectoris. Symptoms of Angina and CAD vary, but usually include pain or discomfort in the chest and/or into the arms. The patient may also have pain in the neck, throat, or stomach, and generally feel sick and exhausted. Women tend to experience a different and more diffuse pattern of symptoms than men (Kimble et al., 2003). CAD related to atherosclerosis may remain silent or generate symptoms of stable Angina over many years. Complications of the atherosclerotic plaque (e.g. rupture, erosion) will lead to coronary trombosis and subsequently to Myocardial Infarction (MI) and/or sudden death. Other, often related diseases, such as valve disease and congestive heart failure are referred to in this thesis as Heart Disease (HD).

CAD patients may be treated with a range of different medications (e.g. with aspirin, statins, beta blockers, nitrate). The most common invasive procedures performed in hospital include Percutaneous Coronary Interventions (PCI) and surgery. In PCI, a catheter is threaded through an artery up into the aorta, and the affected coronary artery is opened by inflation of a balloon device. A mesh-like metal tube (stent) is sometimes placed in the damaged area to keep the blood vessel open and ensure blood flow after the procedure (Torpy, Lynm, & Glass, 2004). PCI is performed under local anesthetic, and the patient is normally discharged the same day or the following day. About 11 500 PCI procedures were performed in Norway in 2007 (Svennevig, 2008).

Coronary Artery Bypass Graft surgery (CABG) is among the most commonly performed major procedures, in which new routes are created around the narrowed or blocked arteries using veins grafted from the leg or arteries from the chest wall. CABG is a major surgical procedure, which involves cutting up the sternum, opening the chest, and establishing a cardiopulmonary bypass using a heart-lung machine while surgery is performed on the heart. About 5000 heart operations are performed annually in Norway, including 3000 CABG (Svennevig, 2008). Most of these are cases of elective surgery on men over the age of 60.

Patients assigned to surgery generally have a worse coronary health condition than those treated by means of a PCI (Hannan et al., 1999; McGee, Doyle, Conroy, De La Harpe, & Shelley, 2006). Furthermore, CABG requires full anaesthetics and the cardiopulmonary bypass procedure. Thus, it is a more stressful intervention than the PCI, requiring a longer hospital stay, and healing of the surgical wound. For patients with one vessel disease, surgery has shown a significantly lower 3-year survival rate compared to PCI. However, in multiple vessel disease, CABG is more strongly recommended and has greater survival time than PCI (Hannan et al., 1999). Review studies conclude that CABG overall has favorable long term effects within a 5 year range compared with PCI, as patients report fewer angina symptoms, and less needs for revascularization. However, no differences are found between CABG and PCI in 10 years mortality rates (Bravata et al., 2007).

CAD and HD have been considered male diseases, as the majority of these patients are men. More than 60% of patients admitted to hospital due to acute myocardial infarction are men (Reikvam & Hagen, 2002), and more than 70% of heart surgical interventions in Norway are performed on men (Svennevig, 2008). However, there is an increasing awareness of CAD and

HD in women. CAD/HD is the single most common cause of death in Europe among women as well as among men. More than 19% of women die from CAD or HD before they reach the age of 75 (Allender et al., 2008). Women tend to be older than men at the onset of heart disease and to have a higher prevalence of comorbid diseases, and these factors may contribute to the poorer recovery and higher mortality rates among women than among men with HD (Bello & Mosca, 2004). Women also tend to have different symptoms than men (Kimble et al., 2003) and due to the more diffuse symptoms, they are less frequently referred for in-hospital coronary angiography than men (Vikman et al., 2007).

Regional differences in the prevalence of CAD have been observed both in Europe (Allender et al., 2008) and in the US (Rosamond et al., 2008). In Norway, a higher incidence (150-200/100 000) is reported in the Northern counties compared to the rest of the country (66-147/100 000) (Svennevig, 2008). These differences have led to a series of epidemiological studies on CAD risk factors in Northern Norway over the last three decades (Forsdahl, 1978; Arnesen & Forsdahl, 1985; Wilsgaard et al., 2001; Jacobsen, Bonaa, & Njølstad, 2002).

The major risk factors of CAD are an elevated cholesterol level, hypertension, smoking, a sedentary life style, obesity, and diabetes; and the risk increases with age (Allender et al., 2008; Bennett & Boothby, 2007; Rosamond et al., 2008). There is also evidence for a strong heritability of CAD (Juonala et al., 2006; Mayer, Erdmann, & Schunkert, 2007). However, CAD is perceived primarily as a lifestyle disease, as both the incidence and negative outcome of CAD are associated with lifestyle factors such as physical inactivity, an unhealthy diet, and smoking (Boekholdt et al., 2006; Chiuve, McCullough, Sacks, & Rimm, 2006; Sundquist, Qvist, Johansson, & Sundquist, 2005). An unhealthy lifestyle has also been explained as the major cause for the high prevalence rates of CAD in Northern Norway (Arnesen & Forsdahl, 1985; Jacobsen, Bonaa, & Njølstad, 2002; Wilsgaard et al., 2001; Forsdahl, 1978).

Rehabilitation programs and interventions have shown promising results, and have succeeded in increasing physical activity and reducing the risk for CAD (Eriksson, Westborg, & Eliasson, 2006). Attending a rehabilitation program can reduce cardiac-related mortality by 20-30% (Bennett et al., 2007). However, the effects on long term adherence to life-style changes are modest (Lear et al., 2003).

Depression, anxiety and CAD

Symptoms of CAD can be frightening and painful, and negative emotional reactions are frequent among CAD patients (Koivula, Tarkka, Tarkka, Laippala, & Paunonen-Ilmonen, 2002; Lavie & Milani, 2004). A range of studies have documented a high prevalence of depression in CAD patients (Rutledge, Reis, Linke, Greenberg, & Mills, 2006). In a prospective study, 18.5 % of MI patients were suffering from a depressive disorder according to ICD-10 criteria (van Melle et al., 2006), but depressive symptoms have been reported in as many as 47 % of MI patients (van Melle et al., 2004). A meta-analysis concludes that depression is present in at least 20% of patients with heart failure (Rutledge et al., 2006), while prevalence rates of depression in general populations tend to be around 11% (Strand, Dalgard, Tambs, & Rognerud, 2003).

Depression is an independent predictor of the onset of CAD and HD. Depressed people without any identified coronary problems have a 64 % higher risk for development of CAD or HD compared to people who are not depressed (Rugulies, 2002). Depression is also a negative predictor of recovery from CAD. Depression at three months following an MI doubles the risk of new cardiac events and of dying within two years, when controlling for other known risk factors (Barth, Schumacher, & Herrmann-Lingen, 2004; Rutledge et al., 2006; van Melle et al., 2004). As a result of the strong evidence of the negative effects of depression, clinical guidelines for cardiovascular care recommend screening for depression in CAD patients (Thombs et al., 2008). However, interventions to treat depression in CAD patients have resulted only in modest reductions in depressive symptoms, and failed to have any effect on cardiac outcomes (Thombs et al., 2008; Bennett et al., 2007).

Anxiety tends to have similar effects to depression on CAD. The prevalence of anxiety is reported to be higher in CAD patients than in the general population (Koivula et al., 2002; Lavie et al., 2004; Stordal, Bjelland, Dahl, & Mykletun, 2003; Crowe, Runions, Ebbesen, Oldridge, & Streiner, 1996). Anxiety has also been suggested as a potential predictor of negative outcome, but results are inconsistent and the effects of anxiety are sometimes difficult to differentiate from the effects of depression (Frasure-Smith, Lesperance, & Talajic, 1995; Frasure-Smith & Lesperance, 2003; Mayou et al., 2000).

In sum, negative emotions are important psychological factors related to CAD, both as predictors and effects of CAD. However, in patients' coping with CAD, emotions are interrelated with cognitions and behaviour within a social setting.

A social cognitive perspective on coping with CAD

The general perspective in this thesis builds on the social cognitive theories of human behaviour (Bandura, 1989). Within this perspective, behaviour, cognitions, and emotions (and other personal factors), and environmental influences operates as interacting determinants that influence each other bidirectionally (Bandura, 1989). Human expectations, beliefs and emotions are developed and influenced by the experiences of interacting with the environment, but they also give shape and direction to their behaviour. Behaviour both alters the environmental condition and is altered by the very same changed conditions (Bandura, 1989). Theories of coping with stress builds on the social cognitive theories of human behaviour (Lazarus & Folkman, 1984; Livneh et al., 2007).

The literature on patients coping with illness includes numerous studies and textbooks published since the mid 1960s (Livneh & Martz, 2007). In their transactional theory of coping, Lazarus and Folkman argued that coping involves an interaction between cognitions, emotions, and behaviour (Lazarus et al, 1984; Livneh et al., 2007). Coping was defined as *the constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person* (Lazarus et al., 1984:141). Thus, coping is considered as the dynamic process of the individual's efforts to manage a challenging situation, and the result of a particular person-situation relationship. Cognition has a prominent role in this model. The individual's appraisal of the stressor (primary appraisal) and of the coping strategies and their expected outcome (secondary appraisal) are suggested as central cognitive components of coping (Lazarus et al., 1984), providing feedback information to the individual and making him/her able to evaluate and adjust or regulate his/her thoughts, emotions and behavior in the process of coping

(Carver & Scheier, 2001). Thus, coping is perceived as a cognitive approach, and the coping strategy is a product of the individual's appraisal (Livneh et al., 2007).

According to Lazarus and Folkman (Lazarus et al., 1984:150), there are two broad categories of coping: coping directed at managing and altering the problem causing the distress (problem-focused coping), and coping directed at regulating the emotional responses to the problem (emotion-focused coping). Lazarus and Folkman suggest that emotion-focused coping is more likely when the situation is appraised as unsolvable, while problem-focused coping is more probable when the problem is appraised as being possible to change (Folkman & Lazarus, 1985; Lazarus et al., 1984).

The illness and hospital treatment of CAD both represent serious challenges to the patient. These challenges are likely to stimulate a range of problem-focused (e.g. seeking help, information, and social support, and initiating life style changes) as well as emotion-focused strategies (e.g. strategies for managing the fear and anxiety associated with illness, treatment, and the hospital setting). Studies have found that individual patients tend to use both problem-focused and emotion-focused coping strategies, depending on their specific needs and how they perceive the situation (Bennett et al., 2007). This was also evident in a previous study of surgical patients at the University Hospital of Northern Norway (UNN), reporting higher levels of distress as well as a higher general coping response (including both problem-focused and emotion-focused strategies) prior to admission and at hospital discharge, and relatively lower levels of both distress and coping response at 2 and 4 months after surgery (Sørlie & Sexton, 2001a).

Other distinctions have been made between different types of coping, including active versus passive, monitoring versus blunting, and various types of repressive or avoidant versus approaching or attentive coping (Carver, Scheier, & Weintraub, 1989; Carver & White, 1994; Finset, Steine, Haugli, Steen, & Lærum, 2002; Miller, 1987; Lazarus et al., 1984; van Elderen, Maes, & Dusseldorp, 1999; Sørlie & Sexton, 2001b). The approach versus avoidant differentiation is of particularly interest in this thesis.

Avoidant coping may include strategies such as emotional distancing, disengagement, distraction, withdrawal, escape, social inhibition, self-control, and denial. These strategies belong to the emotion-focused group of coping strategies, as they function primarily as strategies to cope with the patient's own emotional reactions. Avoidant coping has some negative connotations, reflecting an unwillingness to face the facts and take the necessary actions required by the situation, a strategy assumed to have negative consequences. These ideas origin from the early psychodynamic theories explaining such strategies as defense strategies acted out by the individual when facing a reality that is too painful.

Coping strategies characterized by avoidance, denial, and inhibition have been found to have positive effects on emotional and psychosocial well-being, and even on mortality rates (Havik & Mæland, 1988; Levine et al., 1987). However, the positive effects have been suggested to be mainly short term (Klein, Turvey, & Pies, 2007; van Elderen, Maes, & Dusseldorp, 1999). In patients' coping with CAD, approaching or attending strategies are expected to have more favourable long term effects on emotional well-being and outcome than avoidant strategies (Klein et al., 2007; van Elderen et al., 1999). Even though the literature is not conclusive about the effect of avoidant coping strategies on CAD, there are reasons to believe that prolonged use of avoidant strategies may have negative effects on patients' recovery.

Distressed personality (Type D)

The combination of chronic negative affect and avoidance or inhibition strategies has proved to be an even stronger predictor of negative outcome than the separate factors alone (Denollet, 2000; Denollet et al., 1996; Denollet et al., 2006). This combination has been labelled type D, or distressed personality, and defined as the interaction of negative affectivity (NA) (the tendency to experience negative emotions) and social inhibition (SI) (the tendency to inhibit the expression of these emotions in social interaction) (Denollet et al., 1996). According to Denollet (2005) those with high NA tend to experience more feelings of dysphoria, anxiety and irritability, have a negative view of themselves, and scan the world for signs of impending trouble. Those high in SI tend to inhibit expression of emotions and behaviours in social interactions in order to avoid disapproval by others.

