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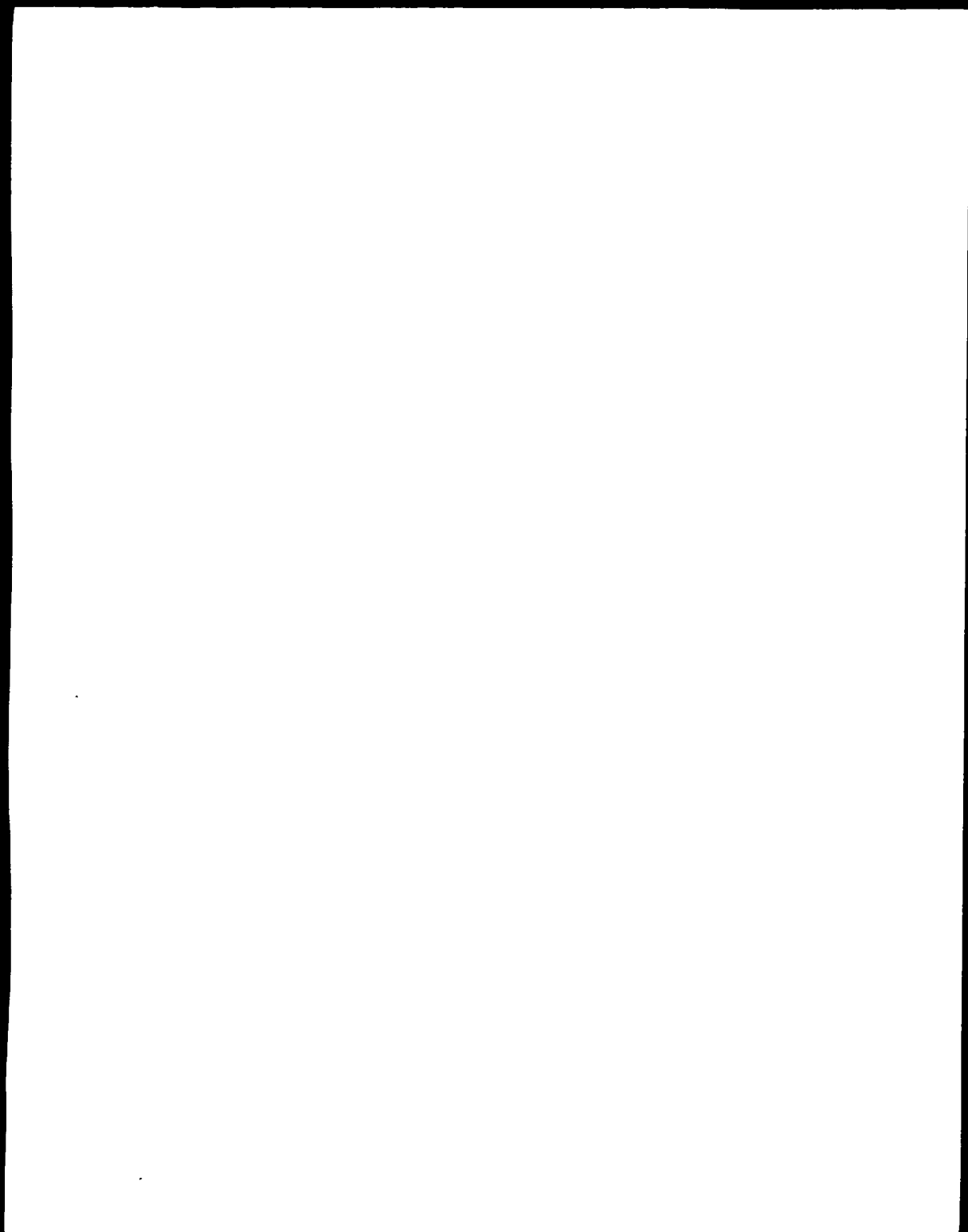
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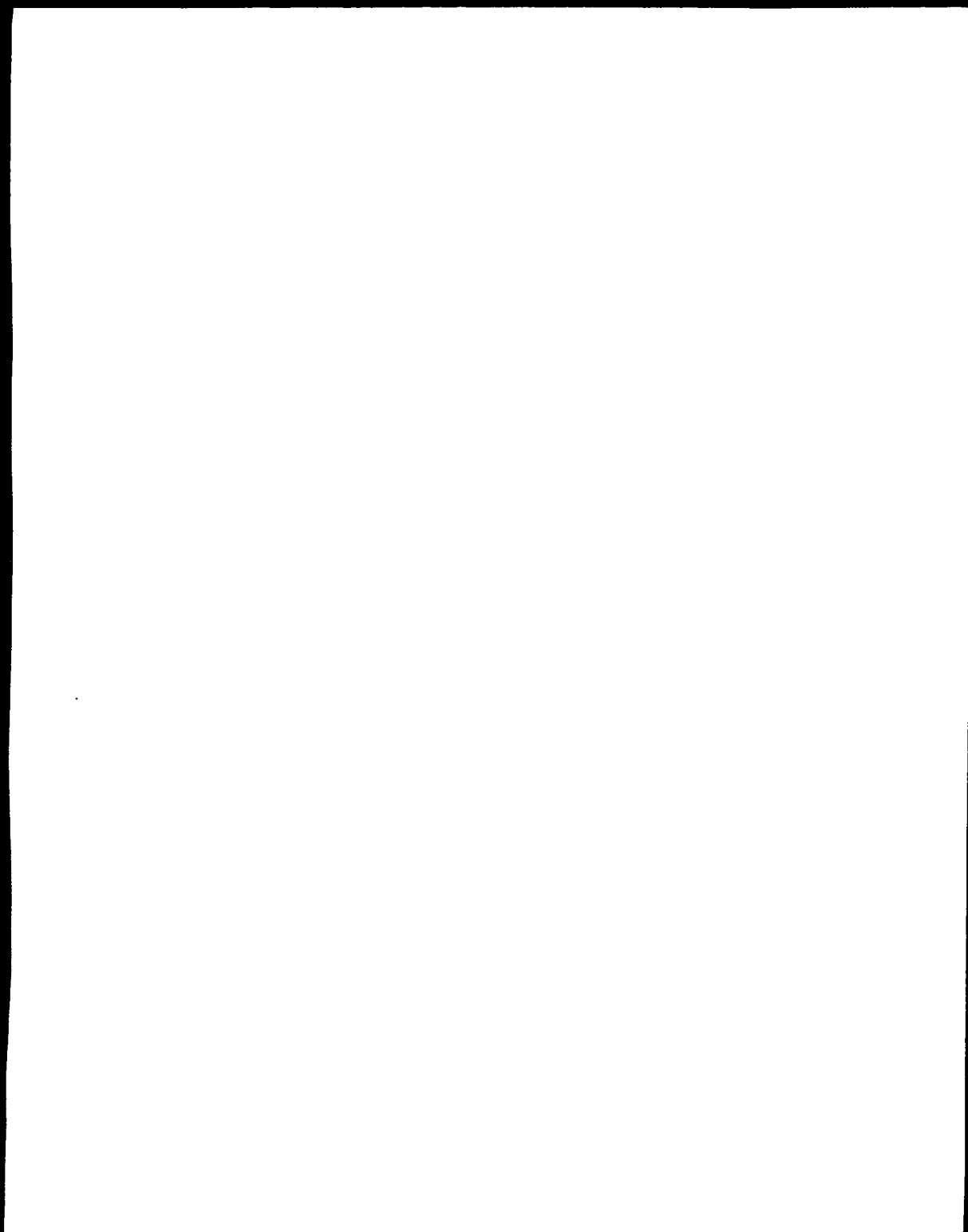
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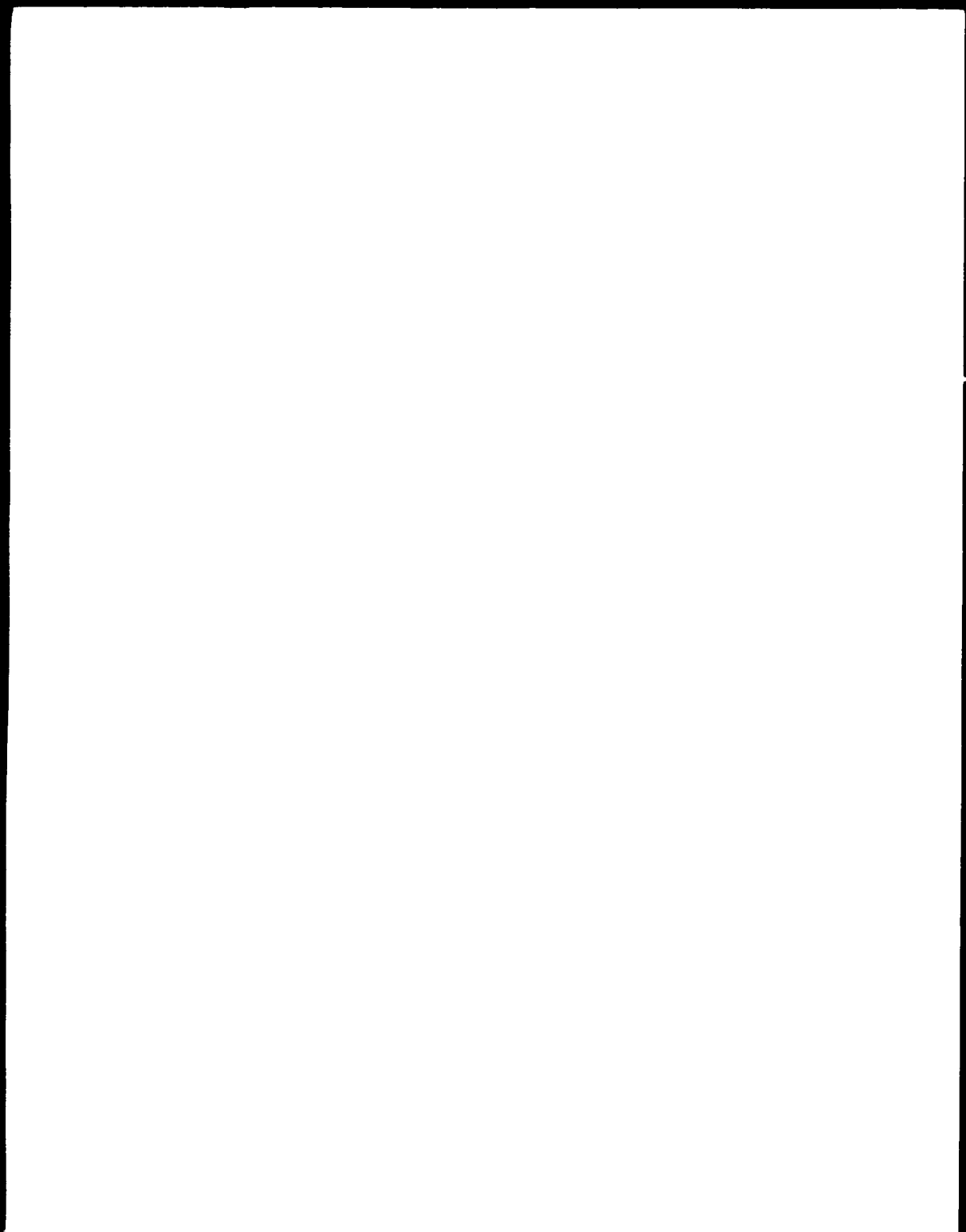
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A Randomized Comparison Between a Goal-Setting and a Videotape and Discussion Intervention to
Improve Return to Work and Quality of Life Among Cardiac Patients

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University of Ottawa

Dissertation in partial fulfillment of the requirements for the Ph.D. degree in Clinical Psychology

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Abstract

Approximately 26% of Canadians who are not working due to disability report physical limitations caused by coronary heart disease (CHD). CHD accounts for 17% of all lost productivity in Canada. This is true despite the finding that cardiac treatment restores adequate functional capacity in a majority of patients.

Two interventions were compared in their ability to increase the RTW rates of cardiac patients. The experimental condition involved the setting of weekly, specific, challenging and self-relevant goals. The comparison condition involved the viewing of four video-tapes focusing on RTW-related issues.

Subjects were randomly assigned to goal-setting (N = 22) and video-tape (N= 24) groups. The first hypothesis was that goal-setting would lead to higher rates of RTW and to a higher percentage of eligible weeks worked at follow-up, compared to the video tape group. No significant treatment group differences were found.

A related question was whether subject characteristics (i.e., risk of not returning to work, self-determination to participate in the intervention, depression, and anxiety) and implementation characteristics (i.e., group size, number of sessions attended, and duration of follow-up period) would interact with treatment group to affect rate of RTW and percentage of eligible weeks worked at follow-up. Risk of not returning to work predicted RTW and percentage of eligible weeks returned to work. Number of sessions attended also interacted with treatment group to predict percentage of eligible weeks worked.

The second hypothesis was that there were group differences life satisfaction and job satisfaction (for subjects who returned to work) at follow-up, as well as satisfaction with treatment at post-treatment. No significant treatment group differences were found.

A related question was whether subject characteristics and implementation characteristics

interacted with treatment to affect life satisfaction, job satisfaction and satisfaction with treatment. There was a stronger positive correlation between life satisfaction at pre-treatment and life satisfaction at follow-up in the goal-setting group, than in the video-tape group.

The third hypothesis was that the goal-setting group would show greater improvements over time in self-efficacy, self-determination, commitment to work, life satisfaction, depression, and anxiety, compared to the video-tape group. Self-efficacy and depression improved in both groups.

Introduction

More than 75% of adults in North America report that they would work regardless of financial need (Kahn, 1981; MOW International Research Team, 1987). This response has also been obtained from individuals with disabilities (Harris and Associates, 1986) and those whose incomes are below the poverty level (Goodwin, 1972). Other findings indicate that for many people work is perceived as a source of personal satisfaction and well-being (Goodwin, 1972; Abakas, 1990). Work has been described as a means through which individuals make social contacts, achieve meaningful goals and develop a sense of self-worth and belonging (Abakas, 1990). Further, unemployment has been associated with depressive affect (Flynn, 1993), low social status, poor self-esteem and a poor income (Berkowitz & Hill, 1986). It has also been found to disrupt normal family interactional patterns, eliminate the individual's role as a productive member of society, and increase dependency on the health-care and welfare systems (Berkowitz & Hill, 1986; Abakas, 1990). Planning to return to work soon after the occurrence of a disability has been shown to promote a more positive outlook on life and reduce the likelihood of accepting a "sick role", whereas the cessation of work has been shown to reduce the individual's contribution to self, family and society and to feel like a burden to others (Maeland & Havik, 1987).

Individuals with coronary heart disease (CHD) also comprise approximately 26% of all Canadians who are out of work as a result of disability (Health and Welfare Canada, 1988). In Canada, CHD accounts for 17% of the loss of productivity due to disability (Wigle, et al., 1990). In 1993, 895,000 out of the 1.768 million working-age Canadians with disabilities were unemployed. However, nearly 88,000 individuals with moderate to severe disabilities, lasting 3 years or longer, were able to maintain well-paid jobs (Mills, Zimmerman, Lawrie, and White, 1993).

Non-working patients with CHD represent approximately 25% of all cardiac patients who have

received medical treatment for either myocardial infarction (MI), unstable angina or chronic heart failure (Heart and Stroke Foundation of Canada, 1991). In studies of outcomes of cardiac treatment, many of these patients have not returned to work in spite of successful treatment outcomes and adequate functional capacity (Caine, Harrison, Sharples, & Wallwork, 1991; Danchin, Juilliere, Selton-Suty, et al., 1989). It has been estimated that, in Canada, the yearly costs of hospitalization, physician consultation, CHD-related procedures (including coronary artery bypass surgery [CABS], cardiac revascularization and angioplasty [PTCA]) and utilization of pharmaceuticals is over 16 billion dollars (Wigle, Mao, Wong, & Lane, 1990).

More than 75% of cardiac patients can have a functional capacity that is adequate for returning to work earlier than is commonly recommended. Typically, previously employed patients who are treated for MI will take 24 weeks to return to work (Froelicher, Kee, Newton, et al., 1994). However, in the absence of signs of poor prognosis, such as substantial left ventricular dysfunction or myocardial ischemia, many patients have been able return to work within 30 to 40 days of treatment (Gattiker & Dennis, 1992). In addition, patients who resume employment earlier than the recommended 6 months have reported less emotional distress (Rost & Smith, 1992). Their timely RTW may thus contribute to an important reduction in the number of Canadians who receive disability insurance and who do not return to the work force.

One way of reducing the number of cardiac patients who do not resume employment following medical care is to offer patients a rehabilitative intervention specifically designed to improve RTW rates. In an attempt to maximize the success rate of such an intervention, this thesis pursued three goals. The first goal was to review the most recent literature in order to determine which factors have had the most significant predictive influence on RTW or non-RTW among cardiac patients. Second, the goal was to develop a theoretical model explaining the relations among the factors which are known to influence

patients' decisions to resume employment. The reason for the model was to begin understanding the possible processes that made cardiac patients at high risk of not returning to work decide not to return. The third goal was to develop and evaluate a short-term psychosocial intervention to increase the number of patients who resume employment following cardiac treatment.

Literature Review

Factors Predicting RTW Among Cardiac Patients

In this review, the factors found to predict RTW and non-RTW among cardiac patients are categorized as demographic, medical, social environmental and psychological. In addition, studies within these categories are classified as retrospective or prospective. The reason for the second classification is that there are a large number of published retrospective studies in the current literature concerned with the RTW of cardiac patients. However, even though retrospective studies are similar to prospective studies in that they assess longitudinal data, they have been criticized for containing many methodological drawbacks (Schulsinger, Mednick, and Knop, 1981). Retrospective studies typically interpret evidence based on data produced after the time that they pertain to. Events presumed to predict hypothesized outcomes are not directly observed, but are assumed to have occurred according to measures that were not necessarily selected for research purposes. Evidence is produced through secondary sources such as interviews and questionnaires about past experiences, consultations with third parties, and information drawn by physicians and other medical personnel who did not generate it for the purpose of the study. Further, information taken from the subjects' memory may be faulty and/or influenced by the wording of the questions posed during the study. Another drawback of retrospective studies is that there is a lack of control from the use of non-randomized samples. Hypotheses may thus inadvertently distort evidence through the selective gathering of data. In addition, because subject selection is based on reported past events, it precludes control subjects with similar characteristics who did not experience the studied event and subjects who either died or refused to participate in the study for reasons pertinent to its purpose. Consequently, findings from retrospective studies should be interpreted with caution (Schulsinger et al., 1981).

Prospective studies do not contain as many methodological limitations as retrospective studies.

Assessments are made at different periods of time in a standard manner with the same instruments, and events are directly observed. Changes in measured variables are believed to occur as a result of the interaction of a number of lifestyle factors over time (Schulsinger et al., 1981).

The following literature review includes general summaries of the outcomes of 41 studies that have assessed RTW in cardiac patients. A more detailed description of the outcomes of each study is included in Appendix E.

In addition, the following literature review excludes studies which were published before 1980. There are two major reasons for this. First, the economic and social climate which affected RTW in the 1970's is different from the climate of the 1980's and 1990's. In addition, medical technology has improved to the extent that cardiac patients live longer and more healthy lives following cardiac treatment. Thus, research on RTW in the 1970's may no longer represent the reality of RTW experienced by the cardiac patients included in this study.

Demographic Factors

Several factors have been associated with RTW in cardiac patients. These factors include: age, gender, race, education level, type of occupation and social class, pre-operative work status and duration of unemployment, and income and financial support.

The tendency for older patients to return to work at lower rates compared to younger patients is shown in both retrospective (Boudrez & Comhaire, 1994; Johnson, Kayser, Pedraza, & Shore, 1982; Langosch, Brodner, & Borcharding, 1983; Levy, Bellorini, Cordani, et al., 1987; Love, 1980; Lundbom, Myhre, Ystgaard, et al., 1992) and prospective studies (Angermann & Deschler, 1992; Engblom, Hamalainen, Ronnema, et al., 1994; Freidl, Egger, and Schratter, 1993; Gehring, Koenig, Rana, and Mathes, 1988; Mark, Lam, Lee, et al., 1992; Saito, Fuseno, Honda, Haze, and Hiramori, 1983; Stanton, Jenkins, Denlinger, Savageau, Weintraub, and Goldstein, 1983). Unlike younger patients, patients above

the age of 60 choose to retire at rates that are comparable to those of their age group in the normative population (Johnson et al., 1982). In the late 1980's and early 1990's, more individuals below the age of 60 are accepting pre-retirement packages or agree to an early retirement (Lundbom, Myhre, Ystgaard, et al., 1994), especially when they are considered disabled and when the jobs that they occupied preoperatively are no longer available (Fabian, Ulrich, Stolz, and Janota, 1988). A retrospective study conducted by Langosch et al. (1983) and a number of prospective studies (Angermann & Deschler, 1992; Engblom et al., 1994; Freid et al., 1993; Mark et al., 1992; Saito et al., 1983; Stanton et al., 1983) also suggest that this retirement trend is maintained even while younger patients suffer from equally or more severe cardiac dysfunctions. As is shown by Johnson et al. (1982), older patients may decide to retire based on the "desire to enjoy life", whereas younger patients may not retire willingly. In Johnson et al. (1982), patients below the age of 60 frequently reported physical inability as a reason for not resuming employment.

The prevalence and incidence of CHD are higher among males than females (Health and Welfare Canada, 1988), in spite of the fact that CHD is the leading cause of death in women (Cochrane, 1992). Nevertheless, studies do not contain a large proportion of female patients (Hertanu, Davis, Focseneanu, and Lahman, 1986; Holmes, Vliestra, Mock, Smith, Dorros, Cowley, et al., 1983), and those who contain female patients are infrequently cited. With the exception of one study (Schuster, Wright, and Tomich, 1995), retrospective (Almeida, Bradford, Wenger, King, and Hurst, 1983; Broadhead, Kaplan, James, Wagner, Schoenback, Grimson, et al., 1983; Zyzanski, Rouse, Stanton, and Jenkins, 1982) and prospective studies (Chirikos & Nickel, 1984; Gohlke, Gohke, Samek, et al., 1992; Stanton et al., 1983) agree that male patients return to work at higher rates than female patients.

Findings suggest that there are factors other than biological sex that underlie gender differences in rates of RTW. Female patients have been shown to be older (Chirikos & Nickel, 1984), to experience

lower levels of pre-operative employment (Stanton et al., 1983), and to have attained lower education levels (Zyzanski et al., 1982), factors that have, by themselves, been associated with lower rates of RTW. Female patients have also reported receiving more encouragement not to return to work, and to accept their spouses' financial support more readily than male patients. Male patients, on the other hand, have reported concerns about financial security regardless of their family incomes (Broadhead et al., 1983; Chirikos & Nickel, 1984). Other studies show that women experience more cardiac complications, longer convalescence, more side-effects, and a higher mortality rate following acute MI (Allen, 1990; Cochrane, 1992; Davidson, 1983; Shanfield, 1990). Given that few medical studies on treatment effectiveness include women, and those who have compared men and women are limited, the treatment and care offered to women is primarily based on research conducted on men. Consequently, treatment has been less effective for women, and diagnostic tests have shown more false-positive or false-negative results (Cochrane, 1992). The study by Shuster et al., (1995) that showed no differences in RTW among patients participating in a rehabilitation program, may support this view. Typically, patients who participate in rehabilitation programs show more severe cardiac dysfunction than the general cardiac population (Cochrane, 1992). In this study, where severity of cardiac dysfunction is likely to be more similar between the two genders, there were no differences in rate of RTW. A third explanation for gender differences in the rate of RTW is that women may find recovery from MI more stressful because they are confronted with family- and home-related responsibilities that men may be less confronted with. In a study by Bragelmann, Eisenriegler, Jokiel, et al. (1990), women who overcame feelings of depression that existed immediately following MI did so after resigning their jobs. In a study by Reviere (1992), factors that were correlated with higher incidences of coronary heart conditions in women were also negatively correlated with RTW. Divorced or separated women, younger women, and better educated women were found to be at relatively low risk, whereas women who left the labour force and

women who were homemakers were at higher risk of coronary heart conditions and of failure to resume employment. Similarly, in a study by Hamilton (1990), female patients were more likely to be widowed or single, to have more household responsibilities after acute MI, and to report little or no counselling with regard to cardiac rehabilitation, RTW or household duties, or resumption of sexual activity.

Only one prospective study (Mark et al., 1992) assessed the relation between race and RTW, in spite of the high percentage of black men who suffer from CHD (American Heart Association, 1991). Mark et al. (1992) found a negative correlation between Black race and RTW at a 1-year follow-up. No other studies were found assessing the possible effects of race, making a comparison of studies impossible. According to Mark et al. (1992), the effect of race on RTW may reflect a greater tendency for black men to be at a lower socioeconomic status and education levels, and to be employed in more manual occupations.