Type D personality has been associated with an impressive range of negative effects in patients with CAD, chronic heart failure and other artery diseases. Type D has a negative effect on psychological well-being, with increased symptoms of fatigue (Smith et al., 2007), reduced quality of life (Aquarius, Denollet, Hamming, & de Vries, 2005; Aquarius, Denollet, de Vries, & Hamming, 2007; Al Ruzzeh et al., 2005), increased risk of future clinical depression and anxiety (Martens, Kupper, Pedersen, Aquarius, & Denollet, 2007; Schiffer, Pedersen, Broers, Widdershoven, & Denollet, 2008; Spindler, Pedersen, Serruys, Erdman, & van Domburg, 2007), and a clustering of psychosocial risk factors (Denollet, 2000).

Compared to those not classified as Type D, patients with Type D report more cardiac symptoms and worries but fail to or are reluctant to consult and seek help (Schiffer, Denollet, Widdershoven, Hendriks, & Smith, 2007), and show inadequate treatment response and reduced treatment effects (Denollet, Vaes, & Brutsaert, 2000). They also tend to have lower levels of positive health related behaviour, such as healthy eating, outdoor activities and regular medical check ups, and to experience lower levels of social support (Williams et al., 2008).

Patients with Type D also tend to have a reduced general and mental health status (Aquarius, Denollet, de Vries, & Hamming, 2007; Aquarius, Denollet, Hamming, Berge Henegouwen, & de Vries, 2007; Pedersen et al., 2007; Schiffer et al., 2005), and an increased risk of cardiac morbidity and mortality (Denollet et al., 1996; Denollet, 2000; Kupper & Denollet, 2007). Type D has also been associated with physiological measures of immune activation and inflammatory responses associated with heart failure (increased levels of TNF- α and TNF- α receptors and elevated cortisol awakening response) (Conraads et al., 2006; Denollet et al., 2003; Whitehead, Perkins-Porras, Strike, Magid, & Steptoe, 2007).

The majority of studies on Type D are based on populations from central Europe, and particularly from the research team in the Netherlands (Denollet, 2005), but there are similar studies from USA (Ketterer et al., 2004; Ketterer et al., 2002), from Canada (Habra, Linden, Anderson, & Weinberg, 2003), Germany (Lange & Herrmann-Lingen, 2007), the UK (Al Ruzzeh et al., 2005; Williams et al., 2008) and from Denmark (Pedersen & Denollet, 2004). To my knowledge, no study of Type D has so far been undertaken on a Norwegian population. The impressive evidence of the negative effects of Type D personality on CAD motivated us to perform a study of Type D on a Norwegian population of CAD patients.

Self-regulation and Regulatory focus

Patients may differ in their cognitive orientation and motivation, i.e. how to avoid pain, risks and negative outcomes which they fear, or how to achieve positive outcome, resume a normal life and take up activities that they enjoy. According to theories of self-regulation, patients regulate their behaviour in ways aimed at approaching or attaining desired goals (promoting a successful outcome, achieveing pleasure, resuming enjoyable leisure activities, returning to work), or avoiding undesired goals or outcomes (e.g. preventing a negative outcome, avoiding pain or relapse, reducing risks) (Carver et al., 2001). This distinction between approach and avoidance regulation corresponds with the promotion and prevention focus in Regulatory Focus Theory (Higgins, 1997).

The Regulatory Focus Theory may have some relevance to patients' recovery from illness and return to work. A promotion focus on hopes and accomplishments generates approach and eagerness strategies, emphasizing the pursuit of achievements and aspirations towards ideals and desired end-states. A prevention focus on safety and responsibilities generates avoidance and vigilance strategies towards undesired end-states, emphasizing the avoidance of losses and the fulfilment of obligations (Higgins, 1997). Given the life threatening nature of CAD, we may expect that the illness increases the patients' prevention focus and concerns about safety, and stimulates efforts to avoid the potential negative outcomes that they fear. Furthermore, we may assume that patients' promotion focus is less pronounced.

The Regulatory Focus Theory has also important behavioural implications. A promotion focus is associated with openness towards change, a high tolerance for failure, and a tendency to take risks. A prevention focus is associated with scepticism to change, a preference for stability, a low tolerance for failure, and a tendency to avoid risks (Crowe & Higgins, 1997; Liberman, Molden, Idson, & Higgins, 2001). Furthermore, Regulatory Focus Theory has emotional implications, as a promotion focus tends to generate emotions along a cheerful – disappointed dimension, while a prevention focus tends to generate emotions along a calm – agitated/anxious dimension (Brockner & Higgins, 2001; Higgins, 1997). It has also been suggested that depression can be explained within a Regulatory Focus Theory framework, and that depression is a result of a failure in the promotion regulatory system (Strauman, 2002).

Even though self-regulation and regulatory focus are social cognitive theories, the mechanisms they describe have some interesting parallels to characteristics of personality dimensions found to be important in patients' recovery. The promotion focus mechanisms have similarities to openness and extraversion, which are associated with active coping strategies such as goal orientation and seeking social support (Sørlie & Sexton, 2001a), lower levels of anxiety (Knoll, Rieckmann, & Schwarzer R, 2005) and a flexible, imaginative and intellectually curious coping approach (Watson & Hubbard, 1996). The prevention focus mechanisms have similarities with neuroticism, associated with higher levels of self-reported illness (Horner, 1996), disengagement, denial (Penley & Tomaka, 2002) and passive coping strategies (Sørlie et al., 2001a).

There are two main reasons why the Regulatory Focus Theory is considered particularly interesting in relation to patients recovering from CAD. First, the promotion and prevention focus provides an explanation for the cognitive and motivational basis for the approach and avoidance orientations. Secondly, the theory provides theoretical explanations (with empirical support) for how approach and avoidant coping relates to emotions. Cognitions related to negative emotions are particularly interesting, given the effect of negative emotions on CAD.

In sum, Regulatory focus theory explains cognitions and motivations which may have important implications for patients' coping with illness, and we may assume that a promotion focus is positively associated with patients recovering from illness. To our knowledge, Regulatory Focus Theory has not previously been applied on populations of coronary patients.

Perceived control

Perceptions and beliefs about control are important in patients' experiences of illness and treatment. Patients frequently report feeling a lack of control over events and decisions regarding their treatment, and typically feel helpless and dependent on health providers and close relatives during treatment and recovery (Doering, McGuire, & Rourke, 2002; Gardner, Elliott, Gill, Griffin, & Crawford, 2005).

Attribution theories (e.g. Heider, 1958, as cited in Fiske & Taylor, 1991) hold that efforts to understand and explain the world around us in terms of cause and effect is a fundamental human activity. A basic distinction in human attribution is between what is caused by our selves (internal) versus what is caused by an outside factor or source (external) (Fiske et al., 1991). This was elaborated by Rotter in the Locus of control (LoC) theory, holding that humans tend to perceive that either internal or external sources have control (Fiske et al., 1991; Wallston, Wallston, & DeVellis, 1978). The Multidimensional Health Locus of Control theory suggests that the patients' perceptions about control include three different dimensions: Internal LoC refers to the degree an individual perceives events, such as one's own health status or health related outcomes, as being contingent upon his or her own behavior. Powerful Others LoC refers to the degree the individual perceive events as being contingent upon the control of important others. Chance LoC refers to the degree the individual perceive events as the result of random events or chance (Wallston et al., 1978).

Thus, CAD patients experiences and beliefs about control are not restricted to their internal control, but may also include beliefs about the control by others or even about chance or luck. Even though a patient may feel a loss of Internal control, he or she may be optimistic about the outcome due to high expectations about the doctors' (Powerful Others LoC) capacity and resources to treat the illness, or even a strong trust in fate. However, a range of studies have shown that the behavioral implications of Internal versus Powerful Others LoC in patients are quite different. While Internal LoC is associated with the use of active coping strategies, active health promoting life-style changes, illness prevention behavior, and seeking treatment (Wallston et al., 1978), Powerful Others (Brosschot, Gebhardt, & Godaert, 1994) and Chance LoC (Sørlie et al., 2001a) are associated with passive coping strategies.

LoC has also implications for patients' emotional well-being and psychosocial adjustment. In a study of MI patients, those with feelings of high control within two weeks following hospital discharge were less anxious, less depressed, less hostile, and had better psychosocial adjustment at six months follow up than those with feelings of low control (Moser & Dracup, 1995).

Thus, in our study of CAD patients, we may expect that a high level of Internal Locus of Control may be associated with a more active and cooperative style and better recovery compared with high levels of Powerful Others and Chance LoC, which may be related to a more submissive and passive style and less favorable recovery.

Patient-centered information provision

Hospitalization and invasive procedures such as CABG are both physiologically and psychologically stressful. Patients feel vulnerable and helpless and report a lack of information and control at the hospital (Doering, McGuire, & Rourke, 2002; Gardner et al., 2005; Bäckström, Wynn, & Sorlie, 2006). Being hospitalized also implies being separated from family, friends and the everyday life context. Adapting to the hospital routines and environment may also be a challenge to the patients. At the hospital, they meet a strong focus on the technical and biological aspects of examinations and surgery, and an orientation towards rapid postoperative mobilization, and they also have to actively cooperate with a large number of health care professionals. In the busy hospital setting, it can be a challenge for the health providers to meet the individual patients' needs and provide the necessary information, support and help.

There is an increasing focus both in research and in clinical practice on the importance of patient information and patient-provider communication in health care. Reviews conclude that the quality of provision of information is positively related to patient satisfaction, both in hospital and primary care settings (Williams, Weinman, & Dale, 1998). At the hospital, CAD patients are provided with information from a range of health professionals about the illness and the diagnostic and treatment procedures. The nursing staff in particular has a major role in providing care and general information to the patients.

The importance of having well-informed patients was explicitly emphasized by the staff at the study ward. However, to ensure that all patients were provided with the same level of information, nurses' information provision to patients upon admittance and at discharge was standardized according to a check list. These information sessions did not emphasize the importance of establishing a trusting relationship and of tailoring support and information to the expressed needs of each patient. As a quality assurance, many hospital procedures (e.g. preparations for surgery, cleaning surgery wounds) follow specific standardized methods. The provision of standardized information following check lists is part of this tradition, and may help the nurses to remember the many topics the patient need to be informed about.

However, the transmission of information appears to be most effective when the procedures are congruent with or “tailored” to each individual’s coping style (Gottlieb, 1988; Martelli, Auerbach, Alexander, & Mercuri, 1987). Individualized patient information has successfully been provided to cardiac patients both individually (Wegner, 1991) and in group contexts (Thomas, 1995).

Clinicians and researchers have argued for a biopsychosocial perspective and a patient-centered approach to meet the patient’s need for information and support (Bensing, 2000; Del Piccolo, Saltini, Zimmermann, & Dunn, 2000; Finset, 2008; Little et al., 2001a; Little et al., 2001b; Mead & Bower, 2000; Mead & Bower, 2002; Michie, Miles, & Weinman, 2003; Wynn, 1999; Zandbelt, Smets, Oort, Godfried, & de Haes, 2007). In a seminal paper in Science three decades ago, Engel (1977) criticized the dominating biomedical perspective, and argued for a biopsychosocial perspective taking the whole person including his/her social context into consideration when considering diagnosis and treatment. (Engel, 1977).

These thoughts have motivated the development of what has been termed a patient-centered approach as opposed to a provider-centered or medical centered approach. Several definitions of patient centeredness have been suggested, and in an attempt to include the dimensions of the various definitions, Mead and Bower (2000) suggested that a patient centered approach is characterized by five distinct dimensions: *1) The biopsychosocial perspective* – a perspective on illness that includes consideration of social and psychological (as well as biomedical) factors, *2) The "patient-as-person"* – understanding the personal meaning of the illness for each individual patient, *3) Sharing power and responsibility* – sensitivity to patients' preferences for information and shared decision-making and responding appropriately to these, *4) The therapeutic alliance* – developing common therapeutic goals and enhancing the personal bond and cooperation between doctor and patient, and *5) The "doctor-as-a-person"* – awareness of the influence of the personal qualities and subjectivity of the doctor on the practice of medicine.

There is some evidence of an association between patient centered consultations and patient health outcomes. Review studies have concluded that there indeed is an association between effective physician-patient communication and improved patient health outcomes (Mead et al., 2002; Michie et al., 2003), and they have argued that patient-centered interventions emphasizing the active contribution of the patient are more consistently associated with positive health outcomes (Michie et al., 2003). Patient centeredness is also consistent with general psychotherapeutic principles such as engagement, warmth, empathy, and encouragement originally presented in the classic person-centered Rogerian therapy (Rogers, 1951/2003). These principles are fundamental in creating a trustful helping relationship – a treatment alliance - between the patient and the provider. Treatment alliance is a well-known concept found to predict treatment outcome across a variety of psychotherapy studies (Horvath, 1994). These general psychotherapeutic principles have also been used successfully to reduce emotional distress in surgical patients (Contrada, Leventhal, & Anderson, 1994; Gottlieb, 1988).

The importance of patient-provider contact has also been reported in a recent study of surgical patients from the study hospital. In a prospective study of 482 patients admitted for various types of surgery, the relationship (quality of contact) with the nursing staff was the major predictor of both patient satisfaction with treatment, and patients' reception of adequate information at the hospital (Sørlie, Sexton, Busund, & Sørlie, 2000). The perceived quality of contact with the nursing staff was the single strongest predictor, explaining about 50 % of the explained variance both in treatment satisfaction and information provision.

These results motivated the development of a patient centered information procedure provided by the nurses upon admission and discharge (paper IV).

Return To Work (RTW) as an outcome indicator

Return to work (RTW) is an important indicator of recovery after CAD, with social and economical benefits to the individual and the community, and improved quality of life for the patients (Bradshaw, Jamrozik, Gilfillan, & Thompson, 2005). About 30-50% of CABG and PCI patients fail to return to work (Lewin R, 1999). There is a consensus in the literature that the high rates of failure in RTW cannot be explained by patients' coronary health condition or other measures of physical health (Lewin, 1999; Mital, Desai, & Mital, 2004; Perk & Alexanderson, 2004). Various psychosocial factors have been associated with RTW, including negative emotions and illness related cognitions. Review studies have concluded that psychological factors are the most important and decisive factors associated with RTW after a cardiac event, and that the negative predictors include depression, poor self-confidence, a perceived poor capacity for work, and a lack of desire to return to work (Perk et al., 2004; Mital et al., 2004).

Aims of the study

The aim of the thesis was to study psychosocial factors associated with the recovery of patients following CABG and PCI treatment in Northern Norway. The thesis comprises of four studies with the following aims:

- To identify CABG patients' main thoughts and concerns about their illness, treatment and about the future, and explore the relevance of theories of approach and avoidance coping and Regulatory Focus Theory for this group of patients (Paper I).
- To apply a Norwegian version of the DS14 on CABG and PCI patients from Northern Norway, test the psychometric properties, and compare the instrument with well known measures of depression, anxiety, and coping (Paper II).
- To examine psychosocial and treatment related factors associated with Return To Work (RTW) in CAD patients from Northern Norway, treated with CABG or PCI (Paper III).
- To describe the development, training and implementation of a patient-centred information procedure provided by nurses to CABG patients, and provide examples of how the approach was applied in situations which the nurses found challenging.

Materials and methods

Paper I: The interview study

Aims

The aim of the interview study was to identify CABG patients' main thoughts and concerns about their illness, treatment and about the future, and to explore the relevance of approach and avoidance coping theories and Regulatory Focus Theory for this group of patients.

Subjects

Patients who had undergone CABG or heart valve replacement surgery at the Department of Cardiothoracic Surgery, University Hospital of Northern Norway, were recruited at the hospital in the first days following surgery. Those considered by the Head Nurse to be too unwell to be interviewed were excluded. Four patients declined to participate and two were excluded due to language problems, as they were not Norwegian or English speakers. Six interviews with consenting patients were cancelled because the patient was subjected to emergency (re)surgery, transferred to another hospital ward, or discharged from the hospital before the interview could take place.

Nine patients, seven men and two women, aged 49-75, participated. Three arrived at the emergency unit following an acute MI and six were pre-scheduled for surgery due to serious angina. Seven had CABG surgery only, one had a heart valve replacement, and one had a combination of both. Seven had been diagnosed for the first time with CAD. All nine were married. Six had already retired, while three were working at the time they became ill. Six were regular smokers.

Data and analysis

The interviews, undertaken by the first author, lasted about one hour, and took place in a consultation room at the ward the first week following surgery. They were tape-recorded and transcribed. The interviews and analysis were inspired by the Interpretative Phenomenological Analysis (IPA) (Smith & Osborn, 2003), using an open-ended questioning style, focusing on the patients' thoughts and concerns, and following up on the patients' responses. Topics highlighted by patients in earlier interviews were introduced to patients in the following interviews. The transcribed interviews were read and discussed by the authors. Topics identified as important to the patients were highlighted, with particular sensitivity to emotional reactions, hopes, concerns, and their motivation and strategies used when facing these experiences. The highlighted sentences were extracted from the text, listed in groups of topics, and clustered into super-ordinate themes. Each theme was compared with the rest of the data, with other themes and with relevant theories, particularly theories of approach and avoidance coping and Regulatory Focus Theory.

Paper II: The Type D personality measure

Aims

The aim of the study was to apply a Norwegian version of the DS14 on CABG and PCI patients from Northern Norway, test the psychometric properties of the instrument, and compare it against well known measures of depression, anxiety, and coping.

Subjects

The study included a total of 432 CAD patients discharged from the UNN who responded to a questionnaire, of which 229 were CABG and 203 were PCI patients. The majority were men (78%), with a mean age of 60 (range 31-75) years, living with a spouse/partner (78%), retired (66%), and ethnic Norwegians (91%). The sample included ethnic minorities of Sámi and

Kven (9%). The majority had undergone elective procedures, 20% had received emergency treatment. Of the CABG patients, 14% were transferred directly from Angiographic Diagnostics to the Surgical Ward due to the poor condition of their coronary health.

Data

The study was a cross-sectional design based on questionnaire data and data from hospital records.

The questionnaire

Data were collected from questionnaires sent by mail, and from the hospital records. The questionnaire (see Appendix) included questions about demographics, life style, experiences and satisfaction with treatment, as well as standard instruments measuring negative affect, coping, perceived control, personality and illness cognitions.

The Type scale (DS14)

DS14 (Denollet, 2005) is a 14 item measure of Negative Affect (NA) and Social Inhibition (SI). The 7 NA items cover feelings of dysphoria, worries and irritability, while the 7 SI items cover discomfort in social interactions, reticence and social poise. Items are answered on a 5 point Likert scale (0 = false, 4 = true), with NA and SI sum scores ranging from 0 to 28. Based on a median split on representative samples, a cut-off (NA≥10 and SI≥10) has previously been suggested to classify Type D (Denollet, 2005).

The Norwegian version was translated from the English version (Denollet, 2005) by two Norwegians fluently in English. A blind back-translation was done by a (bilingual) native English speaker living in Norway for more than ten years. The back-translated and the original versions were found to be identical in content on all items, with minor grammatical differences.

The SCL10 Scale

This is a 10 item version of the anxiety and depression subscales of the Hopkins Symptom Check List. Items are rated on a 4-point Likert scale (1 = Not at all, 4 = Very much). Psychometrics has been empirically validated (Strand et al., 2003; Tambs & Moum, 1993), with a cut-off of 1.75 of the sum score indicating general distress (Strand et al., 2003).

The Revised Ways of Coping Scale (WCQ-R)

The WCQ-R (Sørlie & Sexton, 2001b) is a 26 item version of the Ways of Coping Questionnaire (Folkman & Lazarus, 1985), answered on a 5 point Likert scale (1 = Not at all, 5 = Very much). The two-factor structure with five subscales have been tested empirically: A passive coping factor with the three subscales of wishful thinking, avoidance and thinking it over, and an active coping factor with the two subscales of seeking support and goal oriented (Sørlie et al., 2001b).

Data from the hospital records

Data from the hospital records included data on the type of treatment, emergency status, length of stay at the hospital, age, and sex. The type of treatment was either CABG or PCI. Emergency status was coded versus elective treatment. The cases in which the treatment was pre-planned based on a waiting list were classified as elective. Time since hospital discharge was measured in months from discharge to the date when the questionnaire was mailed to the patients.

For the CABG patients, the following additional data was collected from the hospital record: BMI was computed as weight divided by squared heights: kg/(m)^2.

NYHA (New York Heart Association Functional Classification) is a functional and therapeutic classification for prescription of physical activity for cardiac patients rated by the cardiologist. Patients are identified along four functional classes; Class I: Patients with no limitation of activities; they suffer no symptoms from ordinary activities. Class II: patients with a slight, mild limitation of activity; they are comfortable at rest or with mild exertion. Class III: patients with marked limitation of activity; they are comfortable only at rest. Class IV: patients who should be at complete rest, confined to a bed or a chair; any physical activity brings on discomfort and symptoms occur at rest.

LVEF (Left Ventricular Ejection Fraction) is a clinical indicator of left ventricular systolic function, determined by echocardiograph or angiograph examination. It is the fraction of blood ejected in systole, and is calculated in percent of the total amount of blood at the end of diastole. Low levels indicate a poor cardiac health.

Cholesterol was coded categorically i.e. whether or not the patient had a history of hypercholesterolemia.

MI, a history of hypertension, previous coronary illness, and diabetes were all coded as a categorical data.

Analysis

Missing values on the DS14 items were low (2.4%) and were replaced by the EM algorithm of the SPSS 14.0. The internal structure of the DS14 was tested in an exploratory factor analysis. The DS14 with the NA and SI subscales, the SCL10 with the anxiety and depression subscales, and the Ways of Coping subscales were computed as continuous variables based on the sum scores. Type D versus Non-Type D differences were analysed by t-tests and χ^2 analyses, and correlations and linear regression analyses were used for the Type D sum score.

Paper III: Patients' Return to Work

Aims

The aim of the study was to examine psychosocial and treatment related factors associated with Return To Work (RTW) in CAD patients from Northern Norway, treated with CABG or PCI.

Subjects

The study included a sub-sample from the same questionnaire study described in paper 2. This sub-sample included the 185 CABG and PCI patients who were working part time or full time at the time they were hospitalized.

Data

The study was a cross-sectional design based on questionnaire data and data from hospital records. Working prior to hospitalization and RTW was recorded by the patients and coded as categorical data (part-time or full-time versus not working). Potential predictors from the questionnaire data included education, social status, smoking habits, attendance at a rehabilitation program, satisfaction with GP contact, Type D personality (DS14), mental distress (SCL10), and Locus of Control (MHLC).

The Multidimensional Health Locus of Control (MHLC) Scale (form A)

The MHLC (Wallston et al., 1978) is an 18 item measure of perceived control related to health. Six items contribute to the Internal LoC scale (the belief that one's own actions are of importance to one's illness and health), six to the Powerful Others LoC scale (the belief that doctors and other competent people are important with regard to one's own health), and six to the Chance LoC scale (the belief that illness and health are caused by luck or destiny). Items are rated on a 6-point Likert scale (ranging from 1 = disagree completely, to 6 = agree completely). Each scale is computed as the sum score of the respective items (range 6-36). The psychometric properties have previously been tested in a sample of surgical patients (Sørlie & Sexton, 2004). Chronbach's alpha in the present sample: .73, .76, and .71 for the Internal, Chance, and Powerful Others scales, respectively.

Data from the hospital records

Data from the hospital records included type of treatment, emergency status, age, and sex. For the CABG patients, hospital data also included BMI, NYHA, LVEF, cholesterol, MI, a history of hypertension, previous coronary illness, and diabetes. Time since hospital discharge was measured in months from discharge questionnaire was sent to the patients.

Analysis

The data were analyzed with the aid of the SPSS (Version 16.0) software. Categorical variables were analyzed with the χ^2 test and dimensional measures by t-tests. Predictors of RTW were examined in a direct multiple logistic regression analysis.

Paper IV: Nurse training of a patient centered approach

Aims

The aim was to describe the development, training and implementation of a patient-centred information procedure provided by nurses to CABG patients, and provide examples of how the approach was applied in situations which the nurses found challenging.

Subjects

Four female nurses participated in the study. They were full-time staff in the ward, and all had more than five years experience in nursing CABG patients. The supervisor (third author) was a male psychiatrist, trained in individual and group psychotherapy.

Data

A total of 110 patient information sessions (admission and discharge sessions with 55 patients) were audio taped. During the training period the nurses presented selections from 37 of these recording to the group.

Analysis

A phenomenological approach to data analysis was used, inspired by the methods of meaning condensation described by Giorgi (1997). Before the group meetings, nurses listened to their tape-recordings and selected examples of difficult situations and situations where they had made an effort to apply the patient-centered approach. The selected tape-recordings were presented to the group and were explored and discussed, both from the perspective of the information providing nurses and from that of the patients. Based on the examples presented by the nurses, a set of case descriptions was developed by the supervisor, illustrating the patient-centered method applied in the difficult situations. The illustrative cases were gradually refined as the discussions in the group developed. The authors discussed the material and organized the final set of the illustrating cases as they are presented in the text. These case descriptions are aggregates of nurse-patient situations experienced by the four nurses with a number of patients, a method resembling the collective case description procedure as it is described by Stakes (1994).

Summary of results

Paper I: The interview study

Following the analysis, the patients' main thoughts and concerns at the hospital were grouped into four general themes: Reactions to the symptoms, Adapting to the hospital setting, Thoughts and strategies when facing surgery, and Worries and hopes about the future. A wide range of both avoidant and approach strategies were evident in patients' thoughts and concerns on all these themes. Examples of avoidant strategies included neglecting symptoms, delaying help-seeking, avoiding thoughts about the illness and the surgery, and being overly cautious and afraid of doing something wrong. Examples of approach strategies included active help-seeking, a persistent search for the correct diagnosis, taking interest in information about the illness and the treatment, a mental preparation for surgery, and focusing on retaining physical and leisure activities. Patients also expressed frustration as they felt that the hospital environment reinforced patient passivity and dependency, and hindered and prevented them from being active and use approach strategies.

Paper II: The Type D personality measure

Factor analysis of the Norwegian version of the Type D measure (DS14) produced two factors explaining 57% of the variance. Inter-item reliability was high on both factors. All the seven NA and all but one of the seven SI items loaded high on their respective factor. Because removing the single item produced only minor changes, we retained all of the original items.