Retrospective (Almeida et al., 1983; Paris, Woodbury, Thompson, et al., 1993) and prospective studies (Boulay et al., 1982; Fitzgerald, Becker, Celentano et al., 1989; Mark et al., 1992; Myrtek, 1987; Stanton et al., 1983) agree that cardiac patients' RTW rates appear to increase as their education levels increase. Patients with lower education levels may be engaged in more manual or unskilled occupations which impact on their physical capacity to return to work, may earn lower wages, may enjoy less work-related status, may be more dissatisfied with their jobs and may be less knowledgeable about CHD, factors which in themselves reduce RTW rates. In their study, Maeland & Havik (1987) found a negative correlation between level of education and reports of level of hopelessness 6 weeks after MI. These factors independently predicted RTW 6 months after MI. In addition, they found that the effect of cardiac lifestyle knowledge was eliminated when education level was taken into consideration, and that expectations and perceived job stress were related to education level in predicting the RTW of patients 6 months after MI. Stanton et al. (1983) also observed that more highly educated patients returned to work

at a higher rate and reported more job satisfaction than patients at lower education levels. Lastly, Davidson, Taylor and DeBusk (1979) showed that patients who returned to work 6 months after cardiac surgery reported greater job satisfaction prior to surgery than patients who did not return to work.

Retrospective (Almeida et al., 1983; Gerhardt, 1992; Love, 1980; Lundbom et al., 1992; Misra, Kazanchi, Davies, Westaby, et al., 1985; Rosenfeldt, Lambert, Burrows, and Stirling, 1983) and prospective studies (Boulay et al., 1983; Bryant & Mayou, 1988; Conroy, Cahill, Mulcahy, et al., 1986; Fioretti, Baardman, Deckers, Salm, et al., 1988; Fitzgerald et al., 1989; Goeminne, Faes, Poelemans, et al., 1989; Mark et al., 1992; Saito et al., 1983; Shapiro, Weinblatt, and Frank, 1972; Stanton et al., 1983) show contradictory findings regarding the relation between type of occupation and RTW following cardiac treatment. When compared with other physical or psychosocial factors, type of occupation is usually not the most powerful predictor of RTW (Mark et al., 1992) and may at times not show any correlation with subsequent RTW (Conroy et al., 1986). The results of studies which show positive correlations between type of occupation and RTW seem to suggest that perhaps other factors, such as age, the availability of employment, education level and physical exertion, contribute to the ability of occupational type to predict RTW (Boulay et al., 1983; Fioretti et al., 1988; Stanton et al., 1983). A survey of occupations in the United States showed that only 16% of Americans are employed in manual occupations, and that the percentage declined rapidly with age (Bureau of Labor Statistics, 1988). A report on the economic, administrative and legal factors influencing the insurability and employability of patients ischemic heart disease (Guillette, Judge, Koehn, et al., 1989) revealed that blue-collar workers, especially those who are unskilled, were more easily replaced in the work force and consequently lost their jobs more frequently after a cardiac event. In addition, it is possible that patients in manual or unskilled occupations return to work at lower rates because their jobs do not provide them with incentives for valuing their jobs. They may receive smaller salaries, experience lower job satisfaction,

lower job-related status, more job-related stress, and less decision latitude, factors which can lead to poor motivation to return to work (Gutmann, Sheldahl, Tristani, and Wilke, 1995; Shapiro et al., 1972).

Thirdly, self-employed patients who have resumed employment at higher rates than patients in other occupations may have done so because they derive greater satisfaction from their jobs. On the other hand, self-employed patients who report greater difficulty in resuming employment may do so as a result of greater job-related stress and responsibility, compared to employees in other occupations (Saito et al., 1983).

Retrospective (Almeida et al., 1983; Engblom et al., 1994; Fitzgerald, McGowan, Kutner, and Wenger, 1982; Love, 1980; Lundbom et al., 1992; Paris et al., 1993; Rosenfeldt et al., 1983) and prospective (Boulay, David, and Bourassa, 1982; Bryant & Mayou, 1988; Eriksson, 1988; Flynn, Cupper, Caver, Dafoe, McHardy, Hotz, et al., 1989; Gehring et al., 1988; Gohlke et al., 1992; Jenkins, Stanton, Savageau, Denlinger, and Klein, 1983; Misra et al., 1985; Schiller & Baker, 1976; Sieber, Rothlin, and Senning, 1986) studies agree that duration of unemployment and pre-operative status prior to hospitalization for cardiac treatment contributes to failure to return to work. It has been speculated that cardiac patients who remain out of work for long periods of time lose their self-confidence in succeeding at work and fear that they will induce more cardiac difficulties once they have returned (Cay & Walker, 1987; Flynn et al., 1989). In addition, patients who did not work for long periods of time prior to hospitalization may have been encouraged to remain out of work by employers, company physicians and company policies that do not accommodate employees with temporary work limitations (Abakas, 1990). A prospective study measuring 249 patients' self-perceptions 6 months after MI confirm this view (Maeland & Havik, 1987). Maeland & Havik found that patients who did not RTW 6 months after their MI were more likely to have expected reductions in their physical capacity, their autonomy, their work capacity and their emotional stability during the period of their convalescence than patients

who returned to work. Stanton et al. (1983) also showed that, regardless of severity of cardiac symptoms, some patients with high RTW rates will remain at work up to shortly before hospitalization.

Finally, the effect of income on the RTW of cardiac patients seems to depend on their post-treatment earnings, the amount of responsibility that patients take for maintaining their family income, and the availability of compensation. Retrospective (Aldershvile, Boesgaard, Kirchoff, et al., 1993; Almeida et al., 1983; Charles, Wayne, Oberman, Reed, Haynie, Kouchoukos, et al., 1982) and prospective (Horlick, Cameron, Firor, et al., 1984; Russell, Wayne, Kronenfeld, Charles, Oberman, Kouchoukos, et al., 1980) studies suggest that for patients who do not return to work and who have income reductions, family earnings may not differ from those of patients who return to work. For these patients, actual earnings are more likely to influence RTW than pre-treatment and post-treatment income differences. That is, a minimum post-treatment, stable family income may be necessary for patients to decide not to return to work. This can explain why patients who receive long-term compensation fail to return to work more frequently than those who do not receive it. It can also explain why some patients who would otherwise not return to work, will return when their insurance companies do not continue to provide benefits unless they return. In addition, it can explain why patients who report responsibility for maintaining their family income regardless of actual family earnings return to work at a higher rate than those who do not report it. This effect can also partially explain gender differences in RTW (Chirikos & Nickel, 1985). However, for patients whose family incomes at post-treatment and pre-treatment are lower, RTW rates are lower, compared to those of patients earning higher salaries (Boulay et al., 1983; Myrtek, 1987; Stanton et al., 1983). The findings from these studies suggest that patients may be less motivated or may be more unable to return to low-income occupations. That is, low-income occupations may require more physical exertion and may provide patients with less financial incentive. A report on the RTW of skilled and unskilled workers (Guillette, Judge, Koehn, et al., 1989) found that unskilled

workers are more easily replaced in the work force and consequently lose their jobs more frequently after a cardiac event.

Medical Factors

A number of medical factors have been used to define the work-related limitations of cardiac patients. These include functional capacity and functional limitations, post-treatment symptoms of angina, number and severity of cardiac events and type of cardiac treatment.

All retrospective (Johnson et al., 1982; Love, 1980; Saito et al., 1983; Schiller & Baker, 1985) and most prospective studies (Engblom et al., 1994; Fioretti et al., 1988; Gohke et al., 1992; Mark et al., 1992) found a correlation between functional capacity¹, functional limitation or exercise capacity and RTW. Differences from the studies that did not reveal positive correlations with RTW (Angermann & Deschler, 1992; Young, Kottke, McCall, and Blume, 1982) may be due differences in the measurement of functional capacity, functional limitation and exercise capacity (Dennis, 1992). Studies comparing functional capacity with other factors also suggest that this variable may affect RTW rates indirectly. For example, Mark et al. (1992) showed that functional capacity predicted departure from work once patients had already returned. Similarly, Young et al. (1982) and Cazabon (1991) found that functional capacity was not associated with patients' failure to return to work, but to job modifications once patients had resumed employment. Lastly, Golke et al. (1992) found that gender and preoperative work status were stronger predictors of RTW than functional capacity.

¹ In cardiac rehabilitation, functional capacity is estimated by measuring the average oxygen consumption level of an individual by his or her body weight (Brammel, 1981; Haskell, Brachfeld, Bruce, Davis, Dennis, Fox, et al., 1989). The metabolic equivalent (MET) of this measure is taken during steady-state exercise executed on a treadmill or cycle ergometer. It is often used to estimate an individual's level of energy expenditure and the demands of specific activities (American College of Sports Medicine, 1986; Brammel, 1981), such that 1 MET is required to sit quietly at rest, and 12 METs are required to jump rope 120 to 140 times per minute. METs are also frequently used to estimate whether cardiac patients' functional capacity is adequate for a return to work.

However, other methods have also been used to measure functional capacity. For example, Cazabon (1991) measured functional capacity using kilocalories, or the average energy expenditure while moving through a given distance. Kilocalories are used to assess the individual's energy expenditure in the same manner as METs.

The findings from retrospective studies suggest that patients report a relation between failure to return to work and the severity of symptoms of angina (Danchin, David, Robert, and Bourassa, 1982; Gehring et al., 1988; Lundbom et al., 1992; Misra et al., 1985; Zyzansky, Stanton, Jenkins, and Klein, 1981). However, prospective studies show contradictory findings between post-treatment symptoms of angina and actual RTW, especially one or more years following cardiac treatment (Holmes et al., 1983; Stanton et al., 1985; Young et al., 1982). The findings suggest that experience of symptoms of angina may not necessarily reflect a diagnosis of angina based on coronary insufficiency. In a supporting study, Wiklund, Sanne, Vedin, and Wilhelmsson (1984) found that reports of fear and anxiety increased the likelihood that patients' reports of chest pain did not correspond to medical diagnoses of angina. They hypothesized that patients may be noting non-specific body sensations that are not due to coronary insufficiency. In addition, Stanton et al. (1985) found that angina prior to treatment was correlated with failure to RTW 6 months after treatment, but not to duration of unemployment prior to treatment. It suggests that appraisals of chest pain prior to and following cardiac treatment may change or differentially affect intentions to return to work. The possibility is supported by Young et al. (1982), whose study showed that pre-treatment symptoms of angina predicted failure to return to work at 6 months follow-up, but not at later follow-up periods.

Retrospective (Almeida et al., 1983; Johnson et al., 1982; Kauderer-Hubel & Buchwalsky, 1986; Langosch et al., 1983; Love, 1980; Lundbom et al., 1992) and prospective studies (Bettinardi, Giannuzzi, Zotti, et al., 1995; Boulay et al., 1983; Fitzgerald et al., 1989; Holmes et al., 1983; Mark et al., 1992; Misra et al., 1985; Shapiro et al., 1972; Stanton et al., 1985) assessing the relation between severity of cardiac dysfunction to return to work produce contradictory findings. Some studies suggest that the number of post-treatment MIs and the severity of cardiac dysfunction may be correlated with failure to return to work (Boulay et al., 1983; Fitzgerald et al., 1989; Johnson et al., 1982; Love, 1980; Lundbom

et al., 1992; Mark et al., 1992; Shapiro et al., 1972). However, if these symptoms are experienced prior to treatment, they do not correlate with RTW after treatment (Boulay et al., 1983; Fitzgerald et al., 1983; Holmes et al., 1983; Mark et al., 1992; Shapiro et al., 1972;). In addition, left-ventricular dysfunction, number of diseased arteries, and severity of MI are not always associated with failure to return to work (Almeida et al., 1983; Bettinardi et al., 1995; Langosch et al., 1983; Misra et al., 1985; Stanton et al., 1985). These contradictory findings may suggest that perhaps cardiac dysfunctions can be evaluated differently in terms of their impact on RTW by both physicians and patients. For example, Johnson et al. (1982) found that patients with greater left ventricular dysfunction returned to work at lower rates than patients with less left ventricular dysfunction. However, the patients in this study did not attribute their failure to return to work to the severity of their symptomatology, but to their physicians' advice not to return to work. The physicians, in turn, have recommended a RTW based not only on medical assessments of cardiac dysfunction, but also on findings related to the mortality rate of patients with specific cardiac complications (Johnson et al., 1982).

Retrospective (Bass, 1984; Charles et al., 1982; Fitzgerald et al., 1982) and prospective studies (Danchin et al., 1982; Gutmann, Knapp, Pollock, et al., 1982; Hemenway, Sherman, Mudge, Flatley, Lindsey, and Golman, 1985; Holmes et al., 1983; Mark et al., 1992; McGee, Graham, Crowe, and Horgan, 1993; Russell et al., 1980) show contradictory findings in regard to the relation between type of cardiac treatment received and RTW. Some studies show that more patients who undergo some form of treatment for symptoms of cardiac illness will return to work by 1-year follow-up, whether the treatment be CABG (Engblom et al., 1994; Danchin et al., 1985), PTCA (Fitzgerald et al., 1989), or medical treatment (Hemenway et al., 1985), and whether or not these patients participate in a rehabilitation program (Engblom, 1994). However, an equal number of studies provide evidence that either fewer patients return to work following treatment, or that treatment has no effect on improving RTW (Bass,

1984; Gutmann, Knapp, Pollock, et al., 1982; Danchin et al., 1982). Further, findings addressing which of these treatments is more effective have been inconclusive or have not shown significant differences. With the exception of one study (Russell et al., 1980), prospective studies agree that type of treatment for a number of cardiac disorders predicts only immediate RTW following treatment, but not RTW at longer-term follow-ups (Engblom et al., 1994; Mark et al., 1994; Hemenway et al., 1985). It is possible that patients with unstable angina, as opposed to other cardiac dysfunctions, may differ in their RTW rates based on the type of treatment received. However, it is difficult to explain differences (or lack of differences) in the effects of type of cardiac treatment without considering the possible effects of experiences associated with cardiac treatment. Surgical patients, for example, have typically required more time to prepare for treatment, have needed longer periods of convalescence, have experienced more treatment-related pain, have found it easier to obtain disability pensions and have received more advice from physicians and employers not to resume employment than medical patients (Russell et al., 1980).

Social Environmental Factors

When making decisions about returning to work, cardiac patients may consider such factors as their state of health, financial needs, social status, developmental stage and job satisfaction. Information regarding the desirability and appropriateness of their decisions often originates from the social and political networks that surround them. In studies assessing the relation of psychosocial factors with RTW, patients' decision to return or not return to work can be associated with factors such as job modification, physician's advice, social support, family beliefs about CHD and RTW, employer's and company's attitudes toward disabled workers, duration of disability, and type of rehabilitation program.

Retrospective (Almeida et al., 1983; Johnson et al., 1982; O'Connor, 1983) and prospective studies (Myrtek, 1987; Saito et al., 1983; Shapiro et al., 1972; Stanton et al., 1983) indicate that approximately one third of cardiac patients who return to work are offered smaller workloads. However,

a survey conducted by Hester et al. (1988) revealed that while most unions promoted the RTW of employees with impairments, only about 50% of employers did so. In addition, up to 60% of the industries and unions surveyed did not provide employees with either job changes to accommodate their limitations, nor with transitional jobs during recovery (Watson, Mayberry, Calcrafft, and Colbourne, 1986). Even though up to 88% of employers may report that their newly disabled employees should return to work, many are not willing to assume the costs of employee replacement, loss of production, sick leave, the provision of specialized equipment (Hester, 1990), and liability costs (Kavanagh & Matosevic, 1988). Employer attitudes can also indirectly influence the availability of alternative jobs or retraining job opportunities, and policies about RTW (Shanfield, 1990). If the number of cardiac patients whose limitations require job modifications is greater than the ones who do receive them, then patients may be spending more time in convalescence than is necessary. Further, they may be experiencing difficulties in fulfilling their work roles, which can lead to job dissatisfaction, depression, anxiety and subsequent failure to remain on the job (Cay & Walker, 1987). In two studies, 20% to 50% of cardiac patients who returned to work reported distress at work (Mayou & Bryant, 1987) and impairment in their performance (Langdeluddecke, Fulcher, Baird, Hughes, and Tennant, 1989). Stanton et al. (1983) also found that, of the patients who did not return to work 6 months after cardiac treatment, 43% reported that their jobs were not as satisfying as they expected.

Retrospective (Almeida et al., 1983; Hester, Planek, and Decelles, 1988; Johnson et al., 1982) and prospective studies (Davidson, 1979; Flynn et al., 1989; Hester et al., 1988) suggest that there may be an indirect relation between RTW and employer's attitude toward RTW. That is, the employer's permission to return to work can be influenced by the physician's permission (Flynn et al., 1989) or by the employers' willingness to accommodate patients with limitations. Some studies did not show any influence of employers on RTW (Almeida et al., 1983; Johnson et al., 1982; Stanton et al., 1983),

suggesting that few patients change their relationships with their employers (Stanton et al., 1983).

Retrospective (Almeida et al., 1983; Johnson et al., 1982) and prospective studies (Flynn et al., 1989; Myrtek, 1987; Pilote, Thomas, Dennis, et al., 1992) suggest that physicians' advice is a powerful predictor of patients' RTW, especially in the absence of demographic and other psychosocial impediments (Dennis, Houston-Miller, Schwartz, et al., 1988). When advising a work-return, studies indicate that physicians may base their advice on assessments of physical fitness, age, education and manifestations of dissatisfaction, and statistics of the mortality of patients with specific cardiac dysfunctions (Johnson et al., 1982; Myrtek, 1987). In addition, physicians are often asked by Worker's Compensation boards or insurance agencies to evaluate risk of non-RTW according to specified criteria such as information available to the physician about patients' job requirements, and societal and economic concerns (Gutmann et al., 1995). According to Almeida et al. (1983), patients' expectations and beliefs may be negatively altered by those of physicians who are conservative about recommending a RTW, especially if they are not informed of the benefits of RTW.

Report of social support by friends distinguished returnees from non-returnees in one retrospective study (Boudrez et al., 1994). No study showed the predictive value of social support, making comparison of studies impossible.

Retrospective (Bray, 1977; Wiklund et al., 1984) and prospective (Jenkins et al., 1983; Russell et al., 1980) studies suggest that family overprotectiveness can obstruct patients' RTW, whereas informed positive support can facilitate it. Work-related self-perceptions due to anxiety and fear of incurring additional cardiac problems can affect decisions to return to work and actual RTW. Wilson-Barnett (1979) also found that spouses and family members can themselves suffer from emotional distress as a result of patients' illness. Family anxieties regarding RTW and disagreement about its benefits may lead patients to perceive work as a threat to be put off (Cay & Walker, 1987). In a study

by Taylor, Bandura, Ewart, et al. (1985), family members who underwent physical testing with patients developed a better sense of the patients' physical capacities, communicated more confidence in patients and indirectly increased patients' own confidence in their exercise capacity.

There is disagreement among retrospective (Hertanu et al., 1986) and prospective studies (Boulay et al., 1982; Danchin & Goepfert, 1988; Dennis, Goins, and DeBusk, 1989; Engblom et al., 1994; Geominne et al., 1989; Hedback & Perk, 1987; Hertzeanu, Shemesh, Aron et al., 1993; Holmback, Sawe and Fagher, 1994; Myrtek, 1987; Oldridge, Guyatt, Jones, et al., 1991; Picard, Dennis, Schwartz, et al., 1989; Sieber et al., 1986; Young et al., 1982) in whether participation in a rehabilitation program improves rates of RTW.

Some studies have provided evidence that participation in rehabilitation programs does not lead to RTW or earlier RTW (Danchin & Goepfert, 1988; Holmback et al., 1994; Myrtek, 1987; Oldridge et al., 1991; Young et al., 1982;). This may be due to the variations in nature and durations of the rehabilitation programs. That is, many rehabilitation programs have been largely based on exercise testing and cardiac-risk education and have ranged from one day to several weeks. Many rehabilitation programs also differ with regard to the the amount of structured and continuous monitoring of individuals they offer, family support and vocational counselling, and assessment of exercise outside of the monthly or weekly exercise tests. There seems to be little agreement about what is to be included in a successful rehabilitation program, as well as what services should be offered to patients in assisting them in returning to work (Gattiker & Dennis, 1992).

Nevertheless, some studies have shown a positive effect of cardiac rehabilitation on RTW (Picard et al., 1989; Engblom, 1994; Hedback & Perk, 1978; Dennis et al., 1989). These studies indicate that patients below age 55 or 60 may benefit more from cardiac rehabilitation than older patients (Engblom, 1994; Hedback & Perk, 1978; Dennis et al., 1989). In addition, cardiac rehabilitation appears

to have a greater effect on the speed of RTW in patients who returned, than on their RTW rates at follow-up (Picard et al., 1989; Dennis et al., 1989). Finally, pre-operative work status (Hedback & Perk, 1987), and type of occupation and type of cardiac treatment (Geominne et al., 1989) can affect RTW following cardiac rehabilitation, factors which are already known to predict RTW independently from the effect of rehabilitation. These findings suggest that cardiac rehabilitation programs work best for patients who are already more likely to resume employment, but may not affect patients who are already less motivated by factors which reduce their likelihood of RTW.

Lastly, failure to return to work may be influenced by the cardiac rehabilitation environment. According to Abakas (1990) and Hester (1990), rehabilitation and medical environments may inadvertently promote a "disability syndrome" (Hansen-Mayer, 1984).² They assert that most rehabilitation programs exist in institutions that are largely run by medical personnel whose interventions are mainly determined by patients' medical needs. In addition, vocational rehabilitation specialists sometimes address patients' vocational concerns with the belief that patients who cannot fulfill their previous work roles must undergo retraining and employment in new working environments, a belief that can sometimes discourage patients from returning to work and to use skills that they have already acquired. Patients whose work-related needs are not heard may also express dissatisfaction with the rehabilitation process and show poor adherence to their rehabilitation program (Young et al., 1982).

Psychological Factors

Psychological reactions to cardiac illness and treatment have been observed for up to several months following termination of cardiac treatment (Cay & Walker, 1988) and have been shown to

² According to Hansen-Mayer (1984), the disability syndrome is characterized by emotional instability, dependency on the health-care system, hypochondria, lack of motivation to get well and expressed feelings of hopelessness and helplessness. This syndrome occurs most frequently in cardiac patients whose physical limitations are medically less severe than their complaints would suggest.

influence outcomes of medical and physical treatment, as well as patients' adjustment and quality of life (Maeland & Havik, 1987). In relation to RTW, some authors (Almeida et al., 1983; Byrne, 1982; Charles et al., 1982; Danchin et al., 1983; Flynn et al., 1989; Hiatt, Peglar, and Borgen, 1984; Maeland & Havik, 1987; Schiller & Baker, 1976; Stanton et al., 1983; Stern, Pascale, and Ackerman, 1977; Zyzanski et al., 1982) found that psychological factors predicted RTW at a higher rate than medical or demographic factors. They showed that work-related expectations, depression and anxiety, health-related appraisals, Type A personality, self-efficacy and behavioural intentions played an important role in predicting intention to return to work. Findings relating these factors with RTW are described below.

Symptoms of depression and anxiety are common in patients immediately following MI or cardiac treatment. However, reports of depression and anxiety may decrease after the initial stress of recovery from MI or from medical or surgical treatment (Littman, 1993), although one study found that patients who reported significant depression following CABG were still depressed 1 year later (Shanfield, 1990). While there seem to be individual differences in levels of depression and anxiety, symptoms which persist beyond the recovery period may affect RTW. In a study by Rost & Smith (1992), returnees were compared to non-returnees at 4 months and 12 months following MI. In spite of similar baseline levels of emotional distress, and controlling for initial physical adjustment, socio-demographic and social support characteristics, returnees reported lower levels of emotional distress than non-returnees. This effect was shown independently from level of job satisfaction.