The Type D measure was associated with anxiety, depression, and passive coping. NA correlated with depression, anxiety, wishful thinking, and avoidance coping. SI correlated with depression and anxiety, and negatively with goal orientation and seeking support. The mean Type D sum score was higher among women than men, and negatively correlated (small, but significantly) with time since treatment.

Applying the recommended cut-off (NA≥10 and SI≥10), we found that 18% of the patients could be classified as Type D personalities. Type D was more frequent among women (26%) than men (15.5%). No differences were found in terms of age, social status, education, work status, ethnicity, type of treatment, emergency status, days at the hospital, time since treatment, NYHA, LVEF, MI, previous coronary illness, BMI, hypertension, cholesterol levels, or diabetes.

In a stepwise linear regression analysis, the Type D score was higher among those with a previous history of CAD, and the score decreased in relation to the time since hospital discharge.

Paper III: Patients' return to work

Of the 185 patients working prior to their hospitalisation, 113 (61%) reported RTW. The RTW rate was lower in CABG (54%) than PCI patients (73%), and higher among the highly educated (83%) than among the least educated (53%). Those RTW were younger, had higher scores on Internal LoC, and lower scores on Chance LoC and Powerful Others LoC than those not RTW.

The regression model was statistically significant, explaining between 25% and 35% of the variance in RTW. Six predictors made uniquely significant contributions to the model. These included age below 67 years, higher education and Internal LoC as positive predictors, and CABG, smoking and Powerful Others LoC as negative predictors.

The strongest predictors were age and education, with odds ratios > 3, indicating that those younger than 67 years and the highly educated were three times more likely to RTW than those older than 67 and the least educated, respectively. Furthermore, a one unit increase in the Internal LoC increased the odds for RTW by 15%, while a one unit increase in the Powerful Others LoC decreased the odds for RTW by 15%.

The analysis controlled for emergency status, time since treatment, sex, attendance in a rehabilitation program, mental distress, Type D personality, and satisfaction with GP contact. The 6 predictors remained significant in a separate analysis of the CABG patients, controlling for LVEF, MI status, a history of CAD, and a history of hypertension.

Paper IV: Nurse training of a patient-centered approach

The development and implementation of a programme training nurses in a patient-centred information procedure to help remedy communication problems between nurses and CABG patients is described. General principles and guidelines for the patient-centered procedure, guiding the nurses when interacting with patients, are presented.

In group training, nurses presented audio-recordings of their admission and discharge information sessions with the patients, focusing on situations which they found difficult or challenging. Using a qualitative phenomenological approach, a set of case descriptions was developed illustrating difficult nurse-patient interactions, and how the patient-centered approach could be applied in these situations.

The nurses found the patient-centered approach particularly useful in situations when patients frequently asked questions, seemed to have difficulties expressing their worries, frequently complained, or when spouses expressed worries. The training requires minimal resources and can be easily implemented. A patient-centered approach may guide the nurses in their interaction with patients and enhance the nurse-patient contact at the hospital.

Discussion

Methodological and ethical issues

Various methods have been used in this thesis. In study I, the method was a qualitative interview approach based on Interpretative Phenomenological Analysis (IPA) (Smith et al., 2003). Study II and III were quantitative analyses of survey data combined with data from the hospital records. Study IV used a qualitative case study method, describing illustrative cases based on aggregates of situations presented by the nurses in group training sessions.

Qualitative interviews of patients

The decision to use a qualitative interview method was motivated by an interest in understanding the patients' perspective of the illness and treatment. This interest was inspired by the increasing awareness in health psychology of the constructed nature of illness, the importance of patients' perceptions and understandings, their emotional reactions to their illness and treatment, and the meaning which they assign to it (Brocki & Wearden, 2006; Petrie & Weinman, 1997).

The IPA is considered applicable and useful in a wide variety of health related topics, and has been successfully applied in a range of studies within health psychology and related fields (Brocki et al., 2006). Drawing on the philosophical traditions of phenomenology and hermeneutics, IPA builds on the assumption that human beings are actively making sense of the world by interpreting and assigning meaning to their experiences, rather than being passive perceivers of an objective reality (Brocki et al., 2006). The principle focus of IPA is on the individual patient's experience, and on the exploration of the patient's perception and interpretation of these experiences (Brocki et al., 2006). The term interpretative refers to the interpretation processes involving both the patients and the researcher. The patients are trying to make sense of their thoughts, feelings, and experiences, and the researcher is trying to make sense of the patients trying to make sense of their world. Thus, interpretation works in two stages, involving both the patient and the researcher (Smith et al., 2003). As a consequence, the results are not objective facts but a combined product of the patients' and the researcher's active interpretation.

Scientific standards do apply to qualitative methods, even though they may differ from the traditional standards of quantitative methods. Malterud (Malterud, 2001) argued that reflexivity, transferability, and a thorough, transparent and well documented analysis are critical in maintaining scientific quality when qualitative research methods are applied in medical research. Reflexivity refers to an attitude of attending systematically to the context of knowledge construction, and particularly to the effect of the researcher, throughout the whole research process. Transferability concerns the range of possibilities and limitations for applying the results beyond the context in which the study was done.

In paper I, the theoretical background of coping theory and the Regulatory Focus Theory was made explicit in the paper, and it was discussed by the authors at the different stages of the research process. Though we expected that patients used approaching and/or avoiding coping strategies, or were promotion and/or prevention focused, we were open to other findings as well. In the interviews, the patients were simply asked to talk about their experiences and thoughts about becoming ill, being treated and their thoughts about the future. The primary focus was to explore and understand the thoughts and concerns brought up by the patients, and the main topics were extracted and grouped into themes without any reference to theory. When exploring the themes further, we found that patients' expression of their thoughts and concerns in the various themes were consistent with theoretical perspective of approach and avoidant coping. Alternative interpretations based on other theories were discussed by the authors. Patients identifying their experience of the hospital setting as increasing their passivity and hampering active participation is an example of an unexpected result.

Questions concerning transferability were not elaborated in the paper. Many of the issues expressed by the patients were general topics about having a serious illness and being a patient in the hospital. Thus, we may assume that to some degree, the results may be generalized to other hospitalised patients with other types of illnesses. Perhaps even more important in a qualitative study is the understanding of how patients make sense of their experiences, and how they assign meaning to the interrelations between their own thoughts, feelings and behaviour and the context. We may assume that the way the patients made efforts to make sense of the complexity of illness and treatment experiences, and how their cognitive orientations towards positive or away from negative expected outcomes were related to their emotional reactions and coping strategies, are transferable beyond the context of the present study. These examples may contribute to our understanding of how patients perceive and relates to illness and treatment.

There were also some practical challenges related to the planning and arranging of interviews at a hospital ward. For the consenting patients, an interview was arranged as soon as possible on the same day or the following day, and the nursing staff was consulted to avoid any conflict with hospital procedures involving that patient. Despite these precautions, many interviews had to be cancelled due to emergency surgery, transfers wihin the hospital or hospital discharge. In some cases, the nursing staff was not informed that the patient was to be transferred or even discharged later on the same day. This dynamic nature of the hospital setting with frequent and rapid changes represented a serious challenge to the planning and arranging of patient interviews at the hospital. In a way, the challenges experienced by the researcher in the planning of the interviews parallels how patients perceived their situation and their frustrations about not being able to prepare themselves for the hospital procedures.

The survey sample

The survey were distributed to a total of 700 patients treated with PCI (n = 350) or CABG surgery (n = 350). Patients consecutively discharged from the University Hospital of Northern Norway (UNN) between June 2005 and June 2006 were selected from the hospital records. To reduce the influence of age-related comorbidity and cognitive impairments, patients older than 75 years were excluded.

The overall response rate was high (62%) and it was almost equally distributed between the treatment groups, with responses from 229 CABG and 203 PCI patients. A general problem associated with surveys concerns the issue of self-selection bias and whether responders diverge from the non-responders in any aspect that might have influenced the results. In this study, we were able to compare the profile of respondents with the whole population of coronary surgical patients treated in 2004-2007 (N=2595) with reference to data from the hospital records. Except for a lower average age (a difference of 6.8 years) and fewer women (18% versus 26%), the sample did not differ on any relevant variable from the hospital records, including the length of stay, smoking habits, BMI, LVEF, NYHA, MI, a history of CAD, hypertension, an peripheral arterial disease.

Data from hospital records

At the time the data were collected, the electronic hospital records system (DIPS) used by the hospital did not include detailed information about the patients' coronary health. At the CABG department, these data were recorded in a separate system. We had access to these data on the CABG patients, but not on the PCI patients, as they were treated in another hospital department. This prevented the use of coronary health data as predictor variables for the whole group of patients in paper III.

Questionnaire data

The questionnaire was extensive, and it covered a range of demographic and psychosocial data and included standard instruments on various psychological dimensions. Only a selection of items and instruments were used in the four studies comprising this thesis. The complete questionnaire is provided as an appendix.

There are several potential problems with self-reported measures. As we used a series of questions with a similar response format (the Likert scale), there is a potential risk that responses to individual items are influenced by previous responses on items with similar response format or related content. This could have resulted in a generally more positive or negative response pattern than the actual attitudes or beliefs of the respondent. However, we did not check for any such biases in our results. Another problem concerns the risk that responses are altered in some way due to the respondents' motives, self-interest or expectations. A well known example of this phenomenon is referred to as social desirability. This is the tendency to alter or adjust answers or interpret the meaning of the items so that the respondent presents themselves in a positive light (Kazdin, 1998). The respondent may also have adjusted their answers so that they are consistent with their self-image.

The survey included questions about life style, such as physical activity, diet and smoking habits. Life style is a highly value-laden issue in western societies, and a healthy life style is frequently presented in the media as an indicator of success and well-being. The documented associations between life style and health and illness, including CAD, and how it is communicated in health promotion campaigns, may have further strengthened life style as a normative issue in public opinion (Fugelli, 2006). This may have influenced respondents to overrate their answers on positive life style indicators (e.g. diet and physical activities) and to underrate their negative life style indicators (such as smoking habits). This bias may have influenced the negative association between smoking and RTW reported in paper III. However, we find this unlikely, as the validity of self-reported measures of smoking habits tend to be good (Patrick et al., 1994; Studts et al., 2006).

We used several standard instruments for measuring various psychological constructs, such as coping, health locus of control, mental distress, and Type D personality. These instruments are based on the assumption that the psychological construct can be measured by a set of several items. All instruments had been validated in previous studies and reported to have acceptable construct validity and internal consistency. The scores found in the present studies are comparable with the findings reported in previous studies of CAD patients.

The Type D instrument (DS14) was translated into Norwegian from the English version, using standard forward-backward translation procedures. An important finding was the substantially lower frequency of Type D among the Norwegian CAD patients than reported among CAD patients in some of the other countries where the instrument has been used. This may reflect a generally lower Type D frequency in the general population in Norway than elsewhere. However, to our knowledge, this is the first study of Type D in a Norwegian sample. Consequently, the scores could only be compared to international studies. Thus, it is imperative that the Norwegian version is tested in a normal population.

A case-control study of MI patients and matched healthy controls was started in fall 2008. The case and control groups are compared on various measures of negative affect, avoidance coping, self-regulation and well-being, including the Type D measure, as well as fysiological indicators of coronary health (hypertension, cholesterol level, and BMI). The study has a prospective design with repeated measures and a two year follow up. This enables estimations and predictions of changes in the various measures over time.

Cross-sectional design

The study design (paper II and III) was cross-sectional, as data was collected only once. The general problems with cross-sectional designs are that they do not yield information about variations over time, either within the same measures or between different measures. A prospective design with repeated measures would provide information about the test-retest stability of a measure. Repeated measures over time would have been particularly useful in the Type D study (paper II), as Type D is expected to be a stable construct over time.

Furthermore, in a prospective design, associations between different measures at different points in time can be tested. This allows estimations and predictions of change. This would have provided useful information in both of the studies (paper II and III), such as whether high scores on certain measures (e.g. mental distress, external Locus of control, passive coping, prevention focus) at an early point in time (e.g. at discharge) are associated with outcome measures at a later point in time.

In the present studies (Papers II and III), the analyses are restricted to comparing various measures at the same point in time. Thus, the higher Internal LoC in the RTW patients (paper III) is as likely to be a selection bias as a predictor of RTW. There are at least three possible interpretations of this association: Patients with high Internal LoC are more likely to return to work, working tend to increase Internal LoC or, an unknown third factor (a confounder) (e.g. the type of work, the work climate or the manager support, social support from friends or family) had an effect on both RTW and LoC. While the first alternative is an inference of a causal relation between LoC and RTW, the second and the third alternatives attribute the cause to other factors. In a regression analysis, variables are defined as dependent and independent/covariates, implying a causal relation as well as the direction of this causality. Terms such as “predictors” may further strengthen the idea of a presumed causality. However, in a cross-sectional design, the “predictors” are factors associated with the variable of interest at a given point in time, and we cannot draw any conclusions about causal relationships based on these data.

Some ethical concerns

Interviewing patients at a hospital ward raises some ethical issues. The main ethical concerns were to avoid putting any unnecessary strain on patients with a poor health condition, and to ensure free and informed consent to participation by the patients.

In the first few days after surgery, patients' health conditions are significantly reduced. In this situation, the patients are particularly vulnerable, and some may not be able to make decisions relating to informed consent or to take part in an interview. Prior to recruiting patients (Paper I), the nursing staff was consulted about the patients' condition, and those who were considered to be too unwell to give an informed consent or to participate in an interview were excluded. Some of these patients appeared to be confused and disoriented due to old age, while in other instances the individual's health condition was significantly reduced by the recent surgery. During the interviews, the patients were asked how they felt and whether they were too tired to go through with the interview, and they were reminded that they were free to terminate the interview at any time. In one instant, almost at the end of the interview, the patient chose to terminate the session because she was not feeling well.

A general concern when doing research with patients is the need to make a clear distinction between research and treatment. This is particularly difficult when studying types of treatment or treatment procedures, which is not the case in this thesis. However, in the interview situation many of the subjects expressed an unmet need to talk about their stressful experiences and feelings. So to some extent the interviews may have both activated and to some degree met their needs for a "talking cure". These reactions and needs probably also increased their motivation to talk openly with the researcher. Thus, the distinction between treatment and research is particularly challenging when it comes to stressful experiences and emotional themes. To reduce the discrepancy between the respondents' needs and the conscious expectations in such situations, it appears particularly important for the interviewer to take the time to inform the respondent properly about the project and the aims of the interview.

Two potential problems related to doing research in a clinical setting will be mentioned, as they had a certain relevance to the present studies. One problem concerns the risk of patients feeling obligated to participate. The patients are in need of help, and depend on the care and treatment provided by the staff at the hospital. Thus, the patient-provider relationship is an asymmetric relationship characterized by a certain dependency and trust. Recruiting patients to research is to ask for a favor, as the patient usually has no direct gain from the research (patients were not paid or compensated for participating in the studies). In this asymmetric relationship, there is a risk that the patient may feel obliged or feel a certain pressure to comply if the request is put forward by the health provider.

In the interview study, there was a need to balance the patients' need for privacy and not being intruded upon by a researcher against the risk of putting pressure upon the patient by involving the nursing staff in the recruitment of patients. This was solved by the nurse first asking the patients if they agreed to be contacted by a researcher. Then, the researcher approached the patients who had agreed to be contacted, and informed about the project. The patients gave consent (or not) directly to the researcher, without any hospital staff present.

The patients were informed that the study was run by the university and that the researcher had no clinical responsibilities in the hospital. Furthermore they were assured that choosing not to participate in the study would have no consequences for their treatment at the hospital.

Despite these efforts, we cannot rule out that some patients may have felt a certain obligation to participate.

The second problem to be addressed here concerns the risk of patients (as well as the researcher) confusing the roles of the researcher and clinician. Despite the efforts mentioned above, some patients seemed to have trouble differentiating the researcher from the staff. They asked the researcher about their own treatment and diagnosis, whether the pain and symptoms they felt were normal, and for advice concerning any precautions they should take concerning the healing of the surgical wound.

This confusion was expected. The people who patients meet in a hospital ward are normally fellow patients, hospital staff or visitors. Visitors are most likely to be relatives or friends of the patients. A researcher does not fit into any of these roles, but through being recognized by the patients as some kind of a professional, he is likely to be associated with the staff (even though the researcher dressed as a civilian, while the hospital personnel wear the standard white uniforms). This confusion was also present in the survey study, for instance when a patient's relative contacted the researcher on the phone, and asked for advice concerning her mother's symptoms and health condition. When these confusions occurred, patients were reminded about the researcher's role, and advised to address any questions concerning their illness and treatment to the hospital staff.

The Regional Medical Ethics Committee and the Norwegian Social Sciences Data Services were consulted to ensure that the research protocol, the procedures for recruiting patients, the informed consent form, and the storing of sensitive data all conformed to their guidelines.

Discussion of results

In the four studies comprising the present thesis we have studied psychosocial factors affecting patients at the hospital and at home following discharge. In the interviews of patients at the hospital (Paper I), the patients expressed a range of thoughts and concerns regarding how they became ill, adjusting to the hospital setting, the surgery, and about the future. Many of their thoughts and concerns could be characterized as approach or avoidance strategies, though approach strategies seemed to be difficult for them to apply within the hospital setting. In the Type D study (Paper II), the Norwegian version of the DS14 measure had acceptable psychometric properties, and the scales correlated with other well known measures of related concepts. Negative affectivity (NA), social inhibition (SI) and the combined Type D were all present in the sample of CABG and PCI patients. However, the frequency of Type D was relatively lower than is reported in CAD samples elsewhere. In the regression analysis (Paper III) of patients' return to work (RTW), age below 67 years, a higher level of education and Internal LoC were positively associated with RTW, while CABG, smoking and Powerful Others LoC were negatively associated with RTW. In the last study (Paper IV), a patient centered information approach provided by nurses is described, and illustrative cases are provided as examples of how the approach guided the nurses in challenging nurse-patient interactions.

Avoidance

Avoidance is a central concept in this thesis. We found strong indications of the widespread use of avoidance strategies in CAD patients in the different studies. In the interviews (Paper I), patients described how they were neglecting symptoms, delaying help-seeking, avoiding thought, and disengaged, and they talked about how they looked forward to "escape" the problems of the illness and treatment. In the survey (Paper II), patients' use of avoidant coping as well as wishful thinking was associated with the Social Inhibition, but even more strongly with the Negative Affectivity dimension of the Type D. In the last paper (IV), situations in which patients used avoidant strategies were found to be among the most challenging for the nurses in their interaction with patients.

As explained in the introductory section, “avoidant coping strategies” is a broad concept covering a range of behaviors, including emotional distancing, disengagement, distraction, withdrawal, inhibition, self-control, denial and escape. A potential problem with such as broad concept is that the differences between the types of thinking and behavior included under this general concept may be more pronounced than the characteristics which they have in common. In the theoretical framework put forward by Lazarus and Folkman (1984), these avoidant strategies are classified as emotion-focused coping strategies. They reflect patients’ efforts to cope with and to regulate the emotional response, rather than to cope with the source of the stress. Avoidant strategies are usually motivated by a need to lessen the emotional distress reaction. In contrast, problem-focused coping strategies tend to be directed towards the problem (approach strategy), and, as in problem solving strategies, they are motivated by a need to solve the problem (e.g. defining the problem, generating alternative solutions, weighting the cost vs. benefits and choosing among alternative solutions) (Lazarus et al., 1984). This was illustrated in the interview study, when some patients explained how they used strategies such as disengagement, distraction and withdrawal (lie dormant in bed, avoid thinking about the surgery) to lessen the emotional distress, while others explained how they used problem-focused strategies (seeking help early, seeking information and preparing themselves mentally for surgery) to contribute to the solving of the problem.

It has been suggested that avoidance is multidimensional, and that passive or disengaged avoidance strategies (e.g. resignation and withdrawal) and active avoidance strategies (e.g. denial, diversion and escape) represent different dimensions of avoidant coping (Finset et al., 2002; Folkman & Lazarus, 1988). This distinction has been shown to have implications for patients' well-being. In a study of musculoskeletal pain patients, passive avoidance (resignation and withdrawal) was associated with psychological distress, while active avoidance and approach strategies were not (Finset et al., 2002). This is particularly interesting as some of the patients in our study reported frequent use of passive avoidance strategies at the hospital.

Though there are some similarities, the approach/avoidance and the problem-focused/emotion-focused are different distinctions. While the former focuses on the direction (towards or away), the latter addresses the object (emotion or problem/source) of the strategy. Emotion-focused strategies are not necessarily avoidant, and problem-focused strategies are not necessarily approach strategies. For example, patients may use approach strategies (e.g. seek social support, therapy, or relaxation techniques) to regulate their emotional reaction. Furthermore, depending on the patient's focus, efforts to implement life style changes (e.g. avoid unhealthy food, drinking and smoking) could be classified as either approach (get healthy), avoidant (avoid risks of illness), problem-focused (solve potential problem of risk) or emotion-focused (reduce the fear and feel more safe) coping. To identify the coping strategy, we need to know what motivates the patient. In this example, it could be the fear of the illness or it could be the prospect of good health.

Regulatory focus

We have argued that theories of self-regulation (Carver et al., 2001; Leventhal, Brissette, & Leventhal, 2003), and particularly the Regulatory focus theory (Higgins, 1997) provides a useful alternative to the coping theories. In a self-regulation perspective, humans are motivated by positive or negative goals, and regulate their cognitions, emotions and behavior accordingly. In a promotion focus, motivation is directed towards a positive (desired) goal (Higgins, 1997), and the individual makes efforts to reduce the distance to it. In Carver & Scheier's (2001) terminology, this self-regulation is discrepancy-reducing as regulation reduces the discrepancy between the goal and the present situation or state. Examples of promotion focus includes patients' description of how their efforts were motivated by an interest in increasing the probability of attaining a positive goal or a desired outcome, such as good health, get in shape, return to work and take up leisure activities which they enjoyed. On the other hand, in a prevention focus, motivation is directed away from a negative (undesired) goal, the individual makes efforts to increase the distance from it, and self-regulation is discrepancy enlarging. Examples of prevention focus includes patients' description of how their efforts were motivated by an interest in reducing the probability of a negative goal or an undesired outcome, such as experiencing pain, new cardiac events, re-hospitalization, physical disability, and losing their job.

The regulatory focus is defined by the motivation, not by the behavior. Thus, the same behavior may interpreted as either promotion or prevention motivated, depending on the object of the motivation. For the CABG patients, avoidant strategies such as being cautious with physical activity could be prevention motivated in order to reduce the risk of MI, but they might also be promotion motivated in order to achieve comfort and relaxation. Similarly, approach strategies may be promotion motivated to increase well-being, but also prevention motivated to avoid negative consequences of the illness. Thus, access to patients' cognitions and motivations is essential to understand their reactions and efforts when coping with their illness and treatment.

Regulatory Focus Theory describes the cognitive basis for patients' coping, but also explains how cognitions and behavior relate to emotional reactions. For the promotion focused patient, failing to reach desired outcomes such as being socially active, staying in good physical shape, engaging in leisure activities, and returning to work, may generate disappointment and dissatisfaction. On the other hand, for the prevention focused patient, failing to avoid undesired outcomes such as discomfort and pain, incomprehensible symptoms, loss of control, and physical disabilities, may generate agitation and anxiety (Brockner et al., 2001; Higgins et al., 2001).

Most studies of Regulatory Focus Theory relate to student populations, and the potential negative outcomes are often related to performance on exams and other student related tasks (e.g. Crowe et al., 1997; Higgins et al., 2001; Higgins, 1997; Liberman et al., 2001). For the CAD patient, the potential negative outcomes are far more serious than failing an examination at a university. Thus, we may assume that the implications of failing in self-regulation are more serious and generate stronger negative emotional reactions in CAD patients than in students. It is particularly important to identify regulatory processes associated with negative emotions such as depression and anxiety, as they are strong predictors of poor recovery in CAD patients (Rutledge et al., 2006).

Strauman (Strauman, 2002; Strauman et al., 2001) explained depression within a self-regulation framework. He argued that the core of depression is a loss of the motivation and/or capacity to respond effectively to cues for reward. This refers to a failure of self-regulation within the promotion system (Strauman, 2002). The promotion system reflects the individual's capacity and motivation to make efforts towards attaining positive outcomes, and the eagerness generated when successfully pursuing the goals stimulate and increase the tendency to be promotion focused in future situations (Higgins et al., 2001). Strauman (2002) argued that depression may result from a downward spiral of failure to make progress towards promotion goals. As a result, self-regulation becomes primarily prevention focused and the person is exclusively oriented towards negative outcomes and how to avoid them.

In the interview study (Paper I), we found that while some patients managed to mobilize a promotion focus concerning what they desired and looked forward to in the future, others seemed almost exclusively prevention focused on how to avoid the negative outcomes which they feared. To be diagnosed and hospitalized with CAD could be perceived as a failure in preventing the illness, and thus generate anxiety and depression. We may also assume that the patients' tendency to be prevention focused was increased by the strong focus on the biomedical aspects of illness and treatment at the hospital. Some patients described strong negative emotional reactions and symptoms of anxiety and depression, and we may speculate whether these reactions were related to a prevention focus on negative outcomes. Others, who felt frustration about being pacified within the hospital setting, seemed to be more promotion focused and oriented towards positive outcomes. However, these are merely speculations, and further studies are needed to establish the relation between regulatory focus and emotions in patients recovering from CAD.

Type D personality

We expected the combination of social inhibition (SI) and negative affect (NA), referred to as Type D personality, to be important in patients recovering from CAD. The internal consistency of the NA and SI scales of the Norwegian translation of the DS14 was acceptable, though one item loaded high on both scales. As reported with reference to the original instrument, the NA and SI scales were moderately correlated. The concurrent validity of the

DS14 and the two sub-scales was also fairly well. The DS14 sum score showed moderate to strong correlation with mental distress (anxiety and depression scales of the SCL10), and with passive coping (wishful thinking, avoidant coping and thinking it over) as measured by the WCQ-R. The NA scale was consistently stronger associated with all these factors than the SI scale. This is consistent with other studies, suggesting that the NA is the principal dimension of Type D, and that the SI has a moderating function on the effect of NA on recovery and outcome from CAD (Denollet et al., 2006). The relatively low but significant correlations between SI and avoidant coping indicate that SI share some resemblance with avoidant coping, though they are not identical. Four of the six items of the Avoidant coping in the WCQ-R refers to social inhibition (e.g. not talk with others about feelings, keep others from knowing how bad things are), while the other two concerned how to avoid thinking about the problem.