A majority of findings from the retrospective (Schiller & Baker, 1976; Zyzanski et al., 1982) and prospective studies (Abbott & Berry, 1991; Bettinardi et al., 1995; Eriksson, 1988; Flynn et al., 1989; Maeland & Havik, 1987; Mark et al., 1992; Stern et al., 1977; Strauss, Paulsen, Strenge, 1992) agree that reports of depression and anxiety predict RTW in cardiac patients, while one prospective study did not find a relation (Oldridge et al., 1991). However, these findings do not indicate whether

failure to return to work precipitated symptoms of anxiety or depression or whether these symptoms led to a failure to return to work. Some studies show that symptoms of depression and anxiety can be identified pre-operatively (Bettinardi et al., 1995; Eriksson, 1988; Strauss et al., 1992), or prior to treatment for MI (Abbott & Berry, 1991; Stern et al., 1977). Other studies show that symptoms of depression and anxiety can continue to be manifested during hospitalization and rehabilitation (Maeland & Havik, 1987; Schiller & Baker, 1976). These findings suggest that patients who report high levels of depression and anxiety may already show tendencies toward these affective states, which, in turn may affect both recovery from CHD and RTW. In one study, Gareth (1973) found that patients' tendency to manifest depression and anxiety was correlated with negative expectations of RTW, all of which correlated with rate of non-RTW.

Retrospective (Almeida et al., 1983; Charles et al., 1982; Danchin et al., 1983) and prospective studies (Byrne, 1982; Hiatt, Peglar, and Borgen, 1984; Maeland & Havik, 1987; Mark et al., 1992; Riegel, 1993; Smith & O'Rourke, 1988) agree that health-related appraisals predict RTW among cardiac patients regardless of their health status. Inconsistencies in results of studies attempting to show an effect between reports of cardiac symptoms following treatment and RTW suggest that some patients who show high levels of fear and anxiety also report chest discomfort that is not associated with coronary insufficiency (Wiklund et al., 1984). Patterns of illness behaviour have also been associated with failure to adhere to other health-related behaviours and to a longer convalescence period (Shanfield, 1990). A possible contribution to negative health-related appraisals is lack of information about how patients can influence their own health through lifestyle changes and/or knowledge about risk factors of CHD (Maeland & Havik (1987). Similarly, pressure from family members (Russell et al., 1980; Taylor et al., 1985) or employers (Cay & Walker, 1988; Mayou & Bryant, 1987) who are not informed or unaware of patients' capacities may indirectly encourage patients to be concerned about their health and

discourage them from returning to work .

Retrospective (Boudrez et al., 1994) and prospective (Croog & Levine, 1977; Maeland & Havik, 1987; Stanton et al., 1983) studies also agree that work-related expectations correlate with RTW following treatment. Positive work-related expectations have been found to be negatively correlated with symptoms of depression and anxiety (Zyzanski et al., 1982) and health-related concerns (Byrne, 1982), and positively correlated with self-efficacy (Bashliev, 1988; Maeland & Havik, 1987). Maeland & Havik (1987) also found that the predictive effect of expectations occurred independently of demographic, work-related and medical factors. The findings suggest that cardiac patients' work-related expectations may involve the consideration of health-related appraisals, affective coping styles, and a belief in their ability to resume employment, independently of demographic, work-related or medical factors.

The Type A behaviour pattern is characterized by intense achievement orientation, competitiveness, easily-provoked impatience, time-urgency, abruptness, hyper alert posture, tense facial musculature, over commitment to work, and excess drive and hostility (Jenkins, 1978). It does not appear surprising that Type A behaviour has been associated with earlier RTW and higher rates of RTW in two prospective studies (Davidson, 1983; Kornfeld et al., 1985). However, given that some components of Type A behaviour are associated with high risk of CHD, it is not certain that the correlation between Type A behaviour and RTW is a favourable one (Gerhardt, 1985). In Kornfeld et al. (1985), 80% of patients with Type A behaviour who had returned to work maintained the same personality pattern. Those patients who did not change their Type A behaviours were also more likely to experience cardiac complications.

Self-efficacy has been shown to be a useful measure for predicting potential success for changing a number of health-related behaviours in patients treated for CHD, such as smoking cessation,

dietary modification, and exercise training (Ewart, Taylor, Reese, et al., 1983; Ewart, Stewart, Gillian, et al., 1986). Spouses' perceptions of patients' potential for success has also been predictive of success in exercise training (Taylor, Bandura, Ewart, et al., 1985). Retrospective (Bashliev, 1988) and prospective (Engblom et al., 1994; Eriksson, 1988; Fitzgerald et al., 1989; Flynn et al., 1989; Maeland & Havik, 1987; Stanton et al., 1983) studies agree that cognitive evaluations of the ability to succeed in the work place and intentions to return to work can predict RTW.

Finally, there is a paucity of studies which assess the effect of attribution of CHD to job-related stress. Two prospective studies that assessed these relations show contradictory results (Abbott & Berry, 1991; Gutmann, Knapp, Pollock, et al., 1982). Abbott & Berry (1991) found that more patients who attributed their MI to occupational stressors and who had a high internal locus of control had returned to work as early as 2 months following their MI, compared to other patients. Contrarily, Gutmann et al., 1982 found that perceived job stress as a cause of the CHD was a significant predictor of failure to return to work at a 1-year follow-up.

Summary: Factors Affecting the RTW of Cardiac Patients

The literature review suggests that cardiac patients' decisions to return to work may be influenced by a number of individual or interacting demographic, medical, social environmental and psychological factors. Among the demographic factors, age below 55 to 60, male gender, higher education level, and shorter pre-MI or preoperative duration of unemployment consistently show positive correlations with RTW. Findings regarding the relation of type of occupation and income with RTW are inconsistent. Functional capacity, functional limitation and exercise capacity are the only medical factors that were consistently associated with RTW. Social-environmental factors that have shown consistent positive correlations with RTW include: job modification, preoperative status and duration of unemployment, physician's advice, and family beliefs about CHD. Employer's advice and rehabilitation

have not shown consistent relations with RTW. Not enough information is available to confirm whether social support from friends is consistently associated with RTW. Among the psychological factors, depression and anxiety, health-related appraisals, work-related expectations, Type A behaviour, self-efficacy, and behavioural intentions have consistently contributed to the prediction of RTW.

Attributions of CHD to job-related stress have not consistently predicted RTW.

Interventions Designed to Increase the RTW Rates of Cardiac Patients

Related to the outcomes of the literature, there is a concern about increasing rates of RTW in cardiac patients (Dennis, 1992; Gutmann et al., 1995; Mark et al., 1992). However, a majority of rehabilitation programs have attempted to influence the psychological and social environmental factors predicting RTW indirectly, while dealing with other medical and physical rehabilitative needs (Boulay et al., 1982; Danchin et al., 1988; Dennis et al., 1989; Engblom et al., 1994; Hedback & Perk, 1987; Holmback et al., 1994; Myrtek, 1987; Oldridge et al., 1991; Picard et al., 1989; Sieber et al., 1986; Young et al., 1982). Few studies have assessed single interventions whose aim was only to increase rate of RTW.

In the recent literature, only five studies not assessing a rehabilitation program have evaluated interventions with the specific aim of increasing rates of RTW (Burgess, Lerner, D'Agostino, Vokanas, Hartman, and Gaccione, 1987; Jensen, Banwart, Venhaus, Popkess-Vawter, and Perkins, 1993; Langosch, Seer, Brodner, Kallinke, Kulick, & Heim, 1982; Monpere, Francois, Rondeau du Noyer, and Pharand, 1988; Oldenburg, Perkins, and Andrews, 1985). Two other studies were published in the 1970's (Thockloth, Ho, Wright, and Seldon, 1973; Naismith, Robinson, Shaw, and MacIntyre, 1979), and may no longer show results that are related to patients' work situation in the 1990's. All of these studies are presented below.

Burgess et al. (1987) evaluated a psychosocial intervention of 3-months duration. Clinically-

trained nurses visited 68 patients at their home or at work on a weekly basis. The intervention had three specific goals: (1) to apply cognitive-behavioural strategies to help reduce psychological distress; (2) to minimize social strain by providing guidance and moral support to subjects and to a key member of their social networks; and (3) to facilitate job reentry by meeting patients with their coworkers or employers to address major concerns about the subjects' RTW. Compared to 68 control subjects who received standard care, subjects who underwent the intervention reported lower psychological distress, less family supportiveness, and fewer reemployment barriers (i.e., health problems, stress) at the 3-month follow-up. At the 1-year follow-up, none of these differences were maintained. No statistical difference was found between the rate of RTW between intervention and control groups.

Jensen et al., (1993) designed a psychosocial intervention based on Bandura's Self-Efficacy Theory (Bandura, 1986). Consistent with the Bandura's theory, the intervention involved the following steps: (1) identifying the behaviours with which patients identified themselves to have low self-efficacy; (2) assisting patients to set goals which would allow them to modify their self-appraisals; (3) providing efficacy-related information to predict areas of potential difficulties; (4) using verbal persuasion to challenge beliefs about the inability to engage in specific behaviours; and (5) providing information to allow patients to learn vicariously. A case study showed that the intervention was successful in assisting one patient to return to work while he participated in a rehabilitation program. However, the single-case study design and lack of controls made it difficult to conclude that the intervention can enhance rates of RTW for all cardiac patients at high risk of not returning to work, compared to standard treatment.

Langosch et al. (1982) compared the 6-month follow-up effects of an eight-session stress-management intervention (involving sensitizing patients to identify and modify stress-producing self-statements and increasing assertive behaviour) with those of a relaxation treatment of similar length (involving progressive muscular and autogenic relaxation techniques). Results indicated that compared

to controls ($n=30$) who did not participate in either intervention, patients who underwent the stress-management intervention ($n=32$) returned to work at higher rates than patients who underwent the relaxation technique ($n=28$). However, as the authors noted (p. 481), patients with a higher mean level of education tended to enroll in the stress-management intervention group, making it difficult to determine whether the higher RTW rate was due solely to the intervention.

Monpere et al. (1988) attempted to improve RTW rates in 57 rehabilitation patients who had undergone CABG. The intervention involved: (1) providing patients with vocational information about RTW once every 3 weeks, with general and individual considerations; (2) providing patients with booklets containing information about clinical data and physical possibilities; and (3) asking the occupational medicine specialist or the general practitioner to complete questionnaires about the possibility of patients' RTW. A follow-up was completed up to 7 months post-treatment. Results showed that 73.2% of patients resumed employment by follow-up. However, there was no control group to provide evidence of the success of the intervention compared to standard treatment. The authors compared the RTW-rates in the study with the RTW-rates of patients in a previous study (64%), showing a significant positive difference. Other findings from this study showed that returnees differed from non-returnees in the following ways: they were younger (mean age 49.4, compared to 54.2 for non-returnees), and a larger number occupied professional and managerial occupations.

Oldenburg et al. (1985) compared the 3-month, 6-month and 12-month outcomes of two psychosocial interventions. The first group received standardized education (by way of prerecorded audiotapes covering the nature of heart attack, primary and secondary risk factors, the impact of MI on sexual functioning, and strategies for modifying Type A behaviour), relaxation training (by way of audiotapes on progressive muscular relaxation), and individual counselling (involving 6 to 10 sessions during which patients learned to focus on behavioural strategies to reduce fears and anxiety, and to

change coronary risk behaviour). The second group received only the standardized education and relaxation training. A third control group received the routine medical, nursing and paramedical care. Results showed that patients in both intervention groups returned to work at higher rates than controls. However, the sample sizes were too small ($n=16$ in each of the two intervention groups; $n=14$ in the control group) to perform meaningful statistical analyses.

Among the studies that were published in the 1970's, the study by Thockloth et al. (1973) assessed the impact of occupational therapy and social work counselling concerning social, emotional and financial problems among 50 randomly selected post-MI male subjects. There were no differences in rate of RTW compared to 50 standard-treatment control subjects. However, a larger number of patients who underwent the intervention returned to work at the "optimal" 2 to 4-month time. Similarly, Naismith et al. (1979) assessed a supportive-didactic intervention of unidentified duration involving counselling by a trained rehabilitation nurse, occasional home visits, and meetings with spouses. Compared to standard-treatment control subjects ($n=72$), patients who underwent the intervention ($n=67$) returned to work earlier. However, no differences in rates of RTW were found.

In summary, the few studies that have assessed interventions that were specifically designed to increase RTW rates were either found to be unsuccessful (Burgess et al., 1987), they lacked the research methodology to show evidence of success (Jensen et al., 1993; Langosch et al., 1982; Monpere et al., 1988; Oldenburg et al., 1985), or the patients in their intervention group differed from controls in ways that could have confounded with intervention (Monpere et al., 1988; Oldenburg et al., 1985). The earlier studies show that their interventions increased the speed of RTW of patients who returned, but it did not increase RTW rates (Naismith et al., 1979; Thockloth et al., 1973). However, it is not certain that an intervention that succeeded in increasing speed of RTW in the 1970's would be successful in the 1990's.

Theoretical Model of RTW Among Cardiac Patients

As can be seen in the literature review, multiple factors have been shown to predict RTW among cardiac patients. The scant literature assessing interventions to increase RTW in cardiac patients suggests that there is no coherent explanation of how the predictive factors can affect cardiac patients' RTW, and of the best courses of action for enhancing RTW rates.

In order to understand how all of the predictive factors can affect RTW, it may be impossible to explain all their relations with RTW within one coherent model. In addition, not all predictive factors may be modifiable through intervention. However, as a preliminary step to developing a conceptual model of RTW and designing an intervention for the present thesis, explanations of the relations of all factors with RTW may: 1) help us identify which factors can and cannot be modified; and 2) identify the possible nature of an intervention that can deal with those most modifiable factors. In the following section, the relation between RTW and the following factors are explained separately: 1) age; 2) gender; 3) education; 4) pre-operative status, duration of unemployment and health-related appraisals; 5) functional and exercise capacity and job modifications; 6) physician's advice; 7) family beliefs about CHD; 8) depression and anxiety; 9) health-related appraisals; 10) Type A behaviour; and 11) work-related expectations and self-efficacy. These separate explanations are followed by a general theoretical model that attempts to demonstrate the process of RTW in cardiac patients.

Age: A Life-Span and Developmental Perspective

The majority of cardiac patients are aged between 55 and 65, an age cohort which is increasingly faced with pre-retirement and retirement. While many cardiac patients who are close to 65 years of age do not retire following cardiac treatment (Angermann & Deschler, 1992; Engblom et al., 1994; Freidl et al., 1993; Mark et al., 1992; Saito et al., 1983; Stanton et al., 1983), many believe that they have fulfilled their roles as productive members of society and prefer to retire (Johnson et al., 1982). According to

life-span and developmental perspectives (Meyer, 1983; Super, 1994), cardiac patients close to retirement age do not differ from non-patients of the same age in their choice to retire. Rather than choosing to remain out of work because of their cardiac illness, they may choose to retire as a result of a self-concept whose expression involves reducing their role in the work and developing non-occupational roles (Super, 1994). On the other hand, cardiac patients below the age of 60 belong to a younger age cohort which typically values work and productivity (Smyer, McHale, Birkel, and Madle, 1987), whose self-concept finds expression in maintaining their work roles and developing new skills (Super, 1994). For these patients, a RTW signifies a resumption of the work role which is consistent with their developmental stage (Super, 1994). Failure to return to work among patients below the age of 60 may reflect a difficulty in adapting to their illness or an inability to resume work tasks. In support of this view, Meyer (1983) studied the developmental attitudes and beliefs of cardiac patients belonging to three age groups (young adults, middle adults and late adults). Compared to young and middle adults, responses of the older adults (age 60 and above) indicated that they more readily accepted their illness as part of the aging process and were more prepared to retire. In contrast, middle and younger adults felt that a MI was a major crisis requiring important life changes that threatened their ability to compete with their peers or to assume their work-related responsibilities. This perspective may also partially explain the higher rate of failure to return to work in women, as compared to men.

Gender, Values Theory, and Learned Helplessness

One explanation for the gender differences in RTW rates is due to their demographic characteristics that, in themselves, predict failure to return to work. The female cardiac patients who participated in research projects were older, had attained lower levels of education, and had lower employment status. Thus, the perspectives explaining the possible associations of age, education and employment status with RTW can provide at least partial explanations for the gender difference in RTW.

A second explanation of gender differences in RTW appears to be a lack of knowledge about women and CHD, leading to more cardiac complications, longer convalescence, more side-effects, and a higher mortality rate following acute MI (Cochrane, 1992). Women's needs after recovery from MI appear also to have largely been neglected (Hamilton, 1990). Even though these women report having many household responsibilities (Broadhead et al., 1983; Chirikos & Nickel, 1984; Bragelmann et al., 1990; Hamilton, 1990), the physical and psychological requirements of these responsibilities appears never to have been assessed.

Consistent with learned helplessness theory (Abramson, Seligman, and Teasdale, 1978), lack of information and control over the outcomes of treatment for CHD, the experience that physicians and medical personnel are less knowledgeable, the experience of a difficult recovery, and more conservative advice from physicians regarding RTW, can lead women to experience less control over their situation, and to feel that they cannot predict the outcomes of their treatment. Consequently, women may feel less confident about returning to work, and may be less likely to plan a return.

A third explanation appears to be associated with gender roles. Female patients have been shown to receive more encouragement not to return to work, to accept their spouses' financial support more readily than male patients, and to be confronted by greater home and family-related responsibilities. Male patients, on the other hand, have been shown to be more concerned about financial security, regardless of family income (Broadhead et al., 1983; Chirikos & Nickel, 1984; Bragelmann, Eisenriegler, Jokiel, et al., 1990). These findings can be explained according to Ajzen and Fishbein's (1980) theory of reasoned action. That is, people's attitude toward a behaviour and their perception of what specific normative groups think they should do influence their intentions to engage in that behaviour. Ajzen and Fishbein's (1980) research shows that the importance of attitude and social norms in affecting behavioural intention differs from individual to individual based upon beliefs related to the

outcomes of a behaviour, and upon appraisals of the importance of a social group. Thus, according to this theory, women whose gender roles are oriented more toward family and home and less toward work may attribute greater importance to traditional female social norms. They may be less likely to resume employment following MI or cardiac treatment, and may respond more to expectations and requests to remain out of the work force. This view is supported by the findings that divorced or separated women, younger women, and better educated women are more likely to resume employment following MI (Allen, 1990; Cochrane, 1992; Davidson, 1983; Shanfield, 1990).

Education, Job Satisfaction and Person-Environment Fit

Higher RTW rates associated with higher education level appear to be influenced by lower physical demands, higher occupational status, higher wages, greater job satisfaction, more lifestyle knowledge, and reports of lower levels of hopelessness (Boulay et al., 1982; Macland & Havik, 1987; Mark et al., 1992; Myrtek, 1987; Stanton et al., 1983). These findings support person-environment congruence theory (Holland, 1985) and work motivation theories (Astin, 1984; Herzberg, 1968; McGregor, 1960). According to Holland (1985), vocational satisfaction, stability and achievement depend on the congruence between a person's personality or interests, and the work environment. Thus, individuals who work in environments that are congruent with their interests are said to be more reinforced, more satisfied, and less likely to change environment than incongruent individuals (Gottfredson & Holland, 1990). Secondly, theories on motivation to work (Astin, 1984; Herzberg, 1968; McGregor, 1960) emphasize the importance of both extrinsic rewards (i.e. an adequate income, job security), and the fulfilment of intrinsic needs (i.e. expressing one's potential, attaining pleasure and recognition) in increasing and maintaining motivation to work and productivity. In the literature review, cardiac patients with higher levels of education who are likelier to resume employment appear to report more congruence with their jobs. That is, they report a lower tendency to work with limitations and

greater interest in their jobs. Consequently, they may return to jobs which are more satisfying. In addition, the higher wages and job status that usually occur in jobs requiring higher education levels, as well as lower levels of physical exertion, provide greater opportunities for individuals with a higher level of education to continue expressing competency and receiving pleasure and recognition from their old jobs, increasing or maintaining motivation to work. This relation between education level, employment status, and RTW may also explain gender differences in rates of RTW.

Pre-Operative Status, Duration of Unemployment, Health-Related Appraisals,

Illness Behaviour, and the Medico legal Model

The association of longer duration of preoperative unemployment and preoperative status, and failure to return to work appears to be associated with patients' reports of low self-confidence in resuming employment (Cay & Walker, 1987), expectations of reduced physical capacity, autonomy, and work capacity, as well as emotional instability (Maeland & Havik, 1987). According to Abakas' medico legal model (1990), the recorded physical and psychological diagnoses and the physician's advice determine whether a patient should be out of work at a given time. However, when patients continue to maintain negative health-related appraisals, and when they remain out of work for prolonged periods of time with little contact with employers and little confirmation of their ability to regain their work roles, they may develop low work-related self-confidence and greater acceptance of the sick role (Byrne, 1982). Their lost self-confidence in returning to work may direct them toward the disability support system for financial support, which can inadvertently confirm their perceived disability. According to Abakas (1990), individuals who were once dedicated to the work ethic can be channelled by the disability support system to develop a dependency. In such a situation, the disability support system may lack the workplace outlook which encourages workers with disabilities to maintain an ongoing connection with the workplace, thus maintaining the dependency. A survey by Harris and Associates

(1986) demonstrated the importance of perception of one's disability on attitude toward work. Harris and Associates (1986) showed that only 49% of individuals with moderate to severe disabilities considered themselves disabled. The percentage of individuals who considered themselves disabled was directly correlated with their perceived limitations in their work and activity. Sixty-eight percent of those who reported that they could not work or keep house identified themselves as disabled, compared to 6% of those who did not report being limited in their activities. For cardiac patients (as opposed to individuals with other permanent disabilities), the improvement in functional capacity to return to work can be significant following treatment (Engblom et al., 1994; Fioretti et al., 1988; Gehring et al., 1988; Mark et al., 1992). However, as is shown in the literature, patients' negative appraisals of their health, regardless of their functional capacity, can determine the decision to return to work to greater extent than functional capacity alone (Byrne, 1982; Hiatt et al., 1984; Maeland & Havik, 1987; Mark et al., 1992; Riegel, 1993; Smith et al., 1988).

Functional and Exercise Capacity, Job Modification, the Medico legal Model,

Work Motivation, and Congruence

The association of functional capacity or exercise capacity with RTW has been observed after patients have already returned (Mark et al., 1992), when there are job modifications (Cazabon, 1991; Young et al., 1992), and after gender and preoperative status are taken into account (Gohlke et al., 1992). It is also known that approximately 25% to 45% of cardiac patients return to jobs with limitations (Johnson et al., 1982; Myrtek, 1987; Saito et al., 1983; Stanton et al., 1983). Given that from 20% to 50% of patients may report distress, job dissatisfaction, depression, and anxiety (Cay & Walker, 1988; Mayou & Bryant, 1987; Stanton et al., 1983), it is possible that patients who return with limited functional capacity may feel that they can no longer fulfill their job requirements, or that their modified jobs no longer satisfy them. Consistent with Abakas' (1990) medico legal model, patients who return to

jobs where they either perceive themselves to be limited, or where job limitations emphasize their limited capacities, can interpret their functional limitations as disabilities (Harris and Associates, 1986). In addition, their perceptions are often supported by their workplace. Even when job modifications or accommodations are made, workers with more severe limitations are considered to be less productive, leading to a lower salary and reduced work responsibilities (Berkowitz, 1988). Thus, when cardiac patients return to jobs with accommodations, they may also receive less of the external rewards and the internal incentives which made their jobs satisfying and motivating (Astin, 1984; Herzberg, 1968; McGregor, 1960). Jobs that provide patients with limited possibilities to use their abilities, or jobs that are too challenging, can lower person-job congruence and lead to job dissatisfaction (Holland, 1985).

Physician's Advice, Credibility, and Compliance

Physician's advice is a powerful predictor of RTW among cardiac patients (Flynn et al., 1989; Myrtek, 1987), especially when the advice is clearly based on evaluations of physical capacity (Myrtek, 1987), and when patients are not suffering from complications such as myocardial ischemia (Pilote et al., 1992). The persuasive effect of physicians' advice is based on their credibility and expertise, and on their consideration of factors which confirm patients' own perceptions of their physical condition (Hass, 1981). Following an MI or invasive treatment for CHD, experiences that are known to evoke concern and insecurity about disability and mortality (Ben-Sira & Eliezer, 1990), patients typically seek reliable sources of information and support in order to attain as much control as possible over their situation. Physicians have the authority to make recommendations about whether patients are capable of returning to work to insurance agencies, disability support agencies, and employers. They are also often under pressure from patients (who expect to return to work) and insurance agencies (which wish to minimize payments) to be aware of job opportunities and protect patients family integrity, as well as from employers that their employees will be safe on the job. There is also an implied legal responsibility for a

safe RTW (Dafoe, Franklin, and Cupper, 1993). When a RTW is recommended, patients may feel like they can resume employment with confidence. However, when the cardiac condition is not clear-cut and patients present further complaints, further evaluation is required (Dafoe, 1991). Decisions leading to longer convalescence can encourage patients to develop illness-related behaviour, depend on the disability support system, and fail to resume employment (Abakas, 1990).