However, our results were not as promising about the importance of this concept as what has been reported elsewhere. The prevalence level (18%) in our sample of CABG/PCI patients is comparable to that reported in samples from general populations (19%), and is not as high as the 27-31% in cardiac patients reported by Denollet (Denollet, 2005). In the paper (Paper II), we discussed whether these differences may reflect differences in the samples of patients, different patterns of psychosocial factors in Norwegian CAD patients compared to CAD patients in other countries, or cultural differences associated with the phenomenon of social inhibition. The patients in our sample had undergone invasive treatments (PCI and CABG), while the majority of other studies included patients treated with non-invasive methods. Invasive treatments effectively remove symptoms, and we may speculate if the higher prevalence of Type D in other studies to some extent is stress-related due to more severe continuing coronary symptoms, such as angina. Other studies (de Jonge et al., 2007; Denollet,

2005) have reported Type D to be stable and independent of stress, and argued that Type D is a stable trait, rather than being significantly influenced by situational factors (state). Clearly, conclusions about stability cannot be drawn from our cross-sectional data. However, the associations we found with emotional distress, a history of CAD, and time since discharge, indicate a certain influence of stress on Type D.

We also considered potential methodological reasons for the discrepancy in the prevalence rates, such as a potential difference between the translated and the original versions of the instrument, and the general quality of the instrument. Reviewing of the literature on Type D we found that prevalence rates varies considerably, from 18,6% in Dutch MI patients (de Jonge et al., 2007), to 38,6 % in healthy UK individuals (Williams et al., 2008), and 53% in Belgian hypertensive patients (Denollet, 2005). Consistently, there are higher rates of Type D in CAD patients than in samples of general populations. Unfortunately, we do not have any data on Type D prevalence in the Norwegian general population with which to compare our results. Hence, it is difficult to interpret the significance of the prevalence rate found in our sample.

It has been argued that Type D is a personality trait which is stable over time and across situations. Thus, it should be differentiated from affective states such as anxiety and depression, and from coping, both of which are more subject to change over time and according to the situation (de Jonge et al., 2007; Denollet & Van Heck, 2001; Denollet, 2005). The central point in the argument for a classifying Type D as a trait is that the measure captures a general tendency to experience negative affect and social inhibition, rather than a situational induced affective state.

Whether Type D is a state or a trait measure, the correlations of Type D and measures of mental distress and inhibiting and avoidant coping strategies in our results as well as others clearly indicate an association between the concepts. Type D captures the experience of negative affect combined with tendency to be socially inhibited. Furthermore, this combination seems to have a particularly strong negative effect on the recovery and outcome of CAD patients. The strength of the concept is the potential to incorporate affective and social behavioural dimensions, both of which are known to have negative impact on CAD.

It should be noted that even though the Type D personality is included as a factor associated with CAD, the main theoretical perspective of the thesis is based on social cognitive theories of human behaviour. Thus, rather than attributing human behaviour to stable personality traits, behaviour is explained as the result of an interplay between the individual and its emotions, cognitions and behaviour, and the given environment. Within this perspective, the Type D concept can be interpreted as a general tendency which is learned and developed by the individual in social interactions with its environment. Theories of self-regulation and Regulatory focus provides potential frameworks for explaining the development of this tendency within a social cognitive perspective, similar to the way in which Strauman (2002) explains the development of depression (as described earlier in this chapter). This perspective also invites a more optimistic view about the potential for change, and provides the ground for developing interventions towards changing the cognitions, emotions, behaviour and/or the environment of the patient.

Return to work

In the study of patients' Return To Work (RTW), we were surprised that Type D failed to have any effect on RTW. We expected the Type D personality to hinder and reduce the social and physical commitment assumed necessary for a successful RTW. This lack of effect of

Type D on RTW could be related to the relatively low frequency of Type D in our sample reported in paper II. However, our results with no effect of Type D on RTW are not unique. In a prospective study of patients with acute coronary syndrome, Bhattacharyya et al (Bhattacharyya, Perkins-Porras, Whitehead, & Steptoe, 2007) reported no effects of Type D on RTW. They found that depression at 7-12 days following discharge was the single significant predictor of RTW at 12-13 months later, independently of clinical and demographic factors. Though the Type D personality has been associated with poor recovery (e.g. Denollet, 2005; Denollet et al., 2006), it seems to have less relevance to patients' RTW.

In our study (paper III), we found that six predictors of RTW made unique significant contributions to the model explaining 25-35% of the variance in RTW. The significant factors included age below 67 years, higher levels of education and Internal LoC as positive predictors, and CABG, smoking and Powerful Others LoC as negative predictors. The analysis controlled for data on emergency status, demographics, rehabilitation attendance, GP contact, mental distress, and Type D personality. In separate analysis relating to the CABG patients, the factors included additional data on coronary health (LVEF, MI, previous CAD, and a history of hypertension).

Perhaps more interesting than the lack of effect of Type D, is that mental distress (anxiety and depression measured by the SCL10) did not have any effect on RTW either. Several other studies of RTW among CAD patients have reported that mental distress is one of the significant predictors of RTW (Perk et al., 2004; Mital et al., 2004; Bhattacharyya et al., 2007). The prevalence of mental distress in our sample was consistent with that reported in other studies of CAD patients. The level of mental distress in CAD patients is relatively high compared to the general population in Norway (Strand et al., 2003).

Gender was another factor which we expected would have an effect on patients' RTW. An increasing number of studies have reported that women generally seem to have a worse coronary condition (Bello et al., 2004), a different pattern of symptoms (Bello et al., 2004), more mental distress (Bjerkeset, Nordahl, Mykletun, Holmen, & Dahl, 2005; Naqvi, Naqvi, & Merz, 2005) and worse prognosis than men (Bello et al., 2004). Furthermore, women are reporting more health problems than men (Eriksen, Svendsrod, Ursin, & Ursin, 1998). This led us to assume that women would be less likely to RTW than men. I general, working was less frequent among women than men at the time they were hospitalized. Nevertheless, among those working prior to hospitalization, women were as likely to RTW as men.

The effects of age and education were consistent with other studies (Bradshaw et al., 2005; Mital et al., 2004; Sellier et al., 2003). Education is a well known indicator of social class and type of work, and the effect of education on RTW may reflect both of these. Health is associated with social class (Claussen & Næss, 2002; Power et al., 2007), and the differences in health as well as RTW may reflect a range of social, individual, and economical factors. The type of work is also an important factor concerning patients RTW. Those with higher levels of education and white-collar workers have a 2-3 times higher RTW rate than lower educated and blue-collar workers (Bradshaw et al., 2005; Mital et al., 2004; Perk et al., 2004; Sellier et al., 2003). Smoking is a well known risk factor related to CAD (Tverdal & Bjartveit, 2006), and even stronger in women than in men (Njølstad, Arnesen, & Lund-Larsen, 1996). As smoking is found to be related to education, with consistently higher rates among the less educated than among the highly educated, we expected potential interaction effects of smoking and education on RTW. However, no such interaction effects were found, and education and smoking were significant independent predictors of RTW. Smoking reduced the odds for RTW by 60%.

Locus of control

Patients' perceived Locus of Control (LoC) turned out to be an important psychological predictor of RTW in our study. Patients high in Internal LoC beliefs had a high tendency to RTW. On the other hand, patients high in Powerful others LoC beliefs had a low tendency to RTW. The effects of perceived control on CAD patients' coping, psychosocial adjustment, and well being are well known (Brosschot et al., 1994; Millet & Sandberg, 2003; Selander, Marnetoft, Åsell, & Selander, 2008; Sørlie et al., 2001a; Wallston et al., 1978; Moser et al., 1995), and effects on RTW have also been found in patients with other health problems (Millet et al., 2003; Selander et al., 2008). In prospective studies, patients with high (internal) control have a better coronary health, and less anxiety and depression than those with low (internal) control at six months follow up after a cardiac event (Moser et al., 1995). Internal LoC is also associated with a shorter hospital stay (Mahler & Kulik, 1990) and a higher satisfaction with the information provided at the hospital (Sørlie, Sexton, Busund, & Sørlie, 2000).

The mechanism associated with of how and why LoC influence recovery and RTW is not known. Mahler et al. (1990) suggested that the effect of perceived control is mediated through emotions. Emotional distress has been associated with arrhythmias and a more complicated recovery, and perceived control may reduce emotional distress and thereby lead to an experience of a better heart function and improved recovery. We did not test for any direct associations between LoC and mental distress in our study. However, there were no interaction effects of mental distress and LoC in the multivariate regression analysis of RTW.

Thus, LoC had a direct and independent effect on patients' RTW, not mediated by mental distress.

LoC measures the patients' perceived control beliefs. This should not be confused with their actual control or their need for control. Beliefs about control do not necessarily reflect a strong need for control, which is expected to be associated with anxiety and neuroticism. Furthermore, control beliefs do not necessarily reflect actual control, which may depend on the situation. In some settings, such as the hospital setting, there are limited opportunities for patients to exert control efforts. It has been argued that efforts to exert control and being actively involved in one's treatment may have a negative effect if the situation poses significant barriers to such involvement (Mahler et al., 1990). This is consistent with our findings in the interview study (Paper I). Some of the patients had strong negative reactions and felt frustrated within the hospital setting, as they experienced that they had limited opportunities to be actively involved in their treatment.

LoC is not a stable trait, but show considerable intra-individual variation over time (Sørlie & Sexton, 2004) and is influenced by situational and psychosocial factors. Given the positive effects of Internal LoC on psychosocial adjustment, recovery and RTW, it is important to identify interventions that strengthen and support patients' Internal LoC. Blair et al. (1999) found that a standard cardiac rehabilitation program increased patients' Internal LoC and decrease their Chance LoC. We did not test whether patients' participation in rehabilitation programs had any effect on their perceived control. However, rehabilitation programs had no effect on patients RTW. We had only categorical data on whether or not they had participated in such as program. Further studies are needed to establish if the type of interventions and activities provided in various rehabilitation programs has any effect on perceived control, and if this may improve patients' RTW.

Patient centered approach

Research on patients with CAD has demonstrated that a wide range of psychosocial factors may have strong effect on patients' well-being, recovery and outcome. Some of these have been included in our studies and are discussed in this thesis. The complexity of cognitive, emotional, behavioral, and social as well as the illness and treatment related factors represent a challenge both for research and for hospital staff caring for patients. The first study (Paper I) explored and described patients experiences of the illness and treatment, and their thoughts and concerns about the future. It was a major challenge for the patients to adapt and relate to the hospital setting and to the health care providers at the hospital. The last study (Paper IV) concerns the challenges for the health care providers to meet the needs for information, care and support to the highly stressed CABG patients at the hospital.

The paper describes the nurse training procedures for a patient-centered approach developed by one of the authors (Sørlie). The overall aim of the patient-centered information procedure was to improve patient satisfaction and outcome. The effects of the procedure were tested in a randomized control trial reported in a previous paper (Sørlie, Busund, Sexton, Sexton, & Sørlie, 2007).

The nurses found the patient-centered approach useful in their interaction with the patients. Examples of situations were they found the approach to be particularly useful include situations when patients frequently asked questions, when they seemed to have difficulties expressing their worries, when they frequently complained, and when spouses expressed their own worries. When using the patient-centered approach, nurses experienced that they were able to help the patient to express their feelings, to formulate their worries and concerns, to reflect on their own reactions and resources, and to relate more active and adaptive to their illness and the situation. In this way, a patient-centered approach involves patients as active participants and may help them to exert control over their own health care.

Conversely, the original nurse information procedure at the study ward was standardized and all patients were receiving the same information according to a check list. There was no particular focus on the nurse-patient interaction and on the needs of the individual patient. The approach was nurse-centered, with the nurse in the role of the decision maker, controlling the informational process. The patient was a passive recipient of information, with minimal control and participation. When the treatment environment is structured and controlled solely by the health providers, it can increase the patient's sense of dependence and reduce patient participation and active involvement in their own health care.

This challenge in the interaction between patients and providers is consistent with the patients' experience reported in the interviews (Paper I) of being pacified and hindered from active participation, and of being dependent on the staff at the hospital. We may assume that a patient centered approach have the potential to stimulate and increase patients Internal LoC, which we found (Paper III) to be an important predictor of RTW.

We may expect that patients with a tendency for strong negative affects and a social inhibition style (Type D) would benefit from a patient centered approach. A patient centered approach is expected to help them to formulate their worries and concerns, and to relate more adaptive to their illness and treatment than their maladaptive pattern of social inhibition. Further work includes an intervention study starting in late 2009 at the Department of Thoracic and

Vascular Surgery, in which CABG patients will be screened on Type D, and a patient centered intervention will be tested in a randomised controlled trial.