Family Beliefs about CHD, and the Importance of Social Support

Family beliefs about CHD and RTW can impact negatively or positively on RTW, depending on how informed family members are (Cay & Walker, 1988; Jenkins et al., 1983; Russell et al., 1980; Wiklund et al., 1984) and the confidence that they have toward patients' ability to resume employment (Taylor et al., 1985). Patients who have experienced MI or treatment for CHD may experience a shift in personal values that increase the importance of family, and especially spousal support (Ben-Sira, 1990). Ben-Sira & Eliezer (1990) describe three types of spousal support that have contributed to recovery from MI or cardiac treatment. *Affective support* is believed to be the most important type of support. This type of support consists of spouses' demonstration of sincere concern and encouragement, together with understanding, love, and a sense of security. Secondly, *perceived instrumental support* refers to spouses' persuasion to gradually relinquish the sick role and to assume normal functioning. *Perceived cognitive support* refers to information, knowledge and other advice that help patients understand their world and to adjust to changes. Bar-On & Dreman (1987) argue that, depending on stage of recovery, spouses may need to shift their support style. In their study, Bar-On & Dreman (1987) showed that, immediately following MI or cardiac treatment, spouses who supported patients' denial contributed more to their convalescence than spouses who did not support their denial. However, in the long run, patients' whose spouses maintained an incongruent attitude with their over concern showed greater physical improvement during rehabilitation, and higher RTW rates.

Depression and Anxiety

Symptoms of depression and anxiety prior and following treatment for CHD appear to predict RTW (Abbott & Berry, 1991; Bettinardi et al., 1995; Eriksson, 1988; Maeland & Havik, 1987; Rost & Smith, 1992; Schiller & Baker, 1976; Stern et al., 1977; Strauss et al., 1992; Zyzanski et al., 1982). These symptoms seem to occur when patients return to jobs that they are not satisfied with (Cay & Walker, 1988; Mayou & Bryant, 1987; Stanton et al., 1983), when patients are younger than 65 years of age and are forced to retire (Zyzanski et al., 1982), when patients have negative work-related expectations (Gareth, 1973; Zyzanski et al., 1982), as well as part of the process of experiencing the life-threatening trauma of MI and recovery from invasive treatments such as CABG and PTCA (Littman, 1993; Shanfield, 1990).

As with other severe acute illnesses, symptoms of depression and anxiety after MI or invasive treatment for CHD have been explained according to a crisis model, characterized by strong initial upset that subsides during the first post-hospital months (Littman, 1993). Problems adjusting to changes that occur during the recovery period (i.e. being forced to retire, to return to a job with accommodations, or to change one's job) can lead to continued expression of anxiety and depression after the initial crisis is over (Ben-Sira & Eliezer, 1990). Adequate coping strategies and personal resources may contribute to the degree to which patients continue to manifest symptoms of depression and anxiety when faced with the challenges of living with a cardiac disability. Coping strategies that allow patients to reestablish emotional stability through the effective management of stress, such as establishing realistic demands upon themselves, seeking information, and committing themselves to positive life-style changes have been shown to reduce the depression and anxiety associated with readjustment to a cardiac illness (Ben-Sira & Elizer, 1990). Support from spouses has also shown to have a strong positive effect on the manifestation of depression and anxiety (Jacobson, 1986; Thoits, 1982). Ben-Sira & Eliezer (1990)

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It has been proposed that health-related appraisals can be central determinants of the success of cardiac rehabilitation (Krantz, 1980). This view is based on the notion that illness-related behaviours are products of a series of decisions based on how patients view their current health situations. According to Taylor (1986), patients form an organized, cognitive representation of their illness that affects their adjustment. This representation includes such factors as identity (i.e. name and symptoms), cause (i.e. factors which patients believe gave rise to their illness), duration (i.e. the expected length of time that the illness will last) and the consequences of the disease (i.e. the extent to which patients believe that the illness has ramifications for their lives). Patients may also have at least three dominant models of illness. *Acute* illness is believed to be short in duration, with no long-term consequences. *Chronic* illness is caused by a combination of factors including health-related habits and is long in duration, often with severe consequences. *Cyclic* illness is marked by alternating periods when there are no symptoms and others when there are many. Problems arise when patients adopt an inappropriate model for their disorder (Taylor, 1986), and perceive little control or predictability over the process of their illness and the outcomes of their behaviours (Krantz, 1980). In cardiac patients, this appears to occur when patients attribute the cause of their illness to external sources, when they lack confidence in their ability to recover and make the important lifestyle changes, and when they express fear of negative consequences to their health when they resume employment. These patients may also receive less support from family and employers to relinquish the sick role and regain normal functioning, and may have been out of work for a longer duration (Cay & Walker, 1988; Hiatt, Peglar, and Borgen, 1984; Maeland & Havik, 1987; Mayou & Bryant, 1987; Russel et al., 1980; Taylor et al., 1985; Wiklund et al., 1984).

Type A Behaviour and Depression

Type A behaviour has predicted RTW following cardiac treatment (Davidson, 1983; Kornfeld et al., 1985). This behaviour pattern has also typically been associated with development of CHD. Its

relationship with RTW seems to be associated with its highly competitive and work-oriented nature (Kornfeld et al., 1985). However, Matthews (1982) showed that Type A behaviour may be elicited by work situations which are moderately competitive and uncontrollable, which require endurance, slow careful work, and use a broad focus of attention. According to Gerhardt (1985), many cardiac patients who show Type A behaviours may do so as a result of the demands of their work environments. Those who return to such jobs may need to maintain their behavioural pattern to succeed, whereas those patients who feel that they cannot meet their work demands may either have more difficulty returning to work, or may show symptoms of depression. Gerhardt (1985) hypothesized that symptoms of depression may represent the reactive nature of Type A behaviour. That is, Type A behaviour may be an active coping mechanism which is used to deny depressive tendencies that are associated with perception of lack of control at work. He suggests that, in order to assist patients to RTW, patients' relationships with work environments should be assessed and modified in order to decrease the work demands which elicit Type A behaviour patterns.

Thus, based on this point of view, RTW with the intention of maintaining Type A behaviour patterns is not desirable. Cardiac patients with Type A behaviours may be motivated and prepared to resume employment. However, these patients may return to work due to perceptions of lack of control, lack of choice but to engage in coronary-prone behaviour in order to succeed, and motivation to deny depressive tendencies. These patients may derive little satisfaction and pleasure from their jobs, and increase their chances of developing additional cardiac complications.

Work-Related Expectations, Self-Efficacy, and Behavioural Intentions

Self-efficacy, behavioural intentions and work-related expectations prior to or immediately following treatment for CHD have predicted RTW (Bashliev, 1988; Boudrez et al., 1994; Croog & Levine, 1977; Engblom et al., 1994; Eriksson, 1988; Fitzgerald et al., 1989; Flynn et al., 1989; Maeland

& Havik, 1987; Stanton et al., 1983). Self-efficacy has also been correlated with work-related expectations (Bashliev, 1988).

The importance of self-efficacy, behavioural intentions and work-related expectations in predicting behaviour has been explained by Bandura (1986), and further elaborated by Maddux, Norton, and Stoltenberg (1986). Bandura's (1986) self-efficacy theory claims that appraisals of one's ability to perform a task plays an important role in determining task performance. Events that are appraised as enhancing the sense of being able to perform a task are evaluated as more reinforcing, more congruent with personal beliefs and more motivating in attaining high levels of task performance than events which are not appraised as enhancing self-efficacy (Bandura, 1986). According to Maddux et al. (1986), the degree to which self-efficacy influences behaviour is determined by whether people have positive expectations about their ability to attain desired goals (self-efficacy expectancy), the actual attainment of their goals (outcome expectancy), as well as the goals' outcome value. In a study using a factorial design to assess the contributions of self-efficacy expectancy, outcome expectancy and outcome value on behavioural intentions, Maddux et al. (1986) found that outcome expectancy and outcome value independently and interactively predicted behavioural intentions. Self-efficacy expectancy predicted behavioural intentions only in combination with outcome expectancy and outcome value. In addition, other studies have shown that self-efficacy and depression and anxiety can reciprocally influence each other, affecting intention to engage in specific behaviours (Gortner & Jenkins, 1990; Perkins, 1991). Thus, cardiac patients who return to work following MI or cardiac treatment may have more positive expectations of the outcomes of RTW, they may value these outcomes to a greater extent, and they may expect themselves to be capable enough to return to work, and may experience less symptoms of depression and anxiety. Consistent with the findings from the literature, patients' negative expectations of RTW, of its outcomes, and of their ability to return to work may be reinforced through feedback from

their social, medical and work environments, by their negative health-related appraisals, and by experiences related to age, education, income and socialization practices. The resulting negative self-efficacy may influence their likelihood of experiencing symptoms of depression and anxiety, and their intention to return to work.

Summary: A Psychosocial Model

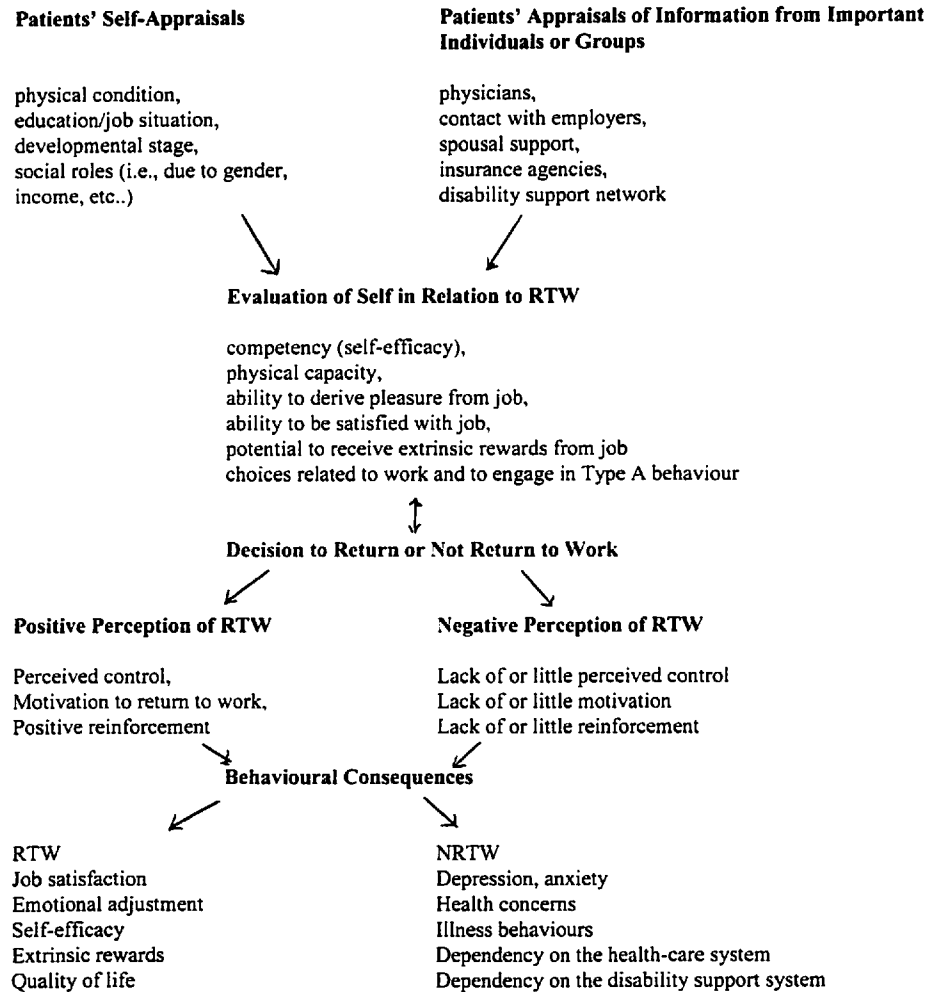
Overall, the explanations presented above appear to be supported by social learning theory (Ajzen & Fishbein, 1980; Bowers, 1973; Mischel, 1973; Bandura, 1977), and stress and coping theory (Lazarus, 1981). These theories emphasize the multiple determinants of behaviour, whereby individual characteristics and the environment interact in a bidirectional, dynamic, continually changing nature (Ajzen & Fishbein, 1980; Lazarus, 1981). Health-related behaviour is also believed to be influenced by a number of dispositional and situational components such as personality factors, personal tendencies, psychological resources, beliefs, attitudes, physiological and disease-related factors, social support, and life-event stress (Lamping, 1985), which can also change over time (Ajzen & Fishbein, 1980; Lazarus, 1981). The above theorists believe that individual beliefs, attitudes and personalities can mediate situational influences to determine behaviour, explaining why there exist individual differences in responses to similar situations, such as CHD, cardiac treatment, and recovery (Mischel, 1973). Cognitive evaluations of situational variables can influence behaviour through appraisals of self-efficacy or confidence in engaging in the behaviour (Bandura, 1986), of control and predictability over one's situation and of environmental changes (Ajzen & Fishbein, 1980; Seligman, 1975), and of the availability of alternative choices of behaviour (Ajzen & Fishbein, 1980).

As such, cardiac patients appear to have predictable relations with the factors mentioned above that can affect their decision to resume employment. All of the above explanations appear to have some components in common. Patients seem to engage in self-appraisals related to their physical condition,

their job situation in relation to education level, their developmental stage, and their social roles. Their self-appraisals may be affected by appraisals by individuals and groups to whom or to which they attribute importance. Patients obtain information through their physicians, through contact (or lack of) with their employers and co-workers, through spousal support (and its nature), and through insurance and disability support agencies. Based on their conclusions, patients may evaluate their capacities and competencies, and their ability to receive pleasure, satisfaction and extrinsic rewards from their jobs. Depending on their final perceptions, patients may feel that they have little control or predictability over their work situation and their health, they may feel that they have few choices other than to accept their disabilities or to maintain a Type A behaviour pattern, they may experience little motivation to return to work, and they may receive little support to return to work. They may experience feelings of hopelessness and helplessness about the future, develop symptoms of depression and anxiety, report insecurities about their health, and show illness behaviours. These symptoms may lead to a dependency on the health-care and disability systems. Conversely, patients may feel that they have some control and some choice over their RTW, that they can predict the process of their health and the outcomes of their RTW, that they are motivated to return, and that they are reinforced for returning. These patients may be more likely to return to work. Patients who continue to perceive their work-situation as satisfying and motivating may remain at work, while those whose perception of their work situation confirms a negative appraisal of their physical capacities, competencies, choices, extrinsic rewards and ability to receive pleasure and satisfaction may not remain at work and perhaps adopt behavioural patterns similar to those of patients who never returned. A visual representation of this model is shown in Figure 1.

Figure 1.

Factors that Influence the Decision to Return or Not Return to Work of Cardiac Patients



An Intervention To Return To Work

According to the theoretical explanations above, not all predictive factors can be modified in an intervention to increase rates of RTW in cardiac patients. These include demographic factors such as age, gender, income, duration of unemployment prior to cardiac treatment, and all the medical factors but functional/exercise capacity or limitation. Functional/exercise capacity or limitation is not considered a modifiable factor in the present thesis, because the aim of this thesis is to evaluate a psychosocial intervention, not a physical one. Other factors cannot be modified for the sole reason of increasing RTW rates, or cannot be changed without considerable effort and cost. These factors include patients' education level and occupational status, physicians' and employers' advice, the nature of cardiac rehabilitation programs, and family attitude. For the purpose of this study, the following factors appear to be most accessible through direct interaction with patients following cardiac treatment: patients' perception of social-environmental factors such as family attitude, physician's advice and employer's advice, depression and anxiety, work-related expectations, Type A behaviour, self-efficacy, and behavioural intention to resume employment. Thus, the design of the intervention is based on assumptions about how these psychosocial factors can affect the decision to return or not return to work (see Figure 1). The aim of the intervention is to use methods shown to affect these factors, and to increase the likelihood that cardiac patients will choose to return to work following treatment.

The following section describes three characteristics of the intervention assessed in the present study that are believed to affect the modifiable psychosocial predictors of RTW. First, the intervention involves the setting of weekly goals with the aim returning to work. Second, the intervention includes solution-focused techniques designed to enhance goal-setting and ensure adherence to treatment. Third, the intervention is in group format to ensure that patients receive adequate social support.

Goal-Setting

Many authors agree that interventions involving goal-setting produce concrete behavioural changes in a short period of time (Deci and Ryan, 1985a; de Shazer, 1985; Locke and Latham, 1990; O'Hanlon and Weiner-Davis, 1989). Goal-setting has been shown to mobilize energy in directing behaviour toward defined goals, to increase the level of organization of behaviours toward goals, to eliminate repetitious or useless tasks, to increase the efficiency of behaviour, and to increase task performance in work organizations (Locke and Latham, 1990). In therapeutic environments, goal-setting has been used to reduce client resistance to therapy, to focus clients' attention on the future and create expectations for change, focus clients' attention on what they have and are capable of achieving rather than on obstacles (de Shazer, 1985; O'Hanlon and Weiner-Davis, 1989), increase clients' sense of control over their environment, and, when self-chosen, to emphasize clients' self-directedness and self-efficacy (Deci and Ryan, 1985a).

Goals show different effects on behaviour depending on a number of conditions and personal characteristics (Deci and Ryan, 1985b; Locke and Latham, 1990). According to Locke and Latham, (1990), setting self-relevant, specific and moderately difficult goals can increase self-efficacy, behavioural intentions, and goal-attainment. In a review of studies on work-related goals, Locke and Latham showed that setting such goals can lead to higher self-efficacy and greater person-task congruence. Both personal goals set in this context, and self-efficacy, were shown to correlate with motivated goal-directed behaviour, goal attainment and high task performance at work. In addition, psychological mechanisms (i.e. persistence, attention and initiative), goal strategies (i.e. effort, endurance, and direction), goal choices (i.e. through the influence of past experience with the given tasks, level of ability, success at achieving the task, self-efficacy and normative information), goal commitment (i.e. through individuals' perception of the task's desirability and appropriateness), and

environmental characteristics (i.e. assignment of tasks by authority figures, peer influence, public nature of the goal, external incentives, punishment, and instrumentality of the goal) can influence the degree to which goal-setting leads to successful task performance. Finally, positive, efficacy-related feedback has been shown to increase goal-related self-efficacy and goal-attainment (Locke and Latham, 1990).

Thus, according to Locke and Latham (1990), cardiac patients who are unsure about returning to work can redirect their behaviours toward a fulfilling RTW by setting self-relevant, specific, moderately difficult goals. Choosing realistic and personally rewarding goals can assist patients in communicating with their social environment, gain relevant information, gain control over their decisions, increase their expectation to return to a satisfying job, increase RTW-related self-efficacy, and reduce the likelihood of manifesting symptoms of depression, anxiety and Type A behaviour. In addition, obtaining efficacy-related feedback from a counsellor or other cardiac patients can increase self-efficacy and the likelihood of returning to work.

Solution-Focused Therapy

Despite the knowledge gained from studies on the rehabilitation of cardiac patients, adherence to treatment declines progressively as patients return to societal roles (Oldridge, Donner, Buck, et al., 1983). Cardiac patients are known to be prone to adherence problems due to the long duration of treatment, the complexity of lifestyle changes, the side-effects of medication and invasive treatment, as well as individual characteristics such as social isolation, anxiety, and drug or alcohol abuse (Knapp & Blackwell, 1985). Other general factors that can affect adherence include: decision to adhere; understanding the treatment regimen; the treatments' disruptiveness of patients' lives; reactance to a sense of being controlled by an external agent; and patient-practitioner communication (Taylor, 1986). Researchers assessing differences in rates of treatment adherence in cardiac patients found that home was the setting of greatest adherence, and work the setting of least adherence (Taylor, Houston-Miller, Ahn,

Haskell, & De Busk, 1986).

Researchers of brief therapies focused on finding solutions to specific problems (de Shazer, 1985; O'Hanlon and Weiner-Davis, 1989) have formulated a number of strategies for increasing the adherence of clients to psychotherapy, helping clients set their own goals and find their own solution to problems, and making rapid behavioural changes that last for a long period of time. The assumptions underlying such therapies are the following: 1) that clients can be taught to expect change; 2) that clients have the resources and strengths to resolve their problems; 3) that it is not necessary to know what the origin of the problem is in order to resolve it; and, 4) that one small behavioural change is all that is necessary in order to generate more behavioural changes. Therapists adopting these assumptions tend to: 1) search for ways in which clients have already resolved their problems, and focus on these events until clients perceive solutions to additional problems; 2) allow patients to define the goals that are most appropriate for resolving their problems; 3) focus on realistic, possible solutions; 4) believe that all symptoms of resistance to therapy are signs that the way of approaching a problem is not working; 5) focus on exceptions to problems rather than on problems themselves, and on how the exceptions came about; 6) focus on the consequences of behavioural changes (i.e. "what will be different if you woke up tomorrow and your problem was solved?"); and, 7) ask clients to find alternative ways of dealing with a problem until they have exhausted all of their ideas. These approaches are designed to involve clients in setting realistic solutions to problems which they perceive as difficult to resolve. Additional techniques for facilitating clients' adherence to programs include anticipating adherence, taking clients' perspective, fostering a collaborative relationship, using other health-care providers, repeating what was done in therapy and checking for comprehension, and not giving up (Meichenbaum and Turk, 1987).

Social Support

Social support can play an important role in enhancing patients' self-efficacy and motivation to return to work (Ben-Sira & Eliezer, 1990). Together with coping strategies such as goal-setting and solution-focused techniques, support from other patients who have had similar or identical experiences, and from a counsellor, can modify patients' perceptions of the threat of their illness and their evaluations of RTW, and possibly counteract negative perceptions. Other patients who have undergone similar distressing experiences and who are using positive coping strategies can also represent an important social norm with which patients who feel unsupported and threatened can identify (Ajzen & Fishbein, 1980). Their presence can provide a powerful positive influence on perceptions of cardiac patients who may be at greater risk of developing unconstructive coping strategies, increasing self-efficacy (Bandura, 1986; Locke & Latham, 1990), control and predictability over their situation (Ajzen & Fishbein, 1980; Krantz, 1980; Seligman, 1975), and perception of the availability of alternative choices of behaviour (Ajzen & Fishbein, 1980).

Summary: Characteristics Of A Goal-Setting And Solution-Focused Intervention

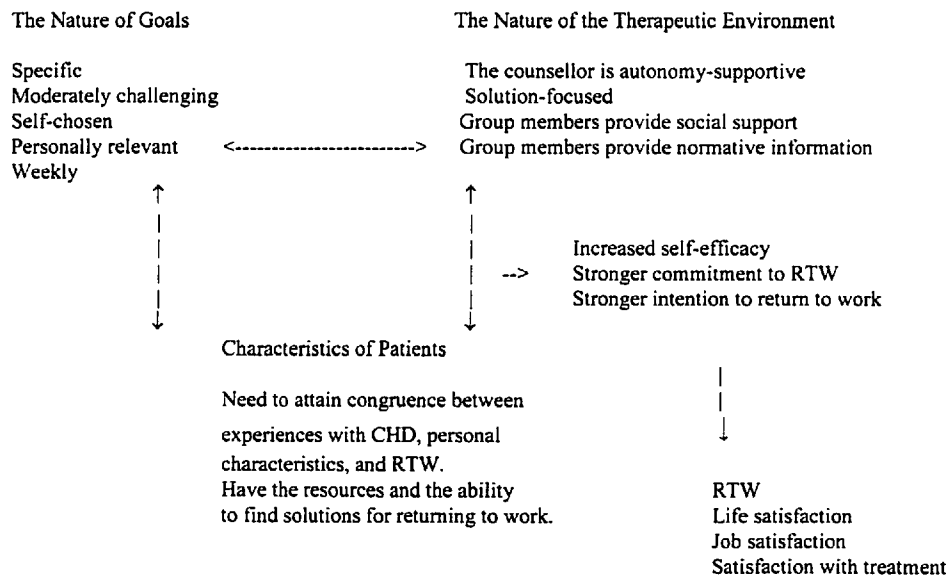
For Increasing Rates Of RTW

Figure 2 shows how the nature of goals, the therapeutic environment and the motivational characteristics of cardiac patients may lead to increased self-efficacy, intention to return to work, return to work, and to greater satisfaction. Ideally, goals should be specific, moderately challenging, self-chosen, and personally relevant. The attainment of goals should provide patients with feedback related to personal mastery. In addition, goals should take into account patients' physical, personal and systemic experiences which have led them to experience losses in their perceptions of their ability to return to work. The therapeutic environment should include a counsellor who provides positive efficacy-related feedback. The counsellor should also assist patients in perceiving their goals as solutions to problems

that stem from their own abilities. The intervention should be offered in a group format. Members of the intervention group should provide normative information, as well as support concerning the expectations and experiences following cardiac treatment. Goals and the therapeutic environment should interact with patients' need to make decisions which are congruent with their values and experiences, and with their resources and abilities in dealing with the challenge of RTW. The intervention should lead to an increase in self-efficacy and commitment to RTW. These motivational characteristics should, in turn, lead to increased RTW rates, greater satisfaction with work, and greater satisfaction with life. Finally, if the intervention assists cardiac patients' in fulfilling important psychosocial needs, it should lead to satisfaction with treatment.

Figure 2.

Description of A Goal-Setting Intervention to Assist Cardiac Patients to Return to Work



Person-Intervention Fit

Discovering which treatment works best for what group of individuals has been an important issue in the research on prediction of treatment outcome. This is due to the finding that research populations such as cardiac patients can consist of groups of individuals whose characteristics can differentially interact with treatment to affect outcome (Ost, Jerremalm, and Johansson, 1981; Steketee & Chambless, 1992). There is an important consequence of these differences in clinical populations. The results of clinical outcome trials become unclear because no one intervention fulfills the needs of all patients participating in a research study. As a result, the findings are inconclusive and patients who can benefit from treatment do not receive it (Andersen, 1990). Thus, in the context of evaluating a goal-setting intervention for cardiac patients, it becomes important to identify the population and treatment characteristics that can affect treatment outcomes.

Individual or Group Characteristics

Characteristics specific to medical populations can differentially affect the outcomes of psychosocial interventions (Ost, Jerremalm, and Johansson, 1981). For a majority of medical populations, treatment needs can differ according to the following characteristics: stage and severity of disease, type of disease, recovery stage, recovery period, medication, personality type or personal tendencies, coping style, work and social environment, age, socio-economic status, education level, amount of medical information received from medical institutions, depression and anxiety, social support, and experience of pain (Andersen, 1990). In cardiac patients, many of the above variables are also predictors of RTW.

Psychological characteristics have also shown to have a mediating effect on the effectiveness of goal-setting and solution-focused interventions on motivation and intention to engage in specific behaviours (Amabile, Hill, Hennessey, and Tighe, 1994; Deci & Ryan, 1985b; Griffith, 1994). In their

review of studies on motivational orientation, Amabile et al. (1994) showed that subjects who were intrinsically motivated (i.e., to do things that are personally satisfying, enjoyable and creative) showed a higher response to tasks that allowed them to develop new skills, exercise creativity, and become deeply involved in their work, whereas individuals who were extrinsically motivated (i.e. to attain externally-set goals through values, beliefs and self-identification) were more likely to be attracted by tasks involving recognition, competition, and the dictates of other people. Studies that Amabile et al. (1994) cited showed that extrinsically motivated individuals showed more impatient, rigid behaviour in task management, poorer concept attainment, impaired complex problem-solving, poorer incidental learning, increased fixedness, and lower levels of creativity (p.951). Deci & Ryan (1985b) found orientation toward autonomy (i.e. high degree of experienced choice with respect to the initiation and regulation of one's own behaviour) to be correlated with a high level of ego development (Loevinger, 1976), high self-esteem (Janis & Field, 1959), and interest in attaining a set goal (Izard, Dougherty, Bloxom, and Kotsch, 1974). Orientation toward control (i.e. strong tendency to use controls in the environment and within oneself to determine behaviour, such as deadlines, 'shoulds', or surveillance) was modestly but significantly correlated with Type A coronary-prone behaviour pattern (Jenkins, Rosenmann, and Friedman, 1967), with Internal locus of control (Rotter, 1966), and with reports of distress and guilt (Izard et al., 1974). Thirdly, impersonal orientation (i.e. experiencing one's behaviour as being beyond one's intentional control) was correlated with External locus of control (Rotter, 1966), with self-derogation (Kaplan & Pokorny, 1969), with depression (Beck & Beamesderfer, 1974), self-consciousness and social anxiety (Fenigstein, Scheier, and Buss, 1975), hostility, shame, fear, guilt and pressure (Izard et al., 1974).

A study by Griffith (1994) compared the outcomes of a goal-setting intervention on career-counselling participation. Individuals with high scores on a scale of Conscientiousness (Costa &

McCrae, 1992) (i.e. tendency to be persistent, planful, careful, responsible, and hardworking) were less motivated to engage in activities set through goal-setting than individuals with low scores in conscientiousness (i.e. tendency to be disorganized, to be somewhat unreliable, to feel unprepared and inept, and to lack self-discipline).

Thus, some individual or group characteristics of cardiac patients may affect outcome of the goal-setting intervention (i.e. RTW) by means of their interactions with treatment. The effectiveness of the intervention may depend on patients' experience with CHD and with cardiac treatment, as well as on their psychological characteristics such as motivational orientation and conscientiousness. The research suggests that patients with specific disease- and treatment-related characteristics and with specific motivational orientations or personality characteristics may be most motivated to attain goals that are congruent with their orientations or tendencies, in congruent environments (Amabile et al., 1994; Andersen, 1990; Deci & Ryan, 1985b). On the other hand, it is also possible that individuals who already have the tendency to set goals, and who do not require assistance to return to work, may be less interested in goal-setting, and thus may not benefit from it (Griffith, 1994).

Implementation Characteristics

Apart from type of intervention (i.e. goal-setting), implementation characteristics (i.e. number of sessions, number of hours per session, group size, presence of counsellor) can constitute factors that affect treatment effectiveness. These characteristics can also interact with subject characteristics to determine whether an intervention is effective for certain individuals, but not for others.

Among the studies assessing the effectiveness of career-counselling interventions, a meta-analysis by Oliver and Spokane (1988) revealed that the total number of hours or sessions spent in career counselling was positively correlated with the treatment effectiveness. Individual and group treatment involving the presence of a counsellor were also found to be more effective than self-help interventions.

Studies in organizational psychology have assessed goal-setting interventions covering time spans ranging from one minute to several years, and provided within time intervals ranging from 5 minutes to 12 months, in both individual and group format (Locke and Latham, 1990). According to Locke and Latham, 93% out of 56 studies cited showed successful goal attainment. They claimed that the effectiveness of goal-setting depends more on the task requirements, than on time span, time interval, or format. In regard to the effects of studies comparing daily versus weekly goal-setting sessions (i.e. goals included weight loss, reduction of calorie intake, engaging in regular study habits, engaging in regular exercise), Locke and Latham (1990) reported contradictory findings, or findings revealing no significant differences. Group goal-setting interventions have also been compared to individual interventions. Hayes, Rosenfarb, Wulfert, Munt, Korn, and Zettle (1985) showed that students who set individual study goals in the presence of other students attained their goals at a significantly higher rate than students who set goals individually. In a similar study, McCaul, Hinsz, and McCaul (1987) found that subjects who set their goals publicly attained their goals more successfully when the goals were rated as being difficult, but not when they were rated as being easy.

In summary, implementation characteristics may interact with career counselling and/or goal-setting to affect treatment effectiveness. Therefore, in addition to considering possible population characteristics when evaluating an intervention, it may also be important to assess the direct or indirect effects of implementation characteristics on treatment outcomes.

Three Secondary Treatment Outcomes

Concern for outcomes of cardiac treatment originates from the desire to ensure that cardiac treatment is beneficial to patients as well as cost-effective. It derives from the well-known fact that financial and service resources are scarce while the need for treatment of cardiac disease is widespread and expensive (Wigle et al., 1990), and that treatment is highly invasive and potentially life-threatening

(Wenger & Furberg, 1990). As a result, RTW is one of the most frequent measures of the effectiveness of cardiac treatment (Boulay et al., 1982; Cay & Walker, 1988; Chirikos & Nickel, 1984; Jenkins et al., 1983; Johnson et al., 1982; Love, 1980; Misra et al., 1985; Shapiro et al., 1972; Stanton et al., 1983). However, it has been argued that a RTW alone does not measure all of the possible benefits of cardiac treatment (Wenger & Furberg, 1990), but is just one of a number of outcome measures (Raczynski & Oberman, 1990). Three other factors that have been considered to be important treatment outcomes are life satisfaction, satisfaction with treatment, and job satisfaction.

Life Satisfaction as a Measure of Quality of Life

Quality of life measures commonly address physical functioning, social and psychological adaptation and adjustment, cognitive functioning, illness-related symptoms, occupational and avocational activities, job and life satisfaction, sexual adjustment, perceived health status and interpersonal relationships (Wenger & Furberg, 1990; Spitzer, 1987). Quality of life scales address these variables either generically, or in relation to a specific disease or illness. The advantage of using generic measures of quality of life is that they permit the assessment of a number of non-specific consequences of a disease or treatment. In addition, these measures make use of the fact that physical, psychological, social and occupational functioning are interrelated and can affect each other. They also indicate patients' general life satisfaction, an outcome that is increasingly considered in making decisions about life-threatening surgery (Troidl, Kusche, Vestweber, Eypasch, Koeppen, and Bouillon, 1987) and chronic treatment (Fletcher, Hunt, and Bulpitt, 1987). Third, when adequately consistent and valid, quality of life measures may eliminate the problem of reduced statistical power that results from the use of multiple measures. On the other hand, disease-specific scales may detect outcomes that generic scales do not measure. For example, functional capacity may be a useful measure of the vocational capacity of cardiac patients, but not of patients who have experienced the loss of a limb. In addition, by virtue of their

content specificity, disease-specific measures may be more internally consistent and psychometrically valid than more generic quality of life measures.

Oldridge et al. (1990) suggest that in order to obtain complete information regarding the adaptation and adjustment to a specific disability, it may be useful to administer both generic and specific measures of quality of life. However, in this study, RTW, psychological adjustment, and satisfaction with treatment constitute the pertinent specific treatment outcome measures. In addition, many of the physical and psychosocial variables measured by quality of life scales assess impairments that are not observed among cardiac patients who are physically capable of returning to work. A measure of general satisfaction may reflect their well-being before and after returning to work. Therefore, a generic measure of quality of life assessing global life-satisfaction was administered.

Satisfaction with Treatment

As with quality of life, the patient or client satisfaction of services is considered to be an important outcome in program evaluations (Nguyen, Attkisson, and Stegner, 1983). Evaluations of client or patient satisfaction of services have been used to assess the extent to which clients or patients receive adequate, appropriate and high-quality care (Janikowski, Bordieri, and Musgrave, 1991; Mowbray & Tan, 1993; Perreault, Leichner, Sabourin, and Gendreau, 1993; Ross, Sinacre, Stlers, and Budman-Mak, 1990; Solomon & Marcenko, 1992; Weller, 1991). Issues that are addressed include outcomes of medical, psychosocial, or vocational treatments such as self-understanding, understanding of work goals (Janikowski et al., 1991), reduction of physical symptoms (Ross et al., 1990; Weller, 1991), the appropriateness of physical environment and atmosphere (Perreault et al., 1993), and the fulfilment of clients' physical and psychological needs (Solomon & Marcenko, 1992). The effectiveness of interventions and of the responsiveness and competence of personnel have also been assessed (Janikowski et al., 1991). Results from satisfaction surveys have been used in quality assurance

programs, as well as to make policy decisions leading to funding constraints, greater or lesser accessibility to services, or modification of services (Mowbray & Tan, 1993).

Job Satisfaction

The significance of job satisfaction becomes most apparent when its impact on the employee, the employer and the society are considered. From the employee's perspective, working conditions can be significant sources of stress. Job dissatisfaction can lead to difficult family relationships, stress-related illnesses and difficulty remaining at work. In addition, research suggests that job satisfaction is related to overall adjustment and mental health (Karasek & Theorell, 1990). Thus, cardiac patients who experience job dissatisfaction due to a high level of work-related stress may be less motivated to return to their jobs because of the relation between stress and cardiovascular disease, and because they may feel that their jobs may be too demanding once they have experienced the trauma of a MI.

Job satisfaction can also be of importance to employers and to society. Although job satisfaction does not necessarily lead to increased productivity, job dissatisfaction can contribute to increased turnover, leading to higher expenditures for society when medical populations such as cardiac patients turn to the disability support system for financial support (Karasek & Theorell, 1990).

Summary: Three Secondary Treatment Outcomes

Quality of life, client satisfaction of services, and job satisfaction are three outcomes that support the implementation of a psychosocial intervention to increase RTW rates. An analysis of these outcomes may confirm that a RTW is beneficial to cardiac patients. In addition, verifying the relation of RTW with quality of life and job satisfaction following treatment, may lend support to the significance of promoting an intervention for increasing patients' RTW rates.

Study Objectives And Research Hypotheses

Hypothesis 1: Impact of Goal-Setting on Cardiac Patients' RTW and Percentage of Eligible Weeks Worked at Follow-up

Compared with subjects who undergo a treatment involving the viewing of video-tapes and discussion (a comparison intervention)¹, a larger proportion of subjects in the goal-setting group will return to work. In addition, participants in the goal-setting group will have worked for a higher percentage of the total eligible weeks at follow-up.

The objective of this hypothesis was to assess RTW as represented by two outcomes. First, the objective was to compare the actual rates of RTW at follow-up between the goal-setting treatment condition and a comparison treatment condition (a video-tape and discussion group). Second, the objective was to determine whether there were treatment group differences in how long patients had worked between post-treatment and follow-up. The reason for measuring how long patients had worked between post-treatment and follow-up was to get a precise measure of how treatment could have contributed to RTW by increasing speed of RTW and level of productivity. This was measured by taking the percentage of eligible weeks returned to work between post-treatment and follow-up¹.

¹ The reasons for using a treatment comparison design over a control group design are explained in the section entitled "Experimental Design".

¹Originally, the purpose was to measure the number of weeks that subjects worked between post-treatment and follow-up. However, not all subjects completed their follow-up at three months post-treatment. In this situation, the number of eligible weeks worked was dependent upon the follow-up duration. Therefore, two methods were used to control for the duration of follow-up. First, the percentage of eligible weeks returned to work by follow-up was used. This variable is calculated as follows: $100 \times (\text{Total number of weeks worked since pre-treatment} / \text{Total number of weeks between post-treatment and follow-up})$. Second, the correlations between the percentage of eligible weeks returned to work, RTW, and duration of follow-up were calculated to ensure that a higher percentage of eligible weeks worked did not make it likelier that subjects were at work, or had worked for a longer period of time. The correlations are found in Table A-1 (Appendix A). As can be seen in Table A-1, RTW and the percentage of eligible weeks worked were not significantly correlated with duration of follow-up. This suggests that percentage of eligible weeks worked by follow-up is a valid measure of length of RTW.

Research Question 1: Impact of Interaction between Subject Characteristics, Implementation Characteristics and Treatment Condition, on Cardiac Patients' RTW and Percentage of Eligible Weeks Worked at Follow-up

Subject characteristics and treatment implementation characteristics may interact with treatment condition, to affect RTW and the percentage of eligible weeks worked at follow-up.

Provided that specific, psychological, subject characteristics (i.e. risk of not returning to work⁵, conscientiousness, self-determination, commitment to work, depression, and anxiety) are known to predict return to work or may have an impact on goal-setting, a related objective was to investigate whether these characteristics interacted with treatment condition to influence RTW and the percentage of eligible weeks worked at follow-up.

The conditions of treatment implementation were not ideal. That is, not all subjects attended groups of identical sizes or the same number of treatment sessions, and duration of follow-up ranged from 3 to 6 months⁶. Even though it was expected that these treatment implementation characteristics would have no impact on the outcomes of either treatment, the literature suggests that they can affect treatment outcomes (see the section entitled " Person-Intervention Fit"). Thus, the impact of the interaction between these factors and treatment condition, on RTW and on percentage of eligible weeks worked at follow-up, was investigated.

⁵ Risk of not returning to work is measured by taking the average score of scales measuring the predictive factors of RTW. The validity and reliability of the score are described in the section on Variables and Measures.

⁶ Tables of frequencies of group sizes, number of sessions attended, and durations of follow-up are presented in the sections entitled "The Data Collection Phase" and "Implementation Analyses".

Hypothesis 2: Impact of the Treatment Condition on Cardiac Patients' Satisfaction with Their Lives, with Their Jobs, and with the Intervention Received

Compared to subjects in the video-tape group, subjects in the goal-setting group will report higher scores on measures of life satisfaction, job satisfaction, and satisfaction with services.

A secondary aim of the study was to ensure that the cardiac patients who underwent the goal-setting intervention also benefited from a better quality of life. Thus, compared to subjects in the video-tape group, subjects in the goal-setting group were hypothesized to be better prepared to return to work at post-treatment and at follow-up, and thus be better adjusted. They were expected to report higher levels of life satisfaction (at follow-up), job satisfaction (at follow-up), and satisfaction with services (at post-treatment).

Research Question 2: Impact of Interaction between Subject Characteristics, Implementation Characteristics and Treatment Condition, on Cardiac Patients' Satisfaction with Their Lives, with Their Jobs, and with the Intervention Received

Subject and implementation characteristics may interact with treatment outcomes to affect life satisfaction, satisfaction with services, and job satisfaction.

It was hypothesized that a better quality of life would be reported by cardiac patients who were more likely to return to work following the goal-setting treatment. Therefore, given that specific subject characteristics (i.e. risk of not returning to work, conscientiousness, self-determination, commitment to work, depression, and anxiety) were thought to have a potential impact on RTW, it was assumed that they could also have an impact on life satisfaction, job satisfaction and satisfaction with treatment. Therefore, a related objective was to investigate whether subject characteristics interacted with treatment

condition to affect these outcomes.

Similarly, the implementation characteristics (i.e. group size, number of sessions attended, and duration of post-treatment-follow-up period) that were thought to have a potential impact on RTW were also thought to be able to affect life satisfaction, job satisfaction and satisfaction with services. Thus, the impact of the interaction between these factors and type of treatment on these three outcomes, was investigated.

Hypothesis 3: Impact of Treatment Condition on Cardiac Patients' Psychological Status

Compared to subjects in the video-tape group, subjects in the goal-setting group will report greater improvements in self-efficacy and self-determination. They will also report greater improvements in commitment to work, and in symptoms of depression and anxiety.

The third objective was to investigate whether participants of the goal-setting treatment experienced greater positive changes on the psychological process variables. These variables included self-efficacy, commitment to work, self-determination, depression and anxiety.

Method

Subjects

Research Setting

The Heart Institute Prevention and Rehabilitation Centre (HIPRC) is located within the University of Ottawa Heart Institute at the Ottawa Civic Hospital. The Cardiac Prevention and Rehabilitation Program offered at the HIPRC is available to individuals with CHD from the Ottawa-Carleton region and in the areas of Eastern Ontario and Western Quebec that closely surround it. Services are offered by a multi disciplinary team specialized in vocational counselling, social work, dietetics, occupational therapy, psychology, physiotherapy, nursing and medicine. They include secondary prevention education and counselling for high risk factors for CHD such as coronary-prone behaviours, sedentary lifestyle, smoking, obesity, hypertension and hyperlipidaemia. In addition, vocational counselling, individual and family counselling, stress-management training, leisure counselling, energy-conservation education and psychological assessment are provided. Individuals are mainly referred to the HIPRC by their family physician, their cardiologist or hospital personnel of the University of Ottawa Heart Institute. The duration of the program is 6 months.

Research Sample

The subjects selected for the present study include 42 male and 4 female⁷ cardiac patients of the University of Ottawa Heart Institute who had been discharged 2 to 3 weeks following bypass surgery. Subject selection was based on the following criteria: 60 years of age or less, and written agreement to participate in the study. Cardiac patients were excluded from the study if they were members of the

⁷ Only 8.6% of the study sample included women. Women do not represent more than 10% of patients admitted to the University of Ottawa Heart Institute (Dafoe, 1997), nor of patients admitted to other cardiology units (Health and Welfare Canada, 1988; Gohlke et al., 1992; Stanton et al., 1983). One of the reasons for this small percentage is that few pre-menopausal women develop CHD. In addition, women are less likely to be diagnosed of MI or CHD because physicians have more difficulty identifying symptoms in women than in men (Dafoe, 1997).

clergy or of a religious order, homemakers, students or retirees. All cardiac patients were medically cleared to return to work within 6 months following their identification as potential subjects. Factors such as the nature of patients' relationship with physicians and gender were controlled through the randomization of subjects to the two treatment groups.

The program was offered in English only, for methodological and logistic reasons. It seemed more prudent to demonstrate the effectiveness of goal-setting in English before undertaking to translate the counsellor's manual and the various standardized and unstandardized measures into French. However, given that the counsellor and the researcher were bilingual, subjects who preferred to speak French were able to speak French during their assessment and treatment sessions. All written and video-taped information was in English.

Cardiac patients eligible for participation in the study based on the initial selection criteria were informed of its purpose and signed a statement of informed consent (see Recruitment Script and Informed Consent Form in Appendix C). At 2 to 3 weeks following hospital discharge, subjects were contacted by telephone, during which they verbally confirmed or disconfirmed their interest in participating in the research study. Subjects who agreed to participate completed the Vocational Prognosis Form (VPF) (Flynn et al., 1989). They were informed that written medical clearance to return to work within the following 6 months was necessary before scheduling the first session. Immediately after obtaining medical clearance from their surgeons or cardiologists at the University of Ottawa Heart Institute, subjects were randomly assigned to goal-setting or video-tape treatment groups, and the first session was scheduled.

Ninety-four subjects provided their initial informed written consent to participate in the study. Sixty-eight out of the 94 subjects completed the Vocational Prognosis Form, verbally agreed to attend the treatment sessions, and were randomly assigned to goal-setting or video-tape treatment groups.

Sixteen out of the 68 subjects never attended the first session. This is probably due to the timing of recruitment. Subjects were initially approached to participate in the study a few days after they had undergone bypass surgery. The VPF was administered 2 to 3 weeks following hospital discharge.

Four subjects dropped out of the study following the first session. The remaining 48 subjects completed pre-treatment assessments, a minimum of two sessions, and post-treatment assessments. Two subjects were inaccessible at follow-up and were not included in the final subject sample. In total, six (11.5%) out of the 52 subjects who attended the first session dropped out of the study. Other subject characteristics at pre-treatment are described in the Preliminary Results.

Procedure

Pilot Phase of the Research

The pilot phase of the research was conducted over a 5-month period, from November 3, 1993, to April 1, 1994. A total of six subjects (two women, four men) were randomly assigned to goal-setting and video-tape groups. Subjects were randomly assigned to the two treatment groups using a permuted block design procedure (Keppel & Saufley, 1980). For each block of two subjects, the flip of a coin decided which member of the pair was in the goal-setting group, and which in the video-tape group.

The pilot phase of the research resulted in the modification of a goal-setting intervention that was originally developed by Griffith (1994). The counsellor's manual, and measures constructed and modified for the study [i.e. Pre-treatment and post-treatment modified versions of the Client Motivation for Therapy Scale (Pelletier, Tuson, and Haddad, 1997), and two session-by-session questionnaires measuring cognitive evaluations of RTW and perceived social support] were also finalized during this phase.

The Data Collection Phase

Cardiac patients who were eligible to participate in the study based on the initial selection criteria were first identified by a nursing coordinator. On a weekly basis, the nursing coordinator provided the vocational counsellor at the Heart Institute Prevention and Rehabilitation Centre with a list of the names of eligible patients. The vocational counsellor subsequently met with inpatients individually in order to introduce them to the study and to obtain their informed, written consent to participate. Subjects were also informed verbally and in writing that the researcher would contact them by telephone 2 to 3 weeks following their hospital discharge (see the Recruitment script and the Informed Consent forms in Appendix C). After subjects provided their written consent, the vocational counsellor gave the researcher a list of their names and discharge dates. The researcher contacted subjects by telephone between 2 and 3 weeks following discharge in order to confirm patients' willingness to participate in the study and to complete the VPF. Potential subjects who accepted to be in the study were aware that participation was conditional on their receiving medical clearance from their surgeon or cardiologist. Prior to Session 1, the researcher visited each subject's surgeon or cardiologist at the University of Ottawa Heart Institute to obtain written confirmation that their patients were medically cleared to resume employment within the subsequent 6 months (see Medical Clearance Form in Appendix C). None of the subjects recruited were refused medical clearance.

Subjects were randomly assigned to either the goal-setting or the video-tape group. One or two groups began during the first week of each month starting in April, 1994, and ending in December, 1995. Groups consisted of one to four members, based on the availability and consent of subjects at the time of recruitment. Subjects who did not attend a session were contacted by telephone on the evening of their absence to confirm whether they were planning to attend the following sessions. Subjects who attended one session and who reported no longer being interested in participating were excluded from the study.

Those subjects who attended at least two sessions and who were not interested in attending additional sessions were given the choice to continue participating by completing the post-treatment and follow-up questionnaires by telephone, or to drop out of the study. There were several reasons for allowing subjects who attended two or three sessions to be analysed in the results. First, the final sample size of subjects who participated in four sessions would have been too small to be able to analyse. Second, it provided a more conservative measure of results where the subjects who differed in number of sessions attended contributed to the variability of the results. Subjects who had attended just one session were thought to have just been introduced to the interventions, and therefore were excluded from the study.