The nurses found the patient-centered approach useful in a range of different situations and challenges. Patients' often strong negative emotional reactions could be difficult to meet, including anxiety, depression, and particularly, anger, which was sometimes directed towards the staff or the hospital. The use of avoidance strategies and social inhibition of worries and concerns were also experienced as challenging, as the patient tended to withdraw and to isolate him/herself, and not be receptive to help. This tendency has some resemblance to the Type D pattern. Other challenging situations included patients' beliefs about illness, treatment, and risk of new events, and control beliefs about own capacity to recover. Nurses' experiences indicated that the patient-centered approach helped the patients to reflect on their own thoughts and emotions, and that this stimulated adaptive self-regulation processes in the patient. In conclusion, in the clinical setting, patient-centeredness can be a useful approach in the provider-patient interaction. The approach may guide the health provider in how to meet the individual patients need for information, care and support, and may stimulate adaptive self-regulation in the patient.

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Article 1

Article 2

Article 3

Article 4

Appendix:

The questionnaire

SPØRRESKJEMA

Løpenummer i prosjektet:_________

For personer behandlet for hjerte/karsykdom ved UNN

Bakgrunnsopplysninger

Sp.nr	Spørsmål	Svar
A_1	Bor du alene eller sammen med noen?	Bor alene ☐ Bor med ektefelle/samboer/partner ☐ Annet bofellesskap (eks barn, søsken, foreldre, andre) ☐
A_2	Er du skilt/separert, enke/enkemann?	Nei ☐ Skilt / separert ☐ Enke / Enkemann ☐
A_3	Skole/utdanning (kryss av det som best tilsvarer din skolegang):	Bare grunnskole ☐ Videregående skole ☐ Høyskole eller universitet ☐
A_4	Din yrkesstatus <u>før sykehusoppholdet</u>:	Full tids arbeid ☐ Deltidsarbeid ☐ Arbeidsledig ☐ Pensjonist ☐ Sykemeldt ☐ Ufør ☐ Annet ☐
A_5	Din yrkesstatus <u>nå</u>:	Full tids arbeid ☐ Deltidsarbeid ☐ Arbeidsledig ☐ Pensjonist ☐ Sykemeldt ☐ Ufør ☐ Annet ☐
A_6	Hvilken etnisk/kulturell bakgrunn har du sterkest tilknytning til?	Norsk ☐ Samisk ☐ Både samisk og norsk ☐ Kvensk ☐ Både kvensk og norsk ☐ Annet ☐

Om oppholdet på sykehuset

Sp. nr	I hvilken grad	Ikke i det hele tatt	Lite	Vet ikke	Noe	I stor grad
B_1	Fikk du hjelp fra lege eller sykehuset til å forberede deg på sykehusoppholdet	☐	☐	☐	☐	☐
B_2	Ble du mottatt på en tilfredsstillende måte når du ankom/ble innlagt på sykehuset	☐	☐	☐	☐	☐
B_3	Var du fornøyd med den behandlingen du fikk på sykehuset	☐	☐	☐	☐	☐
B_4	Ga sykehuset den informasjonen du trengte om sykdommen og behandlingen	☐	☐	☐	☐	☐
B_5	Var du fornøyd med omgivelsene (rom, mat, seng, muligheter for besøk osv) ved avdelingen	☐	☐	☐	☐	☐
B_6	Tok pleiepersonalet seg tid til å snakke med deg	☐	☐	☐	☐	☐
B_7	Viste pleiepersonalet omsorg for deg	☐	☐	☐	☐	☐
B_8	Tok legene seg tid til å snakke med deg	☐	☐	☐	☐	☐
B_9	Viste legene omsorg for deg	☐	☐	☐	☐	☐
B_10	Følte du deg trygg mens du var på sykehuset	☐	☐	☐	☐	☐
B_11	Fikk du nyttig informasjon og råd fra medpasienter	☐	☐	☐	☐	☐
B_12	Fikk du trøst og støtte fra medpasienter?	☐	☐	☐	☐	☐
B_13	Var kontakt med medpasienter viktig for din trivsel under sykehusoppholdet	☐	☐	☐	☐	☐
B_14	Var besøk av familie/venner viktig for din trivsel under sykehusoppholdet	☐	☐	☐	☐	☐
B_15	Synes du at du ble utskrevet på riktig tidspunkt	☐	☐	☐	☐	☐

Om å komme hjem fra sykehuset

Sp. nr	I hvilken grad	Ikke i det hele tatt	Lite	Vet ikke	Noe	I stor grad
C_1	Foreberedte sykehuset deg på vansker du fikk da du kom hjem etter behandlingen?	☐	☐	☐	☐	☐
C_2	Følte du deg trygg hjemme i den første tiden etter utskrivelse?	☐	☐	☐	☐	☐
C_3	Har du følt behov for å kontakte sykehusavdelingen etter utskrivelse?	☐	☐	☐	☐	☐
C_4	Ville du ønsket at sykehusavdelingen kontaktet deg etter at du var kommet hjem for å høre hvordan det gikk?	☐	☐	☐	☐	☐
C_5	Syntes du at det var tungt eller vanskelig å komme hjem etter sykehusoppholdet?	☐	☐	☐	☐	☐
C_6	Var du avhengig av hjelp fra andre?	☐	☐	☐	☐	☐

Om fastlege og rehabilitering

Sp. nr	I hvilken grad	Ikke i det hele tatt	Lite	Vet ikke	Noe	I stor grad
D_1	Er du fornøyd med <u>kontakten</u> du har med din fastlege?	☐	☐	☐	☐	☐
D_2	Er du fornøyd med <u>behandlingen</u> du får fra din fastlege?	☐	☐	☐	☐	☐
D_3	Vet du at det finnes rehabiliteringstilbud for personer med hjertelidelser?	Ja, vet at det finnes ☐			Nei, vet ikke ☐	
D_4	Har du hatt et rehabiliteringsopphold?	☐ Ja	☐ Nei (hvis nei, gå til E_1)			
	Hvis du har hatt et rehabiliteringsopphold:	**Ikke i det hele tatt**	**Lite**	**Vet ikke**	**Noe**	**I stor grad**
D_5	- Hvor fornøyd var du med oppholdet?	☐	☐	☐	☐	☐
D_6	- Har det bidratt til at du er mer aktiv?	☐	☐	☐	☐	☐
D_7	- Har oppholdet bidratt til at du er tryggere og mindre engstelig?	☐	☐	☐	☐	☐
D_8	Deltar du på informasjonsmøter og aktiviteter arrangert av pasientorganisasjoner?	☐	☐	☐	☐	☐

Om bruk av Internett og mobiltelefon

Sp. nr	I hvilken grad	Ikke i det hele tatt	Lite	Noe	I stor grad
E_1	Bruker du Internett?	☐	☐	☐	☐
E_2	Hvis ja, har du søkt informasjon om sykdom og helse på Internett?	☐	☐	☐	☐
E_3	Hvis ja, er du fornøyd med informasjonen du fant på Internett om sykdom og helse?	☐	☐	☐	☐
E_4	Har du besøkt sykehusets nettsider?	☐	☐	☐	☐
E_5	Hvis ja, er du fornøyd med informasjonen du fant på sykehusets nettsider?	☐	☐	☐	☐
E_6	Bruker du epost?	☐	☐	☐	☐
E_7	Hvis det var mulig, ville du bruke epost i kontakten med din fastlege eller sykehuset (som timebestilling, innkalling, svar på prøver, og informasjon, tips og råd knyttet til din sykdom)?	☐	☐	☐	☐

Sp. nr	**Om mobiltelefon**	**Ikke i det hele tatt**	**Lite**	**Noe**	**I stor grad**
F_1	Bruker du mobiltelefon, og i så fall hvor mye?	☐	☐	☐	☐
F_2	Hvis ja, sender og mottar du tekstmeldinger (SMS)?	☐	☐	☐	☐
F_3	Hadde du kontakt med familie eller venner via tekstmeldinger mens du var innlagt på sykehuset?	☐	☐	☐	☐
F_4	Hvis det var mulig, ville du bruke tekstmeldinger i kontakten med din fastlege eller til sykehuset? (som timebestilling, innkalling, svar på prøver, og informasjon, tips og råd om din sykdom)?	☐	☐	☐	☐

Om fysisk aktivitet, kosthold og røyk

Angi det svaret som best beskriver deg

Sp. nr		**Sitter i ro det meste av dagen**	**Går lett tur noen dager (for eksempel til butikken)**	**Går lett tur daglig**	**Trener/ går lengre turer (anstrengende) av og til**	**Trener/går lengre turer regelmessig (ukentlig)**
G_1	Fysisk aktivitet	☐	☐	☐	☐	☐

Sp. nr		**Nei, tenker aldri på det og spiser det jeg vil**	**Tenker litt på det men spiser likevel det jeg vil**	**Tenker en del på det og forsøker å begrense slik mat**	**Tenker mye på det og er svært forsiktig med hva jeg spiser**	
G_2	Er du opptatt av salt, fett og sukkerinnhold i maten du spiser?	☐	☐	☐	☐	☐

Sp. nr		**Aldri røykt**	**Sluttet FØR jeg ble syk**	**Sluttet NÅR jeg ble syk**	**Røyker sjeldent**	**Røyker daglig**
G_3	Røyking	☐	☐	☐	☐	☐

G_4	Har du diabetes?	☐ **Ja, jeg har diabetes**	☐ **Nei, jeg har IKKE diabetes**	☐ **Vet ikke**

Om hva som opptar deg

Angi hvor godt hver påstand stemmer med din oppfatning av deg selv.

Sp. nr		**Stemmer ikke**	**Stemmer dårlig**	**Usikker**	**Stemmer noe**	**Stemmer fullstendig**
H_1	Jeg tenker ofte på hvordan jeg ønsker at min helse skal være	☐	☐	☐	☐	☐
H_2	Jeg tenker ofte på helseproblemer og plager jeg kan få i tiden fremover	☐	☐	☐	☐	☐
H_3	Jeg tenker ofte på hvordan jeg kan forbedre min helse	☐	☐	☐	☐	☐
H_4	Mitt primære helsemål nå er å forhindre alvorlige helseproblemer	☐	☐	☐	☐	☐
H_5	Mitt primære helsemål nå er å komme i bedre fysisk form	☐	☐	☐	☐	☐
H_6	Det er viktig for meg å være forsiktig slik at jeg ikke blir syk igjen	☐	☐	☐	☐	☐

Om hva som opptar deg

Angi hvor godt hver påstand stemmer med din oppfatning av deg selv.

Sp. nr		Stemmer ikke	Stemmer dårlig	Usikker	Stemmer noe	Stemmer fullstendig
I_1	Jeg er vanligvis opptatt av hvordan jeg kan forhindre negative hendelser i livet mitt.	☐	☐	☐	☐	☐
I_2	Jeg er redd for at jeg ikke vil leve opp til mitt ansvar og mine forpliktelser.	☐	☐	☐	☐	☐
I_3	Jeg forestiller meg ofte hvordan jeg skal oppnå mine håp og drømmer.	☐	☐	☐	☐	☐
I_4	Jeg tenker ofte på den personen jeg er redd for at jeg kan komme til å bli i framtida.	☐	☐	☐	☐	☐
I_5	Jeg bekymrer meg ofte over at jeg vil mislykkes i å oppnå mine målsetninger.	☐	☐	☐	☐	☐
I_6	Akkurat nå er mitt hovedmål i tilværelsen å være forsiktig slik at jeg unngår å bli syk igjen	☐	☐	☐	☐	☐
I_7	Jeg tenker ofte på den personen som jeg ideelt ville ønske å være i framtida.	☐	☐	☐	☐	☐
I_8	Jeg fokuserer ofte på den suksess jeg håper å oppnå i framtida.	☐	☐	☐	☐	☐
I_9	Jeg forestiller meg ofte at jeg opplever dårlige ting som jeg frykter skal skje meg.	☐	☐	☐	☐	☐
I_10	Jeg tenker ofte på hvordan jeg kan unngå å feile i livet mitt.	☐	☐	☐	☐	☐
I_11	Jeg er mer orientert mot å forhindre tap enn å oppnå vinning.	☐	☐	☐	☐	☐
I_12	Akkurat nå er mitt hovedmål i tilværelsen å oppnå mine ambisjoner om å leve et aktivt liv.	☐	☐	☐	☐	☐
I_13	Jeg ser på meg selv som en som primært jobber for å bli mitt ”ideelle selv” – å oppfylle mine håp, ønsker og drømmer	☐	☐	☐	☐	☐
I_14	Jeg tenker ofte på hvordan jeg vil klare å oppnå mine mål.	☐	☐	☐	☐	☐
I_15	Jeg ser på meg selv som en som først og fremst jobber for å bli den personen jeg ”burde” bli – å oppfylle mine plikter, mitt ansvar, og mine forpliktelser	☐	☐	☐	☐	☐
I_16	Jeg er vanligvis opptatt av hvordan jeg kan oppnå positive resultater i livet mitt.	☐	☐	☐	☐	☐
I_17	Jeg forestiller meg ofte at jeg opplever gode ting som jeg håper vil skje meg.	☐	☐	☐	☐	☐
I_18	Alt i alt er jeg mer orientert mot å oppnå suksess enn å forhindre og feile.	☐	☐	☐	☐	☐

Om mestring

I hvilken grad beskriver utsagnene dine måter å reagere på i forhold til problemer og bekymringer du opplever i forbindelse med hjerte/karsykdommen nå i den siste tiden.