Subjects who agreed to complete the questionnaires were contacted on the date of the fourth session, in order to maintain consistent within-treatment periods with subjects who attended all sessions, and at follow-up. The follow-up period was originally determined to be 3 months. However, a significant number of subjects were either not available to complete the questionnaires, or inaccessible. In consequence, some subjects completed the follow-up questionnaires up to 6 months following treatment. Table A-2 (Appendix A) shows the frequencies and percentage of subjects who completed follow-up assessment at different periods. Finally, 42 out of 48 subjects who did not participate in the study were contacted at follow-up to determine the percentage of cardiac patients who did not participate in the intervention, who returned to work.

The Goal-Setting Intervention

The goal-setting and video-tape treatments are briefly described below. For more detail, the reader can see the Intervention Manual in Appendix C.

Session 1 (first 30 minutes): Pre-Treatment Session. During Session 1, subjects completed questionnaires assessing self-efficacy and intention to return to work (Maddux, Norton, and Stoltenberg, 1986), commitment to work (the Commitment scale of the Work Values Inventory, Macnab,

Fitzsimmons, and Casserly, 1985), Conscientiousness (Neo-Five Factor Inventory, Costa and McCrae, 1992), Self-Determination (Client Motivation for Therapy Scale, Pelletier et al., 1997), life satisfaction (Satisfaction with Life Scale, Diener, Emmons, Larsen, and Griffin, 1985), Depression, (Zung Self-Rating Depression Scale, Zung, 1974), and Anxiety (The State-Trait Anxiety Inventory, Spielberger, 1983). It took approximately 20 to 30 minutes to complete all questionnaires⁸.

Session 1 (second part). After completing the pre-treatment questionnaires, subjects began the session by completing questions about their long-term and two-month goals of RTW. The purpose of these questions was to assist subjects in thinking about their ultimate decision about whether they would like to return to their old or to new jobs, to full-time or part-time jobs, and whether they would like to return to work. Secondly, the reason for setting goals for the following 2 months was to help subjects see themselves as better prepared to return to work. Throughout the session, subjects were given time to discuss their issues and concerns. At the end of Session 1, subjects were also provided with a homework sheet containing questions for dealing with and troubleshooting their goals.

Session 2 (first part). At the beginning of Session 2, subjects discussed their responses to the items on the homework sheet. Subjects who did not complete the homework sheet at home during the previous weeks were able to complete it during the session. The questions on the homework sheet were based on solution-focused strategies formulated by de Shazer (1985) (See "Questions About Your Goals", in the intervention manual, Appendix C). These questions were provided to subjects to help them clarify their goals in their own personal contexts. The task also gave subjects the opportunity to discuss their concerns.

Session 1 (part 3), Session 2 (part 2), Session 3, and Session 4 (part 1). For four 1-hour sessions, subjects' main activity was to set weekly, specific, challenging and self-relevant goals to facilitate RTW.

⁸ Appendix D contain copies of the questionnaires used in this study.

Subjects were also asked to rate the relevance of each goal, and the difficulty level of all of the goals combined (see Session-by-Session Questionnaires, Appendix D). The counsellor helped subjects re-evaluate and modify their goals if they were too difficult or too easy, too general, or not self-relevant.

End of Sessions 1, 2, 3, and 4. At the end of each session, subjects in the goal-setting group completed two questionnaires. The first questionnaire assessed the degree to which subjects felt confident, able, and committed to achieve their goals, the importance of achieving their goals, and their expectation to achieve their goal. A second questionnaire assessed subjects' perceived intention, self-efficacy, value, expectation, and control in relation to their return to work, and the clarity of their goals. This questionnaire also assessed the degree of support that subjects felt they received from other group members or from the counsellor.

Session 4 (last 30 minutes): Post-Treatment Session. As during the final 30 minutes of Session 4, subjects completed questionnaires assessing self-efficacy and intention to return to work (Maddux, Norton, and Stoltenberg, 1986), commitment to work (Work Values Inventory, Macnab et al., 1985), Conscientiousness (Neo-Five Factor Inventory, Costa and McCrae, 1992), Self-Determination (Client Motivation for Therapy Scale, Pelletier et al., 1997), life satisfaction (Satisfaction with Life Scale, Diener, Emmons, Larsen, and Griffin, 1985), Depression (Zung Self-Rating Depression Scale, Zung, 1974), and Anxiety (The State-Trait Anxiety Inventory, Spielberger, 1983). In addition, subjects completed the Client Satisfaction Questionnaire (Nguyen, Atkinson, and Stegner, 1983). It took approximately 20 to 30 minutes to complete all questionnaires.

Follow-up. The follow-up took place 3 to 6 months after completion of the treatment (Session 4). At follow-up, subjects completed the Vocational Follow-Up Form (Flynn et al., 1989), the Commitment scale of the Work Values Inventory (Macnab et al., 1985), the Satisfaction with Life Scale (Diener, Emmons, Larsen, and Griffin, 1985), the SCL-10 (Nguyen et al., 1983), the Zung Self-Rating

Depression Scale (Zung, 1974), the State-Trait Anxiety Inventory (Spielberger, 1983) and the short-form of the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, and Lofquist, 1967) if they returned to work. All questionnaires were completed by telephone.

The Video-Tape Intervention

Subjects who participated in the video-tape treatment group completed the same questionnaires pre-treatment, post-treatment and follow-up as subjects who participated in the goal-setting group. At the end of each session, subjects in this treatment group completed only the second of the two questionnaires completed by subjects in the goal-setting treatment group. In addition, for each of Sessions 1, 2, 3 and 4, subjects viewed video-tapes concerned with humour and change, stress, and stress management, and dealing with difficult people at work. Each video-tape was of approximately one-half hour to one-hour duration. For the remaining time, subjects were encouraged to discuss their concerns in relation to the content of the video-tape.

The Counsellor

One counsellor delivered the treatment in this study. At the time of the data collection, the counsellor was a doctoral student in Clinical Psychology. She had completed a 1-year, full-time internship at the Centre for Psychological Services at the University of Ottawa, as a partial requirement of her doctoral internship. An important part of her internship was career counselling, which she had completed under the supervision three licenced psychologists specialized in vocational counselling.

The training procedure for the counsellor first involved attending meetings with the researcher and her thesis supervisor in order to discuss the pilot phase of the research. Secondly, she was provided with a copy of the intervention manual several weeks prior to her participation. She and the researcher met on a regular basis for approximately 4 weeks in order to practice the interventions. The counsellor attended four sessions in one goal-setting and one video-tape treatment group during the pilot phase of

the study, as an observer. Later, during her participation as a counsellor, she audio-taped 34 randomly-selected counselling sessions.

The researcher replaced the counsellor when the latter was unable to attend sessions or was unavailable for an extended period of time. The counsellor was unable to attend one session twice during her 2-year employment period. However, she was unavailable during the months of May and June, 1995, during which the researcher conducted one goal-setting group and two video-tape groups.

The Treatment Manual

To ensure consistent and appropriate application of the two interventions, the counsellor delivered treatment at each session using a standard treatment manual. The treatment manual was a modified version of the treatment manual written by Griffith (1994). A copy of the treatment manual is presented in Appendix C.

Variables and Measures

The measures used in this study fall into five distinct categories. The Vocational Prognosis Form (Flynn et al., 1989, 1996) measures the variables which predict RTW. Measures of self-efficacy and behavioural intention (Maddux et al., 1986), commitment to work, (Macnab et al., 1985), Self-Determination (Pelletier et al., 1997), and Conscientiousness (Costa & McCrae, 1991) assess variables which may affect the decision to return to work or may interact with goal-setting to affect RTW. The Satisfaction with Life Scale (Diener et al., 1985), the Zung Self-Rating Depression Scale (Zung, 1974), and the State-Trait Anxiety Inventory (Spielberger, 1983) measure three outcome variables which contribute to adjustment and quality of life. Baseline measures were taken at the beginning of the intervention in order to assess possible changes due to the treatment or to RTW at post-treatment and follow-up. Depression and anxiety were also included because they have been found to occur in cardiac patients and to be associated with RTW. Other outcome variables which were only assessed at post-

treatment or follow-up included: rate of RTW as measured by the Vocational Follow-up Form (Flynn et al., 1989), satisfaction with services (Client Satisfaction Questionnaire, Nguyen et al., 1983), and job satisfaction for those subjects who returned to work (Minnesota Satisfaction Questionnaire, Weiss et al., 1967). Finally, two questionnaires measured session-by-session changes in goal clarity, commitment to return to work, self-efficacy, intention to return to work, expectations about RTW, social support, as well as perception of physician's advice, control, and choice over RTW. The first of these questionnaires was administered only to the goal-setting group, while the second questionnaire was administered to both treatment groups. All questionnaires are in Appendix D. A list of the variables and measures is also included in Table 1.

The psychometric properties of each of the variables and measures are presented below. In addition, reliability analyses were conducted with the sample included in this study. The results of those analyses are presented in the "Preliminary Analyses" ("Results" section).

Measure Assessing Variables That Predict RTW

The Vocational Prognosis Form (VPF) (Flynn et al., 1989) is administered by telephone to subjects 2 to 3 weeks after they have been discharged from hospital treatment. It measures variables which are known in the research literature to predict RTW. These variables include: age, gender, education, work status (working full-time, working part-time, not back at work yet but planning to go back to my old job with my old employer, to a new job with my old employer, to a new job with an new employer, permanently retired), income and source of income, type of occupation, occupational status (based on the Blishen-McRoberts occupational status index (Blishen and McRoberts, 1976)⁹, work hours, sufficiency of income in the case of a non-RTW (0 = not at all sufficient, 10 = completely sufficient),

⁹ The Blishen-McRoberts occupational status index reflects prestige ratings of occupations, based on income and education. Ratings for a large number of occupations range from 17.00 (factory occupations) to 74.00 (professional occupations). Supervisory and clerical occupations are rated at approximately 50.00.

duration of unemployment, type (angina, angioplasty, MI, cardiac surgery, no cardiac event) and frequency of cardiac event, confidence that physician and employer will allow one to return to work (0 = not at all confident, 10 = extremely confident), confidence about returning to one's old job or to a new job (0 = not at all confident, 10 = extremely confident), interest in one's job (1 = I hate(d) it, 7 = I love(d) it), and intention to return to work (0 = no intention at all, 10 = extremely strong intention).

Table 1.

Variables and Measures

Measure	Variables	Administration Times
Vocational Prognosis Form	Predictors of RTW	Pre-treatment
12-item measure	Self-efficacy, outcome expectancy outcome value, intention to RTW, perception of norms	Pre-treatment, Post-treatment, Follow-up
Salience Inventory	Commitment to work	Pre-treatment, Post-treatment, Follow-up
NEO-FFI	Conscientiousness	Pre-treatment
CMOTS	Self-determination to participate in treatment	Pre-treatment, Post-treatment
TIS scales	Therapist interpersonal styles	Post-treatment
Satisfaction with Life Scale	General life satisfaction	Pre-treatment, Post-treatment, Follow-up
Zung's SDS scale	Depressive symptoms	Pre-treatment, Post-treatment, Follow-up
STAI	Anxiety symptoms	Pre-treatment, Post-treatment, Follow-up
CSQ-8	Satisfaction with treatment	Post-treatment
MSQ short form	Job satisfaction	Follow-up

Two scales labelled Perception of Physical and Mental Health, and Cognitive Facilitators of RTW, are based on results from a factor analysis of the scores of selected VPF items in a sample of 282 cardiac patients at the University of Ottawa Heart Institute. The Perception of Physical and Mental Health scale consists of the anxiety, depression, heart condition, and overall health scales. The Cognitive Facilitators of RTW scale measures confidence in obtaining physician's permission to return to work, confidence in obtaining the employer's permission to return to work, confidence about returning to one's old job with one's old employer, and intention to return to work. Each factor score was computed by taking the mean rating of all of the scales that defined it.

The predictive validity of the VPF was derived from a series of multiple and logistic regression analyses of all predictors of RTW (Flynn, Cupper, Iacovino, Dafoe, & Caverner, 1996). The results indicated that five variables accurately predicted the percentage of weeks returned to work and actual RTW at a 1-year follow-up. These variables include, in order of predictive power: cognitive facilitators of RTW, the Blishen-McRoberts occupational status index, gender, and the number of months since the last cardiac event. In addition, the results from a regression analysis of 88 subjects revealed that the factors which predict RTW at 1-year follow-up in this sample were identical to those which predicted RTW in the original sample.

Measures Assessing Variables That Can Affect RTW or Goal-Setting

Twelve paper-and-pencil questions, based on Likert-type scales ranging from 1 (do not agree) to 7 (strongly agree), measure self-efficacy, perception of social norms and behavioural intention to return to work. The number of questions conform with those devised by Maddux et al. (1986) in a study which assessed the associations of self-efficacy expectancy, outcome expectancy, outcome value and perception of social norms on the behavioural intention to engage in assertiveness training techniques. Three questions measure self-efficacy expectancy, two questions measure outcome expectancy, two

questions measure outcome value, two questions measure subjects' perception of social norms, and three questions measure intention to use an assertive technique in interpersonal behaviour. Scores for each scale were obtained by taking the mean of their items. Results from 88 students in introductory psychology classes who were randomly assigned to different learning conditions showed that exposure to the high outcome-expectancy and high outcome value conditions resulted in greater intention to engage in the assertiveness techniques than exposure to the low outcome-expectancy and low outcome value conditions. In addition, a significant interaction effect was found between self-efficacy and outcome value. Internal consistency coefficients (using Crombach's alpha) for the question clusters measuring self-efficacy expectancy, outcome value and behavioural intentions were found to be .68, .78 and .53. For the outcome expectancy and social norm question clusters, Pearson's product-moment correlations were .65 and .70 (Maddux et al., 1986). This measure appears never to have been validated with a medical or cardiac population. In the present study, this questionnaire was administered at pre-treatment, post-treatment and follow-up.

Commitment to Work. Commitment to work was assessed with the Commitment scale of the Saliency Inventory (SI) (Macnab et al., 1985). The Saliency Inventory is a paper-and-pencil treatment designed to measure the relative importance of five major life roles, including studying, working, community services, home and family and leisure activities. The Commitment scale asks how one feels about the different activities. It consists of 10 stems for which subjects were asked to rate their agreement in relation to the five different activities on a Likert-type scale, where 1 equals little or none, and 4 equals a great deal. Raw scores were obtained by summing the subject item ratings for each activity. Total scores were converted to T-scores based on age, gender and language spoken. Norms tables are available for high school students, post-secondary students, and a general adult population. Internal consistency coefficients for the Commitment scales (alpha) range from .83 to .95 for the general

English and French-speaking adult populations. Four to 6-week test-retest reliability coefficients for high-school students on the Commitment scales range from .66 to .81. These values are not available for the general adult population. Alternate-forms reliability was assessed by correlating scores from the English and French versions of the SI in high-school students. Correlation coefficients on the Commitment scales ranged from .62 to .84. Content validity was assessed by the project directors of organizations in six provinces of Canada. The roles and activities were defined according to the literature on the life stages and career development. Items were first field-tested, then selected based on their item-scale intercorrelations, subject reaction and consensus on the appropriateness and coverage of the item content. Evidence of discriminant validity is provided by demonstrating that correlations among scales measuring a single role are higher than correlations between the same measures of different roles. Convergent validity is supported through the demonstration of non-significant correlations between the scales of the SI and the scales of the Vocational Preference Inventory. This measure appears never to have been validated with either a cardiac or a medical population. In the present study, the Commitment scale was administered at pre-treatment, post-treatment and follow-up.

Self-Determination. Self-determination in participating in an treatment for returning to work was assessed using an earlier, modified version of the Client Motivation for Therapy Scale (CMOTS) (Pelletier et al., 1997). The CMOTS is a paper-and-pencil questionnaire assessing client motivation towards participating in psychotherapy. Six scales on the Self-Determination continuum consist of the Intrinsic Motivation scale; four Extrinsic Motivation scales known as the External Regulation scale, the Introjected Regulation scale, the Identified Regulation scale, and the Integrated Regulation scale; and the Amotivation scale. The final version of the CMOTS consists of four items per subscale, each on a Likert-type subscale ranging from 1 (does not correspond at all), to 5 (corresponds exactly), for a total of 24 items. The version of the CMOTS that was used in the present thesis (originally the Motivation

Toward Psychotherapy Scale or MTPS) was modified to correspond with subjects' participation in a treatment to return to work. Items that referred to attitude toward general psychotherapy were modified to refer to participation in a program specifically designed to help them return to work. In addition, items describing general outcomes of psychotherapy were replaced by items containing RTW as the outcome. The Likert-type scale ranged from 1 (does not correspond) to 7 (corresponds exactly) to conform with an earlier version of the CMOTS.

A second scale, the Therapist Interpersonal Style scale (TIS, Pelletier, Fortier, Vallerand, Tuson, Brière, and Blais, 1995) consists of 12 items assessing therapist interpersonal style are categorized into four subscales, each containing three items. The subscales are known as the Autonomy Supportive subscale, the Control subscale, the Care subscale, and the Competence Feedback subscale.

Each CMOTS and TIS subscale score is obtained by averaging the scores on the items which comprise them. In addition, a Global Self-Determination Index Score can be obtained by applying the following formula to the subscale scores: $(3 \times \text{Intrinsic Motivation}) + (2 \times \text{Integrated Regulation}) + (1 \times \text{Identified Regulation}) + (-1 \times \text{Introjected Regulation}) + (-2 \times \text{External Regulation}) + (-3 \times \text{Amotivation})$. Similarly, the Relative Autonomy Index, measuring the therapist's tendency, is obtained by applying the following formula to the subscale scores: $\text{Competence Feedback} + \text{Autonomy Supportive} + \text{Caring} - \text{Control}$. Internal consistency coefficients (Cronbach alpha) range from .70 for the External Regulation subscale, to .92 for the Intrinsic Motivation subscale (Pelletier, 1997). Alpha coefficients for the TIS subscales are: .86 for the Autonomy Supportive subscale, .80 for the Control subscale, .75 for the Care subscale, and .82 for the Competence Feedback subscale (Pelletier et al., 1995). The validity of the CMOTS is based on the responses of 83 female and 55 male clients who sought psychotherapy in a variety of mental health clinics in Ottawa. Results of an exploratory factor analysis using maximum likelihood extraction with oblimin rotation yielded six major factors, each of which appeared to

correspond with the concepts of intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation and amotivation. Evidence of convergent and discriminant validity was demonstrated through correlations among subscales, producing a simplex pattern where adjacent subscales on the self-determination continuum have high positive correlations, and the subscales at the opposite end of the continuum have the most negative correlations. Correlations between individual motivational tendency and therapist interpersonal style showed that clients with more self-determined tendencies were more likely to undergo therapy with therapists providing more autonomy support, care, and competence feedback, compared to clients with less self-determined tendencies. Finally, highly self-determined motivation was positively correlated with high scores on measures of positive mood, importance of therapy, client satisfaction with psychotherapy and intention to persist in attending psychotherapy, and negatively correlated with reports of tension and distraction during therapy, and reports of depression, powerful others, and chance loci of control. Neither the CMOTS, nor the TIS scales, had ever been validated with a medical or cardiac population. In the present thesis study, the modified version of the CMOTS was administered at pre-treatment and post-treatment. The TIS scale was administered at post-treatment only.

Conscientiousness. The Conscientiousness scale is one of five scales in the NEO-Five Factor Inventory (NEO-FFI) (Costa & McCrae, 1992). The NEO-FFI is the short version of the NEO Personality Inventory-Revised (NEO-PI), a personality inventory measuring five factors of personality known as Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness (Costa & McCrae, 1992). The Conscientiousness scale consists of 12 items. Subjects rated each item according to whether they strongly disagreed, disagreed, felt neutral, agreed or strongly agreed. Total scores were compared with scores of a normative adult population, divided by gender, and were converted to T-scores. The Internal consistency coefficient (alpha) for the Conscientiousness scale on the NEO-FFI was found to be

.84. Convergent and discriminant validity were demonstrated through significant positive correlations between scores on the Conscientiousness and adjective self-reports, spouse ratings and mean peer ratings up to 3 years later (ranging from .56 to .62), and low positive correlations with scores from the other scales on the NEO-FFI (Costa & McCrae, 1992). Results from a factor analysis of the factors on the NEO-FFI accounted for 75% as much variance in the convergent validimax of the NEO-PI-R. There does not appear to be any study that has assessed Conscientiousness in medical or cardiac patients.

Outcome Variables for Which Baseline Measures were Obtained

Life Satisfaction. The Satisfaction With Life Scale (SWLS) (Diener, Emmons, Larsen, and Griffin, 1985) is a paper-and-pencil instrument consisting of five items assessing subjective well-being. Subjects rated their agreement with items on Likert-type scales ranging from 1 (do not agree) to 7 (strongly agree). The mean of all scores indicates the level of general life satisfaction. The internal consistency (Chrombach's alpha) of the SWLS is .87 and test-retest reliability over a 2-month period is .82. Evidence of its concurrent validity was shown through positive correlations between scores on the SWLS and nine measures of subjective well-being among college students, including self-esteem, clinical symptoms, neuroticism and emotionality, as well as with independent ratings of life satisfaction among the elderly. However, the SWLS appears not to have been used to assess life satisfaction in a medical or cardiac population. In the present study, the SWLS was administered at pre-treatment, post-treatment and follow-up.

Depression. The Zung Self-Rating Depression Scale (Zung, 1974) is a 20-item paper-and-pencil questionnaire assessing the affective, psychological, physiological and psychomotor dimensions of depression. Subjects were asked to identify the frequency with which they experienced symptoms within the previous week, on a scale ranging from 1 (none or a little of the time) to 4 (most or all of the time). A global Depression raw score is derived by summing the scores from all items. Raw scores for each of

the subscales are also obtained by calculating their respective items. The overall Depression score is converted to a SDS index score, reflecting the percentage of symptoms measured by the scale. Scores on the SDS differentiate psychiatric patients diagnosed with depression and other psychiatric patients. Global scores on the SDS are also significantly correlated with global ratings of psychiatrists in the United States and in six other countries ($r = .43$ to $.65$), as well as with scores on the MMPI Depression scale ($r = .59$ to $.75$). Changes in the SDS scores were shown to be significantly related to changes following treatment for depression (Goodstein, 1979). Among the population of medical patients, the SDS has been validated with pre-natal women (Kitamura, Shima, Sugawara, & Todaa, 1994), with psychiatric patients with depressive disorders (Chawla, Sahasi, Bhushan, & Kacker, 1990; Lambert, Masters, & Astle, 1998), and with men suffering from coronary artery disease (Hlatky, Haney, Barefoot, Califf, Mar, Pryor, & Williams, 1986).

Anxiety. The State-Trait Anxiety Inventory (Spielberger, 1983) is a 40-item pencil-and-paper questionnaire which measures state and trait anxiety. Each of the State Anxiety and Trait Anxiety scales consist of 20 items. No overall anxiety score is computed. On the State Anxiety scale, subjects indicated, on a scale of 1 (not at all) to 4 (very much so), the extent to which each item described them at the moment of testing, whereas on the Trait Anxiety scale, subjects indicated the extent to which items reflect how they generally feel. Raw scores are computed by summing the total scores for each of the anxiety scales, then converting them to T-scores or percentiles based on age and gender. Norms are available for college and high school students, military recruits and normal adults. Internal consistency coefficients (Chrombach's alpha) for the general adult population is .91 for State Anxiety and .93 for Trait Anxiety. Further evidence of internal consistency was shown through item-remainder correlations for each of the normative samples. The item-remainder correlation for the adult population is .63. One-hour test-retest reliability coefficients for college and high-school students ranged from .16 to .62 for the

State Anxiety scale, and from .65 to .86 for the Trait Anxiety scale. No values are available for the adult population (Spielberger, 1983). Construct validity was demonstrated through significant differences in scores between a sample of neuropsychiatric patients and the normal adult population. The scores of military recruits who were beginning highly stressful training programs, and of high-school students under examination conditions, were also found to be significantly higher than the scores of high-school students tested under relatively unstressful conditions. Correlations between State and Trait Anxiety scores for normal adults ranged from .70 to .75. Scores on the Trait Anxiety scale were positively correlated with scores on the IPAT Anxiety Scale (Cattell & Scheier, 1963), the Taylor Manifest Anxiety Scale (Taylor, 1953), and the Zuckerman Affect Adjective Checklist (Zuckerman, 1960). Correlations ranged from .41 to .85 for college students. Correlations between scores on the State Anxiety scale were positively correlated (ranging from .44 to .51) with a number of scales of the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1951). The STAI has been validated with women suffering from PMS (Van der Ploeg, 1989), chronic pain patients (Duckro, Margolis, & Tait, 1985; Risser, Mullins, Butler, & West, 1987), alcoholic male patients (Donham, Ludenia, Sands, & Holzer, 1984), as well as with patients with coronary heart disease (Peglar & Borgen, 1984).

Outcome Variables Assessed at Post-treatment and Follow-up

Rate of RTW at Follow-up. Rate of RTW was assessed using the Vocational Follow-up Form (VFF, the follow-up version of the VPF) (Flynn et al., 1989). The VFF is a questionnaire that is administered by telephone during 6-month and 12-month follow-ups. It contains questions which directly follow-up from those of the VPF. The variables include: work status at follow-up, attendance at the HIPRC, date of RTW, job changes, type of job returned to (i.e. new or old job, same or different job), type of business, hours working per week, rating of job satisfaction, date one left job (if applicable), reasons for leaving job (if applicable), intention to remain at work for at least the next 12 months, and

intention to return to work within the next 12 months (if not working). In addition, the VFF summarizes weekly work-related changes for a period of 52 weeks. For the purpose of this study, RTW was measured by calculating the proportion of subjects in each treatment group who returned to work at follow-up, and by the percentage of eligible weeks worked at follow-up. The VFF was administered at 3-months follow-up.

Satisfaction with Services. Subjects' satisfaction with treatment was assessed using the Client Satisfaction Questionnaire (CSQ-8) (Larsen, Attkisson, Hargreaves, and Nguyen, 1979). The CSQ-8 is a paper-and-pencil questionnaire measuring subjects' satisfaction with service characteristics such as physical surroundings, support staff, type of service, treatment staff, quality of service, length and amount of service, procedures and general services. For each characteristic, subjects rated how satisfied they were on a scale of 1 (I am very satisfied) to 4 (I am very dissatisfied). The internal consistency coefficient of the CSQ-8 was found to be .93 (Chronbach's alpha). It also correlated .93 with a longer, 18-item version of Client Satisfaction Questionnaire (CSQ-18). Global ratings symptom improvement, at a 4-week follow-up, on the SCL-90 (Derogatis, Lipman, and Covi, 1973) were positively correlated with h scores on the CSQ-8. Scores on the Depression and Anger scales of the SCL-90 also correlated negatively with CSQ-8 ratings. Therapists' ratings of how satisfied they believed their clients were correlated .53 with CSQ-ratings. The CSQ appears not to be validate with neither a medical patient population, not a cardiac patient population. The CSQ-8 was administered at post-treatment only.

Job Satisfaction. The short form of the Minnesota Satisfaction Questionnaire (MSQ, Weiss, Dawis, England, and Lofquist, 1967) was used to assess job satisfaction in subjects who returned to work by follow-up. The short form of the MSQ consists of 20 items describing job characteristics. For each characteristic, subjects rated how satisfied they were on a scale of 1 (I am very satisfied) to 5 (I am very dissatisfied). A score of 3 reflects that one could not decide whether they are satisfied or dissatisfied.

Raw scores were obtained by summing the ratings for all items, and could be converted to percentiles. Normative data was available by occupation. For the purpose of the present study, raw scores were converted to T-scores based on means and standard deviations of an adult normative population used to standardize the tool, because only percentiles were available in the test manual (Weiss, Dawis, England, and Lofquist, 1967). Internal consistency scores for the General Satisfaction scale of the short form of the MSQ range from .87 to .92 for subjects in a number of occupations. Test-retest reliability coefficients for the General Satisfaction scale ranged from .70 to .89 over a 1-year interval. Evidence of construct validity is shown in differences in satisfaction scores between occupational groups with different degrees of congruence with personal values. No research study appears to have assessed job satisfaction using the MSQ with medical or cardiac patients. The MSQ short form was administered at follow-up.

Session by Session Measures

Questionnaire Administered to the Goal-Setting Group. Four items in this questionnaire assessed subjects' feelings about their weekly goals. Two items assessed confidence in and commitment to achieving weekly goals. The other two items assess the importance of and the expectation of achieving their goals. Subjects responded to items scales ranging from 1 to 7, where 1 signified "not at all", and 7 signified "very much".

Questionnaire Administered to the Goal-Setting and Video-Tape Groups. Eight items in this questionnaire assessed: the clarity of goals, subjects' satisfaction with the RTW date set by their physician, intention to return to work, perceived ability to return to work, the value of RTW, expectation to return to work, the degree to which they perceived their decision to return to work as depending on their own choices, and perception of social support from the group. Subjects rated each item on a scale ranging from 1(not at all) to 7 (quite a bit).

Implementation Analyses

An important aspect of clinical trial research includes ensuring that treatment is implemented in a valid and reliable manner. The reliability of the treatment is assessed by checking whether the two interventions were implemented consistently across treatment sessions and across groups of subjects who received the same intervention. Implementation checks showing that the comparison intervention (i.e., the video-tape treatment) differs from the experimental condition (i.e., goal-setting) in the key, theoretically relevant factors which are hypothesized to affect the outcomes (RTW) also ensure the validity of the experimental condition.

Several methods were used to assess the implementation of the two treatments. These are described here. However, some implementation checks were made by means of statistical analyses. In order to place all results from statistical analyses together, the results of the implementation analyses are described in the "Preliminary Results" section.

One way of ensuring that the treatments were implemented in a consistent fashion was to use a detailed Treatment Manual. Subjects in each of the treatment conditions received their respective treatments in the manner in which they were intended to be delivered (the Treatment Manual is in Appendix C).

A second method was to audio tape randomly selected treatment sessions, to be rated at a later date. Thirty-four sessions (41%), out of a total of 83 sessions attended by all subjects, were randomly selected to be audio taped. A checklist was constructed to determine whether the two treatment conditions differed according to theoretically relevant factors. The checklist contained behavioural descriptions of activities that distinguished the treatment conditions and the sessions from each other. To distinguish between the activities that were specific to treatment conditions, and the activities that were not specific to treatment conditions, a description of activities that occurred in both treatment conditions

and during all sessions were included in the checklist.

Twenty-five items were included in the checklist. Items 1, 2, 4, 5, 6, and 9 were specific to the first Goal-Setting session. The activity that had to occur only during the second Goal-Setting session was described in item 10. Items 3, 7, 8, 14, 15 and 16 describe activities belonging to all Goal-Setting sessions. Activities that were to occur during Goal-Setting sessions 1 to 4 were described in items 11 to 13. Items 17 to 21, and item 25, describe activities that were offered in both interventions and during all sessions. Finally, items 22 to 24 were specific to all sessions of the Video Tape intervention.

Seven months following the last follow-up assessment, the researcher rated 22 randomly-selected, audio taped sessions. A second rating of eight audio taped sessions was completed 4 weeks later, to minimize contamination due to memory. The thesis supervisor also rated eight randomly-selected audio taped sessions. The checklist, as well as the audio cassette ratings, are presented in Appendix C.

A third method was to assess group differences in session-by-session ratings of the clarity of goals and perceived support from the group members and/or counsellor. Given that subjects in the video tape group did not engage in goal-setting, and the subjects in the goal-setting group set goals explicitly, the latter should have rated their goals as significantly clearer than the former. In addition, both treatments were designed to offer equal opportunities to obtain social support from group members and from the counsellor. Thus, ratings of support should not have been significantly different between treatment groups.

A fourth method consisted of assessing the session-by-session ratings of confidence in and commitment to achieving weekly goals, and the importance and expectation of achieving their goals, in subjects who attended the goal-setting group. High ratings on these items would have indicated that subjects set goals that were self-relevant and motivating, suggesting that goal-setting was successful. On

the other hand, low ratings would have indicated that the goal-setting intervention was not implemented successfully.

A fifth method was to assess differences in implementation characteristics between treatment groups. The implementation characteristics included: group size, number of sessions attended, and duration of follow-up. Significant group differences in implementation characteristics would have suggested that differences in outcomes between the two treatment groups were due to treatment artifacts, rather than to key theoretically-based components designed to increase motivation to return to work.

Finally, a sixth method was to assess group differences in counsellor variables. First, differences in the following counsellor characteristics were assessed (according to the TIS): autonomy supportiveness, competence feedback, control, and caring. Significant differences in these characteristics may have indicated that the effect of counsellor behaviour was not consistent over type of treatment. Second, group differences in process variables (i.e., group size, number of sessions attended by subjects, and duration of follow-up) between counsellors would have indicated that the counsellor affected the implementation characteristics, which could have, in turn, differentially affected the outcomes of each treatment.

Experimental Design

The study employed a comparative design (Basham, 1986), comparing a goal-setting treatment with another potentially effective, comparison treatment (a treatment condition involving the viewing of video tapes and discussion). A comparative design is one that compares two or more treatments without conceptualizing either one as being a formal control group. It is designed to isolate the difference between two treatments, rather than the effect of a single treatment. If the design is implemented effectively (i.e., the two treatments are implemented as they were meant to be implemented), any between-treatment group differences on outcome are likely to be due to differences in the two individual treatment effects. The findings are expressed in relative terms. That is, the questions ask how the two interventions differ, and which intervention works best, rather than whether or not one particular intervention is effective.

There were two major reasons for employing a comparative design in this study. First, the Civic Hospital's Ethics Committee required that all research subjects receive some form of treatment if there was no alternative. In this study, a potential alternative treatment to the goal-setting treatment was the vocational counselling services offered by the HIPRC. However, vocational counselling was available only to cardiac patients who were referred to and participated in the HIPRC's rehabilitation program, and was independent of patients' participation in the study. Therefore, some patients who were randomly assigned to the goal-setting group (i.e., the experimental condition) were potential candidates for vocational counselling. No other alternative service was available at the time of subjects' participation in the study. Therefore, vocational counselling services offered at the HIPRC were considered to be part of the subject characteristics that would be distributed equally among treatment conditions as a result of the random assignment of subjects, and not as an alternative treatment. Table A-3 (Appendix A) shows the numbers and percentage of subjects in each group who attended the HIPRC. As can be seen in Table

A-3, there were no significant group differences in HIPRC attendance.

Secondly, a comparative design has several ethical and methodological advantages over a design including a no-treatment control group. At the ethical level, all subjects were offered treatment immediately after being recruited in the study, and no subjects were required to be in a wait-list control group. Second, had some subjects been asked to be in a wait-list control group, they would have been required to wait for a minimum of 18 weeks before receiving any treatment. Given that duration of unemployment could affect the rate of RTW of cardiac patients, the waiting time required by a no-treatment control design could have affected the outcomes of treatment, making the results ambiguous (Strayhorn, 1987). Similarly, subjects assigned to wait-list control groups have been found to experience demand characteristics (i.e., frustration, feelings of rejection, weaker expectation to benefit from treatment) that are negative, compared to those typically experienced by subjects in treatment (i.e., expectation to benefit from treatment) (Basham, 1986).

At the methodological level, comparative designs are likely to be more successful in dealing with the problem of demand artifacts (i.e., expectations about RTW and intention to make RTW-related changes) due to being assigned to an intervention rather than a waiting list, attendance at treatment sessions, and exposure to a counsellor. Both treatments were designed to assist subjects in their RTW, had equal numbers and durations of sessions, and an equal amount of exposure to a counsellor, providing a basis for assuming that subjects in both conditions would have similar expectations and intentions regarding the treatment outcome (RTW). Second, placebo factors are more easily controlled in a comparative design than in a no-treatment control design (Basham, 1986). Basham defined placebo factors in treatment outcome research as those factors that are common to theoretically diverse treatments. Therefore, provided that randomization leads to the control of all factors that are common to the two treatments, the effects of these common factors are necessarily eliminated. This method is

simpler than including a placebo control group, which requires that the researcher define and differentiate the placebo from specific treatment factors. Third, comparative designs do not require that the treatment components be divided to assess the treatment effects. According to Basham (1986), the fact that most interventions are not readily separated into conceptually meaningful, experimentally independent parts makes them impossible to be compared with a placebo. Thus, when the demand artifacts, the extraneous conditions balanced across treatments, and the non-treatment-specific factors are controlled, the only differences in outcomes are likely to be due to treatment differences.

A disadvantage of comparative designs is that their mean effect size tends to be smaller (approximately .33) than the mean effect size of no-treatment control (approximately 1.03) and placebo designs (approximately .57) (Basham, 1986). Thus, statistically significant results are less likely to emerge. However, according to Basham, this limitation is balanced by the more accurate and valid results that do emerge. Comparative designs tend to be more powerful because the significant differences found between treatments are more likely to be due to treatment effects. A second disadvantage has to do with the accurate implementation of treatment. Even though treatments can be designed to be implemented in a standard fashion, counsellor and subject characteristics may make standard implementation difficult to control. Several strategies, such as recording and rating treatment sessions, are required to adequately assess that the two treatments differ in the factors which are meant to differentially affect the outcomes.

Basham (1986) describes several research strategies for which comparative designs are appropriate. In the present study, the "Criterion-referenced evaluation" strategy was employed. With the criterion-referenced evaluation strategy, a clear and objective standard exists for evaluating the outcome of two new treatments (in the present study, the outcome variable is RTW). The treatment outcomes are sufficiently objective that the outcome measure becomes a true criterion, rather than an

abstract construct (i.e., coping) that can be defined differently depending on the therapeutic orientation. As a result of the objectivity of the criterion, there is less bias through the selection of outcome measures, making the results less controversial. A second strategy used to assess treatment effects is the "Which treatment is best for whom?" strategy (Basham, 1986). According to Basham, the comparative design effectively answers this question using a factorial approach with which it is comparable, while avoiding the difficulties encountered when subject characteristics are crossed with treatment factors belonging to a no-treatment condition.

Thus, the choice of a comparable design helps avoid the threats to the validity of the research by avoiding some of the limitations of the no-treatment and placebo control designs. However, the outcomes of comparable design research are clearly interpretable only when the two treatments show significantly different effects on the outcome (Basham, 1986). The results are more difficult to interpret when the outcome differences are not significant. In such a situation, non-significant results may either mean that the two treatments were equally effective, or that they were both ineffective. Other analyses (i.e., assessing pre-post treatment changes in variables) may be necessary to assess whether either one or both of the treatments were effective. However, these analyses are not always possible when the outcome variables can only be assessed at the end of treatment (i.e., RTW) (Basham, 1986).

In the present thesis, the comparison intervention started as a "do nothing" attention placebo group. The intervention consisted of watching four video-tapes that were chosen on the basis of their exclusion of goal-setting to return to work. However, in order to maintain subject expectations that the intervention was designed to assist them to return to work, issues that were relevant to cardiac patients' recovery from treatment and returning to work were addressed in the video-tapes. These included humour and change, stress, stress-management, and dealing with difficult people. In addition, in order to control for implementation characteristics such as group environment, exposure to the counsellor, and

duration of sessions, a discussion component was added to the intervention. However, while the counsellor was instructed to provide support and efficacy-related feedback to subjects in the goal-setting condition, she was instructed to intervene as little as possible in the comparison condition.

Data Analyses

Preliminary and substantive analyses were conducted using STATISTICA (Statsoft, 1995).

Preliminary analyses involved assessing the reliability of the measures, the reliability and validity of the two interventions, and the comparability of subjects. The substantive analyses tested the hypotheses and research questions.

Two types of analyses were conducted to assess the reliability of the measures. Cronbach's alpha was applied to assess the internal consistency of the measures. A lower bound of the test-retest reliability of measures was also assessed using two-tailed correlational analyses between scores obtained at different time periods.

As part of the implementation analyses to test the validity and reliability of the two interventions, percentages of common ratings of specific activities in audio taped sessions among the two raters, and between two time periods, were calculated. These percentages reflected the consistency with which treatment- and session-specific activities were observed. In addition, multiple univariate t-tests were conducted to assess group differences in reports of the clarity of goals and of social support at the end of each treatment session. A Bonferroni correction was used to split the alpha level in four, to minimize the chances of getting Type II error. Means and standard deviations were also calculated to assess the goal-setting group's session-by-session reports of confidence in and commitment to achieving weekly goals, the importance attributed to weekly goals, and the expectation to gain from achieving weekly goals. Chi-square and t-test analyses were used to compare differences in implementation characteristics and counsellor characteristics between treatment groups and between counsellors.

Comparisons of subjects who completed and did not complete the study, and of subjects in the two treatment groups were made using t-tests and chi-square analyses. The variables compared included subject characteristics measured at pre-treatment.

Among the substantive analyses, logistic regression analysis was applied to test whether the goal-setting treatment was more successful than the video-tape treatment in enhancing RTW (hypothesis 1), and whether treatment group interacted with subject and implementation characteristics to affect RTW (research question 1). Appendix B contains a brief explanation of logistic regression analysis. Hierarchical regression analyses were conducted to assess whether type of treatment affected percentage of eligible weeks worked at follow-up (hypothesis 1). The same procedure was used to assess whether subject and implementation characteristics interacted with treatment group to affect percentage of eligible weeks worked at follow-up (research question 1). A chi-square analysis was also performed to determine whether patients who participated in the study returned to work at a higher rate than patients who did not participate in the study.

Similarly, hierarchical regression analyses were used to assess treatment group differences in life satisfaction, job satisfaction and satisfaction with treatment (hypothesis 2), as well as their interactions with subject and implementation characteristics (research question 2). Because covariates were included in some analyses, tests of the assumption of homogeneity of the regression slopes were applied. When the assumption was violated, the interaction was demonstrated, but all other main and interaction effects were not interpreted. The reason for this is that all main effects needed to be interpreted in light of the covariate-treatment group interaction. That is, any main effect above and beyond the interaction would have had to be demonstrated in three (or more) dimensions. Because the analyses required to demonstrate such relations are highly complex, they were beyond the scope of this thesis and were not presented.

Repeated measures analysis of variance (ANOVA) and covariance (ANCOVA) were used to determine whether there were improvements in variables assessed at pre-treatment, post-treatment and follow-up (hypothesis 3). Univariate analyses were conducted with variables measured at two time

points (at pre-treatment and post-treatment). Multivariate analyses was used to assess changes over pre-treatment, post-treatment and follow-up. The multivariate F (Wilk's Lambda) tests were used to assess the assumption of homogeneity of the regression slopes (Stevens, 1986).

Results

Preliminary Results

Reliability of the Measures

Two methods were used to assess the reliability of the measures. First, internal consistency scores (using Coefficient alpha) were obtained from the following pre-treatment, post-treatment and follow-up measures: Perception of Physical and Mental Health composite score, Cognitive Facilitators of RTW composite score, self-efficacy, outcome expectancy, outcome values, behavioural intention to return to work, commitment to working, conscientiousness, self-determination (including intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation), counsellor characteristics (including competence feedback, autonomy supportive, caring and control), life satisfaction, depression, anxiety, client satisfaction with services, and job satisfaction. Table 2 presents the alpha coefficients for the sample including subjects who were assessed but who did not complete the study (i.e., the original sample) and for the sample of subjects who completed the study (i.e., the research sample). Measures whose internal consistency coefficients were at approximately .60 or above were considered to have satisfactory reliability for the purpose of comparing two groups in a research setting (Aiken, 1988).

Second, correlations between pre-treatment, post-treatment and follow-up periods for each measure that was taken more than once were obtained. Even though these correlations do not reflect a true evaluation of test-retest reliability because a treatment was introduced between testing periods, these correlations were used to assess a lower bound of test-retest reliability.

Internal Consistency. As can be seen in Table 2, a large majority of alpha coefficients are close to the .60 level, or above, at all testing periods. However, some scales produced alpha coefficients below .60, and may not be adequate for use in the study. These scales measured: outcome expectancy,

amotivation, competence feedback, and the physiological and psychomotor components of depression.

At pre-treatment, the alpha coefficients for the Outcome Expectancy scale was .59 for the original sample, and .57 for the research sample. The values were slightly improved, but still marginal, at post-treatment. Because the scale consists of only two items, none of the items could be removed to improve its internal consistency. The scale was removed from the study.

Internal consistency coefficients for the Amotivation scale at pre-treatment were .46 for the original sample, and .42 for the research sample. Removal of several combinations of one or two items from the four-item Amotivation scale did not produce any improvement in its internal consistency. Therefore, the scale was not included individually in the subsequent analyses. However, the Amotivation scale was kept as a part of the Self-Determination scale, of which the internal consistency was close to .90 at both pre-treatment and post-treatment. Correlations among the subscales of the Self-Determination scale are shown in Table A-4 (Appendix A).

Similarly, the internal consistency for the Competence Feedback scale (at both pre-treatment and post-treatment) and the Caring scale at pre-treatment were below .60. Thus, even though these scales were not included in the analyses individually, they were kept as part of the Therapist Interpersonal Style scale. Correlations among the Therapist Interpersonal Styles subscales are shown in Table A-5 (Appendix A).

Internal consistency coefficients for the Physiological and Psychomotor scales of the Self-Rating Depression scales were inadequate to be used in any subsequent analyses. The low internal consistency scores may have reflected physiological or psychomotor symptoms associated with recovery from CABG, and not with depression. Therefore, these scales were removed. Correlations among the SDS scales are found in Table A-6 (Appendix A).

Table 2.

Means, Standard Deviations, Alpha Coefficients for the Original Sample, and Alpha Coefficients for Measures Taken at Pre-Treatment, Post-Treatment and Follow-up Periods

	Assessment Occasion													
	Pre-Treatment					Post-Treatment					Follow-Up			
	N	Mean	SD	α_1 (α_2)		N	Mean	SD	α_1 (α_2)		N	Mean	SD	α_1 (α_2)
Vocational Prognosis Form ^a														
Perception of Mental and Physical Health ^b	68	6.99	1.74	0.67 (0.72)										
Cognitive Facilitators of RTW	68	8.63	1.80	0.74 (0.72)										
Self-Efficacy ^c	52	5.58	1.36	0.62 (0.67)	48	5.93	1.25	0.82 (0.82)						
Outcome Expectancy	52	6.01	1.09	0.59 (0.57)	48	6.16	1.00	0.61 (0.60)						
Outcome Value	52	5.76	1.33	0.76 (0.75)	48	6.01	1.07	0.72 (0.72)						
Behavioural Intentions	52	5.30	1.35	0.60 (0.66)	48	5.50	1.31	0.56 (0.55)						
Perception of Norms	52	5.51	1.38	0.75 (0.75)	48	5.45	1.38	0.64 (0.67)						
Commitment Scale ^d														
Studying	52	43.67	9.15	0.93 (0.93)	48	43.26	10.35	0.96 (0.96)		46	44.38	12.48	0.98 (0.98)	
Working	52	49.61	10.61	0.93 (0.94)	48	49.03	13.35	0.96 (0.97)		46	51.08	11.98	0.96 (0.96)	
Community Service	52	54.49	8.84	0.96 (0.96)	48	53.02	9.92	0.97 (0.97)		46	52.75	9.00	0.97 (0.97)	
Home and Family	52	52.50	8.08	0.97 (0.97)	48	52.01	9.45	0.98 (0.98)		46	52.51	9.27	0.97 (0.97)	
Leisure Activities	52	51.13	9.29	0.96 (0.95)	48	51.06	10.07	0.96 (0.96)		46	50.51	10.25	0.98 (0.97)	
Conscientiousness ^e	52	55.65	11.33	0.82 (0.83)										
Client Motivation for Therapy Scale ^f														
Intrinsic Motivation	52	4.41	1.55	0.88 (0.87)	48	3.98	1.62	0.87 (0.87)						
Extrinsic Motivation	52	1.89	1.34	0.87 (0.88)	48	1.92	1.57	0.94 (0.95)						
Introjected Regulation	52	3.79	1.49	0.70 (0.68)	48	3.48	1.58	0.73 (0.72)						
Identified Regulation	52	4.71	1.55	0.82 (0.83)	48	4.72	1.58	0.88 (0.88)						
Integrated Regulation	52	4.39	1.43	0.80 (0.78)	48	3.98	1.57	0.88 (0.88)						
Amotivation	52	2.42	1.26	0.59 (0.59)	48	2.28	1.20	0.63 (0.63)						
Self-Determination	52	18.43	9.69	0.91 (0.90)	48	16.43	11.55	0.89 (0.89)						

(Table 2 continues...)

(Table 2 continued...)