Sp. nr		Ikke i det hele tatt	Litt	En del	Ganske mye	Veldig mye
J_1	Jeg konsentrerer meg om det neste jeg må gjøre - det neste skrittet.	☐	☐	☐	☐	☐
J_2	Jeg prøver å analysere problemet for å forstå det bedre.	☐	☐	☐	☐	☐
J_3	Jeg forhandler eller gjør et kompromiss for å få noe positivt ut av situasjonen.	☐	☐	☐	☐	☐
J_4	Jeg snakker med noen for å finne ut mer om situasjonen.	☐	☐	☐	☐	☐
J_5	Jeg håper på at et mirakel vil skje	☐	☐	☐	☐	☐
J_6	Jeg overlater det til skjebnen, noen ganger har jeg bare uflaks.	☐	☐	☐	☐	☐
J_7	Jeg prøver å holde følelsene mine for meg selv.	☐	☐	☐	☐	☐
J_8	Jeg ser etter lyspunkter, prøver å se positivt på tingene.	☐	☐	☐	☐	☐
J_9	Jeg sier ting til meg selv som hjelper meg til å føle meg bedre.	☐	☐	☐	☐	☐
J_10	Jeg skaffer meg profesjonell hjelp.	☐	☐	☐	☐	☐
J_11	Jeg snakker med noen som kan gjøre noe konkret med problemet.	☐	☐	☐	☐	☐
J_12	Jeg bevarer min stolthet og holder meg ovenpå utad.	☐	☐	☐	☐	☐
J_13	Jeg lar det ikke gå inn på meg, unnlater å tenke for mye på det.	☐	☐	☐	☐	☐
J_14	Jeg spør en slektning eller en venn jeg respekterer om råd.	☐	☐	☐	☐	☐
J_15	Jeg sørger for at andre ikke får vite hvor ille situasjonen er.	☐	☐	☐	☐	☐
J_16	Jeg spøker om situasjonen, unnlater å ta den alvorlig.	☐	☐	☐	☐	☐
J_17	Jeg snakker med noen om hvordan jeg føler meg.	☐	☐	☐	☐	☐
J_18	Jeg bygger på tidligere erfaringer, var i en liknende situasjon tidligere.	☐	☐	☐	☐	☐
J_19	Jeg vet hva som må gjøres så jeg tar i dobbelt så hardt for å få ting til å fungere.	☐	☐	☐	☐	☐
J_20	Jeg lover meg selv at ting skal bli annerledes neste gang.	☐	☐	☐	☐	☐
J_21	Jeg kommer frem til et par andre løsninger på problemet.	☐	☐	☐	☐	☐
J_22	Jeg prøver å unngå at følelsene mine forstyrrer andre ting for mye.	☐	☐	☐	☐	☐
J_23	Jeg dagdrømmer eller forestiller meg en tid eller et sted hvor jeg har det bedre enn nå.	☐	☐	☐	☐	☐
J_24	Jeg ønsker at situasjonen vil forsvinne eller på annen måte være over.	☐	☐	☐	☐	☐
J_25	Jeg fantaserer om hvordan det vil gå.	☐	☐	☐	☐	☐
J_26	Jeg forbereder meg på det verste	☐	☐	☐	☐	☐

Om følelser

Her er en liste over ulike problemer eller reaksjoner. Har du opplevd noe av dette den siste uken (til og med i dag)?

Sp. nr		Ikke plaget	Litt plaget	Ganske mye plaget	Veldig mye plaget
K_1	Plutselig frykt uten grunn	☐	☐	☐	☐
K_2	Føler deg redd eller engstelig	☐	☐	☐	☐
K_3	Matthet eller svimmelhet	☐	☐	☐	☐
K_4	Føler deg anspent eller oppjaget	☐	☐	☐	☐
K_5	Lett for å klandre deg selv	☐	☐	☐	☐
K_6	Søvnproblemer	☐	☐	☐	☐
K_7	Nedtrykt, tungsindig	☐	☐	☐	☐
K_8	Følelse av å være unyttig, lite verd	☐	☐	☐	☐
K_9	Følelse av at alt er et slit	☐	☐	☐	☐
K_10	Følelse av håpløshet mht. framtida	☐	☐	☐	☐
K_11	Dårlig samvittighet eller selvbebreidelse	☐	☐	☐	☐
K_12	Føler skam	☐	☐	☐	☐

Om egne ressurser

Sett kryss ved det svaret som passer best for deg (ett kryss for hvert utsagn)

Sp. nr		Helt galt	Nokså galt	Nokså riktig	Helt riktig
L_1	Jeg klarer alltid å løse vanskelige problemer hvis jeg prøver hardt nok.	☐	☐	☐	☐
L_2	Hvis noen motarbeider meg, så kan jeg finne måter og veier for å få det som jeg vil.	☐	☐	☐	☐
L_3	Det er lett for meg å holde fast på planene mine og nå målene mine.	☐	☐	☐	☐
L_4	Jeg føler meg trygg på at jeg ville kunne takle uventede hendelser på en effektiv måte.	☐	☐	☐	☐
L_5	Takket være ressursene mine så vet jeg hvordan jeg skal takle uventede situasjoner.	☐	☐	☐	☐
L_6	Jeg kan løse de fleste problemer hvis jeg går tilstrekkelig inn for det.	☐	☐	☐	☐
L_7	Jeg beholder roen når jeg møter vanskeligheter fordi jeg stoler på mestringsevnen min.	☐	☐	☐	☐
L_8	Når jeg møter et problem, så finner jeg vanligvis flere løsninger på det.	☐	☐	☐	☐
L_9	Hvis jeg er i knipe, så finner jeg vanligvis en vei ut.	☐	☐	☐	☐
L_10	Samme hva som hender så er jeg vanligvis i stand til å takle det.	☐	☐	☐	☐

Om kontroll

Sp. nr		Helt uenig	Nokså uenig	Litt uenig	Litt enig	Nokså enig	Helt enig
M_1	Hvis jeg blir syk, er det min egen atferd som avgjør hvor raskt jeg blir frisk igjen.	☐	☐	☐	☐	☐	☐
M_2	Hvis det er slik at jeg skal bli syk, blir jeg det uansett hva jeg foretar meg.	☐	☐	☐	☐	☐	☐
M_3	Regelmessig kontakt med legen er den beste måten for meg å unngå sykdom på.	☐	☐	☐	☐	☐	☐
M_4	De fleste ting som virker inn på min helse, skjer tilfeldig.	☐	☐	☐	☐	☐	☐
M_5	Når jeg ikke føler meg bra, bør jeg snakke med lege eller andre fagfolk på helsespørsmål.	☐	☐	☐	☐	☐	☐
M_6	Jeg har selv kontrollen over min helse.	☐	☐	☐	☐	☐	☐
M_7	Min familie har stor betydning for om jeg blir syk eller holder meg frisk.	☐	☐	☐	☐	☐	☐
M_8	Når jeg blir syk, er det jeg selv som må lastes.	☐	☐	☐	☐	☐	☐
M_9	Det er i stor grad flaks som avgjør hvor raskt jeg vil komme meg etter sykdom.	☐	☐	☐	☐	☐	☐
M_10	Leger og andre fagfolk på helsespørsmål har kontrollen med min helse.	☐	☐	☐	☐	☐	☐
M_11	Min gode helse er stort sett et spørsmål om at jeg har lykken med meg.	☐	☐	☐	☐	☐	☐
M_12	Det som først og fremst virker inn på min helse, er det jeg selv gjør.	☐	☐	☐	☐	☐	☐
M_13	Jeg kan unngå sykdom hvis jeg tar godt vare på meg selv	☐	☐	☐	☐	☐	☐
M_14	Når jeg blir frisk etter en sykdom, er det vanligvis fordi andre har tatt seg godt av meg.	☐	☐	☐	☐	☐	☐
M_15	Uansett hva jeg gjør, er det sannsynlig at jeg blir syk.	☐	☐	☐	☐	☐	☐
M_16	Hvis det nå engang er meningen at jeg skal være frisk, så vil jeg holde meg frisk.	☐	☐	☐	☐	☐	☐
M_17	Hvis jeg tar de riktige forholdsreglene, kan jeg holde meg frisk.	☐	☐	☐	☐	☐	☐
M_18	Når det gjelder min helse, kan jeg bare følge de råd legen gir.	☐	☐	☐	☐	☐	☐

Om personlige egenskaper

Her er et utvalg av personlige egenskaper og trekk. Du vil se at noen av disse beskriver deg godt, mens andre ikke gjør det. Angi hvor godt hvert utsagnspar eller beskrivelse passer for deg, selv om ett av utsagnene kanskje passer deg bedre

Sp. nr	Jeg ser meg selv som	Svært Uenig	Litt uenig	Verken enig eller uenig	Litt enig	Svært enig
N_1	Utadvendt, entusiastisk	☐	☐	☐	☐	☐
N_2	Kritisk, kranglete	☐	☐	☐	☐	☐
N_3	Pålitelig, selv-disiplinert	☐	☐	☐	☐	☐
N_4	Engstelig, lett opprørt	☐	☐	☐	☐	☐
N_5	Åpen for nye erfaringer, kompleks	☐	☐	☐	☐	☐
N_6	Reservert, stille	☐	☐	☐	☐	☐
N_7	Sympatisk, varm	☐	☐	☐	☐	☐
N_8	Uorganisert, skjødesløs	☐	☐	☐	☐	☐
N_9	Rolig, følelsesmessig stabil	☐	☐	☐	☐	☐
N_10	Konvensjonell, lite kreativ	☐	☐	☐	☐	☐

Nedenfor følger en rekke utsagn som folk ofte bruker for å beskrive seg selv. Kryss av for det svaret som passer best for deg. Det finnes ingen riktige eller gale svar. Det er din egen oppfatning som gjelder.

Sp. nr		Passer slett ikke	Passer sjelden	Nøytral	Passer for det meste	Passer helt
O_1	Jeg kommer lett i kontakt med folk jeg møter.	☐	☐	☐	☐	☐
O_2	Jeg lager ofte problemer av små ting	☐	☐	☐	☐	☐
O_3	Jeg snakker ofte til fremmede	☐	☐	☐	☐	☐
O_4	Jeg føler meg ofte ulykkelig.	☐	☐	☐	☐	☐
O_5	Jeg er ofte irritert.	☐	☐	☐	☐	☐
O_6	Jeg føler meg ofte hemmet sammen med andre	☐	☐	☐	☐	☐
O_7	Jeg ser negativt på ting.	☐	☐	☐	☐	☐
O_8	Jeg synes det er vanskelig å innlede en samtale.	☐	☐	☐	☐	☐
O_9	Jeg er ofte i dårlig humør.	☐	☐	☐	☐	☐
O_10	Jeg er en ”lukket” person.	☐	☐	☐	☐	☐
O_11	Jeg foretrekker å holde andre folk på avstand	☐	☐	☐	☐	☐
O_12	Jeg tar meg ofte i at jeg bekymrer meg for noe	☐	☐	☐	☐	☐
O_13	Jeg føler meg ofte ”nede i kjelleren”	☐	☐	☐	☐	☐
O_14	Når jeg er sammen med andre, vet jeg ikke hva jeg skal snakke om	☐	☐	☐	☐	☐

Tanker omkring sykdom

Sett en ring rundt det tallet som best samsvarer med din mening om de følgende spørsmålene

P_1	Hvor mye påvirker sykdommen livet ditt?	**Ingen påvirkning** 0 1 2 3 4 5 6 7 8 9 10	**Voldsom påvirkning**
P_2	Hvor lenge tror du sykdommen din vil vare?	**Svært kort tid** 0 1 2 3 4 5 6 7 8 9 10	**For alltid**
P_3	Hvor mye kontroll føler du at du har over sykdommen din?	**Absolutt ingen kontroll** 0 1 2 3 4 5 6 7 8 9 10	**Svært stor kontroll**
P_4	Hvor mye mener du at behandlingen din kan hjelpe mot sykdommen din?	**Ikke i det hele tatt** 0 1 2 3 4 5 6 7 8 9 10	**Svært hjelpsom**
P_5	Hvor mye opplever du symptomer fra sykdommen din?	**Ingen symptomer i det hele tatt** 0 1 2 3 4 5 6 7 8 9 10	**Mange alvorlige symptomer**
P_6	Hvor bekymret er du angående sykdommen din?	**Ikke bekymret i det hele tatt** 0 1 2 3 4 5 6 7 8 9 10	**Svært bekymret**
P_7	Hvor godt føler du at du forstår sykdommen din?	**Forstår ikke i det hele tatt** 0 1 2 3 4 5 6 7 8 9 10	**Forstår svært godt**
P_8	Hvor mye påvirker sykdommen din deg følelsesmessig (for eksempel gjør den deg sint, redd, urolig eller deprimert)?	**Ikke påvirket følelsesmessig i det hele tatt** 0 1 2 3 4 5 6 7 8 9 10	**Svært påvirket følelsesmessig**
	Vennligst skriv ned i rekkefølge de tre viktigste faktorene som du tror forårsaket sykdommen din.		
P_9	De aller viktigste årsaker for meg:	**1.**	
P_10		**2.**	
P_11		**3.**	

Takk for hjelpa!
Skjemaet legges i returkonvolutten og postes. Porto er betalt.