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Means, Standard Deviations, Alpha Coefficients for the Original Sample, and Alpha Coefficients for Measures Taken at Pre-Treatment, Post-Treatment and Follow-up Periods

	N	Assessment Occasion						N	Follow-Up				
		Pre-Treatment			Post-Treatment				Mean	SD	α_1 (α_2)		
		Mean	SD	α_1 (α_2)	Mean	SD	α_1 (α_2)						
Therapist Interpersonal Style Scales													
Feedback Competence	47 ^a	5.32	1.34		5.32	1.34	0.57 (0.56)						
Supportive Autonomy	47	4.54	1.81		4.54	1.81	0.83 (0.82)						
Caring	47	6.90	0.31		6.90	0.31	0.59 (0.64)						
Control	47	1.32	0.77		1.32	0.77	0.80 (0.81)						
Satisfaction with Life Scale ^b	52	4.46	1.44	0.88 (0.89)	48	4.70	1.28	0.89 (0.88)	46	4.91	1.49	0.92 (0.92)	
Self-Rating Depression Scale ^c													
Overall Depression Score ^d	46	46.28	10.70	0.84 (0.85) ^e	44	46.16	10.28	0.82 (0.83)	46	39.13	10.36	0.88 (0.88)	
Affective Scale	46	1.62	0.76	0.83 (0.86)	44	1.56	0.73	0.75 (0.82)	46	1.43	0.75	0.88 (0.88)	
Physiological Scale	46	1.87	0.44	0.51 (0.54)	44	1.86	0.42	0.42 (0.42)	46	1.55	0.38	0.57 (0.57)	
Psychological Scale	46	2.45	0.66	0.85 (0.85)	44	2.51	0.61	0.85 (0.85)	46	1.95	0.68	0.88 (0.88)	
Psychomotor Scale	46	1.83	0.61	0.41 (0.41)	44	1.79	0.61	0.50 (0.48)	46	1.53	0.58	0.01 (0.01)	
State-Trait Anxiety Inventory ^f													
State Anxiety	46	52.35	12.40	0.96 (0.96)	44	52.20	13.32	0.96 (0.96)	46	51.85	11.90	0.93 (0.93)	
Trait Anxiety	46	52.39	13.23	0.93 (0.93)	44	50.32	11.11	0.93 (0.93)	46	51.63	14.25	0.93 (0.93)	
Client Satisfaction Questionnaire ^g													
Minnesota Satisfaction Questionnaire ^h					48	3.07	0.50	0.91 (0.92)					
									36	40.39	11.46	0.88 (0.88)	

a. Flynn et al., 1989.

b. The Perception of Mental and Physical Health and Cognitive Facilitators of RTW scales reflect factors drawn from a factor analysis of 312 cardiac patients' responses on the VPF (Flynn et al., 1996). The Perception of Mental and Physical Health scale is computed by taking the mean of the ratings on the Anxiety, Depression, Heart Condition, and Overall Health scales. The Cognitive Facilitators of RTW scale is computed by taking the mean of the ratings on the scales measuring confidence that the physician will allow one to return to work, confidence that the employer will

- allow one to return to work, confidence about returning to one's old job with one's old employer, and intention to return to work. The two scales are based on ratings ranging from 0 (poor) to 10 (excellent).
- c. The scales measuring Self-Efficacy, Outcome Expectancy, Outcome Value, Behavioural Intention and Perception of Norms were constructed and validated by Maddux, Norton, & Stollenberg (1986). Subject ratings were based on Likert scales ranging from 1 (do not agree) to 7 (strongly agree).
- d. Saliency Inventory (Macnab, Fitzsimmons, & Casserly, 1992). Items reflect the extent to which subjects are committed to studying, working, community service, home and family and leisure activities. Subjects respond to items by rating the degree to which the item represents the way they feel. Ratings are based on Likert scales ranging from 1 (little or none) to 4 (a great deal). Total scores on each scale are converted to T-scores based on gender.
- e. Neo Five Factor Inventory (Costa & McCrae, 1991). Ratings are based on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). A rating of 3 indicates a neutral opinion. The Conscientiousness scale was administered at pre-treatment only. The total score on the Conscientiousness scale was converted to T-scores based on age range.
- f. Pelletier, Tuson, & Haddad, 1996. Ratings are based on Likert scales ranging from 1 (does not correspond) to 7 (corresponds exactly).
- g. One subject did not complete the counsellor scale, resulting in 47 subjects in the original sample, and 45 subjects in the research sample.
- h. Diener, Emmons, Larsen, & Griffin, 1985. Ratings are based on Likert scales ranging from 1 (do not agree) to 7 (strongly agree).
- i. Jung, 1974. Ratings range from 1 (None or little of the time) to 4 (Most or all of the time). Total scores on the Depression scale are converted to SDS Index ratings which reflect the frequency of symptoms of depression. Scores at or below 50 indicate that symptoms of depression occur with the normal range. Scores ranging from 50 and 59 indicate minimal to mild depression. Scores ranging from 60 and 69 indicate moderate to marked depression. Scores at or above 70 indicate severe to extreme depression.
- j. The Self-Rating Depression Scale and the State-Trait Anxiety Inventory alpha coefficients are based on scores of 40 subjects at pre-treatment, 42 subjects at post-treatment, and 46 subjects at follow-up. The reason for the subject loss is that administration of these two questionnaires was initiated after data collection for 6 subjects had already taken place. Out of the 6 subjects who had not completed the Self-Rating Depression Scale and the State-Trait Anxiety Questionnaire, only two completed them at post-treatment, and all subjects completed them at follow-up.
- k. Spielberger, 1983. Items are rated on scales ranging from 1 (not at all) to 4 (very much so). Total scores on the State and Trait Anxiety scales are converted to T-scores based on age range and gender.
- l. Nguyen, Attkisson, & Stegner, 1983. Ratings of satisfaction with the intervention range from 1 (generally dissatisfied) to 4 (generally satisfied). The raw score reflects the mean score of all items. The CSQ was administered at post-treatment only.
- m. Weiss, Dawis, England, & Lofquist, 1967. Ratings of satisfaction with different aspects of one's job are based on a scale ranging from 1 (very satisfied) to 5 (very dissatisfied). A rating of 3 indicates that one is neither satisfied nor dissatisfied. Raw scores range from 20 to 100. The MSQ was administered only to subjects who had returned to work by follow-up.

Correlations Between Treatment Periods. As can be seen in Table 3, the overall positive correlations suggest that the order of responses was maintained among subjects with relative consistency. The correlations between pre-treatment and post-treatment tend to be higher than the correlations between pre-treatment and follow-up, or post-treatment and follow-up.

As is expected with any repeated test administrations, the lowest correlations were associated with the longest between-testing period. These differences could indicate that some changes may have occurred between the pre-treatment or post-treatment, and follow-up. The measures with the lowest or with negative correlations (i.e. the Physiological and Psychomotor scales of the Zung Self-Rating Depression Scale) were also the measures with the lowest internal consistency coefficients, and were removed from the study.

In addition, on average, the test-retest correlations in Table 3 are lower than the alpha coefficients in Table 2. Even though internal consistency and test-retest reliability measure different forms of reliability, these differences in values may suggest that the test-retest correlations reflect a lower bound of the true correlation, had the measures been taken without introducing an intervention between testing periods.

Table 3.

Correlation Coefficients Between Pre-Treatment and Post-Treatment, Pre-Treatment and Follow-up, and Post-Treatment and Follow-up for Repeated Measures, for the Combined Goal-Setting and Videotape Intervention Groups (N=46), the Goal-Setting Intervention Group (N=22), and the Videotape Intervention Group (N=24)

	R Between Assessment Occasions									
	Combined		Goal-Setting		Videotape					
	Pre/ Post	Pre/ Post/ Follow-up	Pre/ Post	Pre/ Post/ Follow-up	Pre/ Post	Pre/ Post/ Follow-up	Pre/ Post	Pre/ Post/ Follow-up	Pre/ Post	Pre/ Post/ Follow-up
Self-Efficacy ^a	0.63									
Outcome Expectancy	0.29		0.66		0.60		0.60		0.60	
Outcome Value	0.59		0.60		0.03		0.03		0.03	
Behavioural Intentions	0.51		0.85		0.36		0.36		0.36	
Perception of Norms	0.53		0.79		0.46		0.46		0.46	
Commitment Scale ^b										
Studying	0.62	0.56	0.75		0.54	0.73	0.54	0.73	0.54	0.73
Working	0.55	0.43	0.35		0.69	0.32	0.69	0.32	0.69	0.32
Community Service	0.76	0.61	0.49		0.56	0.45	0.56	0.45	0.56	0.45
Home and Family	0.45	0.54	0.36		0.39	0.32	0.39	0.32	0.39	0.32
Leisure Activities	0.41	0.40	0.45		0.02	0.18	0.02	0.18	0.02	0.18
Client Motivation for Therapy Scale ^c										
Intrinsic Motivation	0.46		0.40		0.54		0.54		0.54	
Extrinsic Motivation	0.69		0.61		0.78		0.78		0.78	
External Regulation	0.62		0.45		0.82		0.82		0.82	
Introjected Regulation	0.60		0.64		0.60		0.60		0.60	
Identified Regulation	0.41		0.26		0.38		0.38		0.38	
Integrated Regulation	0.66		0.86		0.66		0.66		0.66	
Amotivation	0.59		0.55							
Self-Determination										
Satisfaction with Life Scale ^d	0.71	0.66	0.55		0.72	0.81	0.72	0.81	0.63	0.65

(Table 3 continues)

Correlation Coefficients Between Pre-Treatment and Post-Treatment, Pre-Treatment and Follow-up, and Post-Treatment and Follow-up for Repeated Measures, for the Combined Goal-Setting and Videotape Intervention Groups (N=46), the Goal-Setting Intervention Group (N=22), and the Videotape Intervention Group (N=24)

	R Between Assessment Occasions									
	Combined			Goal-Setting			Videotape			
	Pre/ Post	Pre/ Follow-up	Post/ Follow-up	Pre/ Post	Pre/ Follow-up	Post/ Follow-up	Pre/ Post	Pre/ Follow-up	Post/ Follow-up	
Self-Rating Depression Scale ^a										
Overall Depression Score	0.82	0.33	0.25	0.83	0.42	0.32	0.82	0.22	0.15	
Affective Scale	0.85	0.29	0.36	0.95	0.59	0.57	0.76	0.01	0.08	
Physiological Scale	0.76	0.04	0.003	0.84	0.18	-0.01	0.69	-0.08	0.02	
Psychological Scale	0.77	0.34	0.33	0.82	0.27	0.36	0.73	0.42	0.23	
Psychomotor Scale	0.24	0.20	0.21	0.22	0.38	0.000	0.24	0.01	0.56	
State-Trait Anxiety Inventory										
State Anxiety	0.85	0.67	0.61	0.87	0.67	0.66	0.82	0.63	0.50	
Trait Anxiety	0.84	0.64	0.52	0.82	0.62	0.58	0.89	0.64	0.45	

a. The scales measuring Self-Efficacy, Outcome Expectancy, Outcome Value, Behavioural Intention and Perception of Norms were constructed and validated by Maddux, Norton, & Stollenberg (1986). Subject ratings were based on Likert scales ranging from 1 (do not agree) to 7 (strongly agree).

b. Salience Inventory (Macnab, Fitzsimmons, & Casserly, 1992). Items reflect the extent to which subjects are committed to studying, working, community service, home and family and leisure activities. Subjects respond to items by rating the degree to which the item represents the way they feel. Ratings are based on Likert scales ranging from 1 (little or none) to 4 (a great deal). Total scores on each scale are converted to T-scores based on gender.

c. Pelleter, Tuson, & Haddad, 1996. Ratings are based on Likert scales ranging from 1 (does not correspond) to 7 (corresponds exactly).

d. Diener, Emmons, Larsen, & Griffin, 1985. Ratings are based on Likert scales ranging from 1 (do not agree) to 7 (strongly agree).

e. Zung, 1974. Ratings range from 1 (None or little of the time) to 4 (Most or all of the time). Total scores on the Overall Depression scale are converted to standard scores (SDS ratings) with a mean of 50 and a standard deviation of 10. Scores at or below 50 indicate that symptoms of depression occur with the normal range. Scores ranging from 50 and 59 indicate minimal to mild depression. Scores ranging from 60 and 69 indicate moderate to marked depression. Scores at or above 70 indicate severe to extreme depression.

f. Spielberger, 1983. Items are rated on scales ranging from 1 (not at all) to 4 (very much so). Total scores on the State and Trait Anxiety scales are converted to T-scores based on age range and gender.

The Implementation Analyses

Qualitative Analysis of Ratings of Audio Tapes. The first analysis involved calculating the percentage of agreement between the researcher's item ratings of 20 audio tapes at time 1 of 8 audio tapes at time 2, and between her ratings at times 1 and 2, and the thesis supervisor's ratings of 8 audio tapes. As can be seen in Table 4, there is good overall agreement between the researcher's ratings at times 1 and 2, as well as between the researcher's and the thesis supervisor's ratings. A majority of the ratings that disagreed had to do with items that did not differentiate between treatment conditions. Other disagreements occurred in relation to items describing activities that were more subjective (i.e., Subjects talked about health-related issues). More quantitative analyses were not conducted because of the small number of audio tapes rated.

A second qualitative analysis involved assessing the degree to which the activities described in the checklist were rated to occur during the session and/or treatment condition at which they were supposed to occur (according to the treatment manual). As can be seen in the three implementation checklists in Appendix C, a majority of activities were rated to occur during the session and/or the treatment condition at which they were supposed to occur.

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Table 4.

Percentage Levels of Agreement Between the Researcher's Item Ratings at Time 1 and Time 2, and Between the Researcher's and the Thesis Supervisor's on the Implementation Checklist

Items	Treatment Condition ^a	Sessions ^b	% Agreement Between Res's Ratings at Times 1 and 2	% Agreement Between Sup's Ratings and Res's Ratings at Time 1	% Agreement Between Sup's Ratings and Res's Ratings at Time 2
1. Counsellor introduced goal-setting.	GS	1	100	100	100
2. Counsellor introduced an ideal goal as specific, challenging and self-relevant.	GS	1	67	67	100
3. Counsellor gave instructions to do exercises on a work sheet.	GS	1-4	100	100	100
4. Subjects completed questions about long-term goal of RTW.	GS	1	100	100	100
5. Subjects identified and wrote down short-term goals for the following two months.	GS	1	100	100	100
6. Counsellor referred to a list of possible short-term goals that was in the package.	GS	1	100	100	100

(Table 4 continues...)

(Table 4 continued...)

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Percentage Levels of Agreement Between the Researcher's Item Ratings at Time 1 and Time 2, and Between the Researcher's and the Thesis Supervisor's Ratings on the Implementation Checklist

Items	Treatment Condition	Sessions	% Agreement Between Res's Ratings at Times 1 and 2	% Agreement Between Sup's Ratings and Res's Ratings at Time 1	% Agreement Between Sup's Ratings and Res's Ratings at Time 2
7. Subjects made a list of goals for the following week.	GS	1-4	100	100	100
8. Subjects rated the relevance and difficulty of their weekly goals.	GS	1-4	100	100	100
9. Counsellor gave homework assignment to subjects ("Questions About Your Goals").	GS	1	100	100	100
10. Subjects went over the homework questions with the counsellor.	GS	2	100	100	100
11. Subjects rated how successful they were at achieving the goals set during the previous week.	GS	2-4	67	67	100
12. Subjects made a list of goals not achieved during the previous week, and answered specific questions about those goals.	GS	2-4	100	100	100

(Table 4 continues...)

(Table 4 continued...)

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Percentage Levels of Agreement Between the Researcher's Item Ratings at Time 1 and Time 2, and Between the Researcher's and the Thesis Supervisor's Ratings on the Implementation Checklist

Items	Treatment Condition	Sessions	% Agreement Between Res's Ratings at Times 1 and 2	% Agreement Between Sup's Ratings and Res's Ratings at Time 1	% Agreement Between Sup's Ratings and Res's Ratings at Time 2
13. Counsellor provided feedback to subjects about goals that they set during the previous week.	GS	2-4	100	100	100
14. Counsellor gave feedback to subjects about the specificity, relevance and challenge of goals that they were actually setting.	GS	1-4	100	100	100
15. Counsellor suggested what goals subjects could set for the following week.	GS	1-4	33	33	67
16. Counsellor redirected subjects to return to goal-setting activities.	GS	1-4	67	67	75
17. Counsellor reflected ideas, made interpretations, or asked questions.	GS, VT	1-4	100	100	100
18. Subjects spontaneously set goals through discussion.	GS, VT	1-4	100	67	75
19. Subjects discussed their RTW.	GS, VT	1-4	67	33	75

(Table 4 continues...)

(Table 4 continued...)

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Percentage Levels of Agreement Between the Researcher's Item Ratings at Time 1 and Time 2, and Between the Researcher's and the Thesis Supervisor's Ratings on the Implementation Checklist

Items	Treatment Condition	Sessions	% Agreement Between Res's Ratings at Times 1 and 2	% Agreement Between Sup's Ratings and Res's Ratings at Time 1	% Agreement Between Sup's Ratings and Res's Ratings at Time 2
20. Subjects discussed non-RTW and non-health-related issues.	GS, VT	1-4	67	67	75
21. Subjects discussed health-related issues.	GS, VT	1-4	67	33	75
22. Counsellor introduced the videotape.	VT	1-4	33	33	100
23. Subjects talked about the topic of the videotape (attitude, stress, difficult people, stress).	VT	1-4	100	100	100
24. Counsellor asked subjects what they thought of the video tape.	VT	1-4	100	100	100
25. Subjects answered questionnaires at the end of the session.	GS, VT	1-4	100	67	62

a. GS = goal-setting condition, VT = video tape condition

b. This describes the sessions during which the specific activities were supposed to occur (according to the treatment manual).

Session-by-Session Ratings of Clarity of Goals and Support. The purpose of these analyses was to determine whether there were group differences in rating of clarity of goals and social support, at each session. Group differences at each session were conducted using multiple t-tests, rather than multivariate analyses. The reason for this is that the sample size decreased from one session to another, reducing it to 18 in both groups. A Bonferroni correction was applied, dividing the alpha level of .05 by 4. For all values with unequal means and variances according to Levene's test for equality of variances, the "quasi t'test" was conducted (Glass & Hopkins, 1996). Table 5 shows the means, standard deviations and t values between groups, at each session. The results indicate that the goal-setters rated their goals as significantly clearer than the video-tape group at the second session. It is possible that subjects found goal-setting to be most useful at the second session, after which goal-setting was less needed.

Results from the second item (social support) indicate no significant group differences in the ratings of group social support. The results suggest that both groups received about the same amount of social support from their groups. Correlations among the item scores at different sessions are shown in Table A-7.

Session-by-Session Ratings of Confidence, Commitment, Importance and Expectations. Means and standard deviations for the four variables are included in Table 6. As can be seen, none of the scores were below 5.73, corresponding to above-moderate levels of confidence, commitment, importance of achieving goals, and expectation to gain by achieving goals. These findings suggest that goal-setting was associated with the setting of self-relevant and motivating goals. Correlations among the item scores at different sessions are shown in Table A-8.

Table 5.

N's, Mean Scores, Standard Deviations, and t values for the Goal-Setting and Video-Tape Interventions, in Session-by-Session Ratings of the Clarity of Goals and of Social Support

Item	Session Number	Goal-Setting Group			Video-Tape Group			t(df)
		N	M	SD	N	M	SD	
Clarity of Goals ^a	1	19	5.63	1.16	23	4.65	1.70	2.13(40)
	2	16	5.94	1.06	21	4.71	1.55	2.70(35)*
	3	12	5.92	1.00	16	5.31	1.20	1.51(26)
	4	11	6.00	1.18	14	5.57	1.70	.71(23)
Social Support ^b	1	14	5.21	1.63	24	6.08	.97	-2.07(36)
	2	14	5.43	1.79	21	5.81	1.17	-.77(33)
	3	9	5.67	1.00	16	6.00	.89	-.86(23)
	4	8	5.25	1.98	13	5.85	1.52	-.78(19)

Note: *p < .0125, **p < .0025

a. How clear were your goals during this session? (1 = not at all, 7 = quite a bit).

b. How much support did you get from the members of your group today? (1 = not at all, 7 = quite a bit).

Table 6.

N's, Means, and Standard Deviations of Scores on Session-by-Session Scales Measuring Confidence in and Commitment to Achieving Weekly Goals, the Importance of Achieving Goals, and Gain Expected by Achieving Goals, In the Goal-Setting Group

Items	N	Mean	SD
1. Confidence^a			
Session 1	22	5.86	1.32
Session 2	20	5.80	1.67
Session 3	15	5.73	1.16
Session 4	13	6.31	.63
2. Commitment^b			
Session 1	22	6.14	.77
Session 2	20	6.40	1.19
Session 3	14	5.93	1.27
Session 4	12	6.33	.78
3. Importance^c			
Session 1	22	6.27	.94
Session 2	20	5.90	1.55
Session 3	15	5.60	1.10
Session 4	13	6.23	1.01
4. Expected Gain^d			
Session 1	22	6.27	.77
Session 2	20	6.10	1.21
Session 3	15	6.00	1.01
Session 4	13	6.08	1.04

a. How confident are you that you will actually be able to achieve the personal goals that you set this week to be completed by next week? (1=not confident at all, 7=very confident)

b. How committed are you to achieving your personal goals you set this week for completion by next week? (1=not at all committed, 7=very committed)

c. How important is it to you to be able to achieve the personal goals you set this week for next week? (1=not at all important, 7=very important)

d. How much do you expect to gain by achieving your personal goals? (1=nothing to be gained, 7=quite a bit to be gained)

Comparability of Participants in the Goal-Setting and Video-Tape Groups on Implementation Characteristics. Chi-square tests and t-tests were conducted in order to check whether the implementation characteristics differed in the two treatment groups (see Table 7). The t-tests were conducted on the following variables: group size, number of sessions attended, number of weeks between post-treatment and follow-up, and counsellor characteristics (as measured by the Therapist Interpersonal Style scales, Pelletier et al., 1995). For all values with unequal means and variances according to Levene's test for equality of variances, the "quasi t'test" for unequal variances was conducted in determining statistical significance.

No statistically significant differences were found on any of the implementation characteristics, except group size. A statistically significant difference in group size was found between the two treatment groups, $t(44) = -2.12, p = .04$. On the average, subjects in the video-tape group attended bigger groups than subjects in the goal-setting group. Among the 26 groups which were attended by all subjects in both groups combined, only one (video-tape) group contained four members. Provided the small size of each group, it was possible that the single group containing four members could have rendered the results significantly different. To test whether the four-member group biased the results, the chi-square median test¹⁰ was applied. The results indicated no statistically significant differences in group sizes, $\chi^2(1, 46) = 2.70, p = .10$. Overall, the results indicate that the two treatment groups remained comparable for the implementation characteristics. Tables A-9 and A-10 (Appendix A) show the frequencies of group sizes and number of sessions attended by subjects in each treatment group.

¹⁰ The chi-square median test is a non-parametric method for comparing two or more group differences in central tendency when the assumption of normality does not hold, and the observations are independent (i.e. each value qualifies for only one cell and the categories are mutually exclusive). The chi-square median test assesses whether the group medians are different, producing a value with $(R - 1)(C - 1)$ degrees of freedom.

Table 7.

Means and Standard Deviations (in Parentheses) Percentages, and T-Tests or Chi-Squares, in Comparisons between Goal-Setting and Video-Tape Intervention Groups, for Implementation Characteristics

Characteristics	Goal-Setting Group (N=22)	Video-Tape Group (N=24)	Total (N=46)	t(df) ^a	χ^2
Group size	1.91 (0.75)	2.46 (0.98)	2.20 (0.91)	-2.12 (44)*	
Number of sessions	3.09 (0.92)	3.21 (0.88)	3.15 (0.89)	-0.44 (44)	
Number of weeks between post-test and follow-up	16.64 (4.65)	16.81 (3.46)	16.73 (4.02)	-0.15 (44)	
Counsellor ^b	77.3	66.7	71.7		0.64 (1) ^c
Therapist Interpersonal Styles					
Relative Autonomy Index	15.45 (3.16)	15.21 (2.97)	15.32 (3.03)	.26 (44)	
Competence Feedback	5.21 (1.61)	5.42 (1.07)	5.32 (1.34)	-0.53 (44)	
Autonomy Supportive	4.89 (1.63)	4.23 (1.95)	4.55 (1.81)	1.25 (44)	
Caring	6.88 (0.38)	6.93 (0.23)	6.91 (0.31)	-0.53 (41)	
Control	1.41 (0.96)	1.22 (0.58)	1.31 (0.78)	0.79 (44)	

Note: $p < 0.05^*$, $p < 0.01^{**}$, $p < 0.001^{***}$

a. T-tests are two-tailed

b. The values reported reflect the percentage of subjects who participated in groups lead by the counsellor (as opposed to Ms. Iacovino).

c. Because the chi-square analysis of the group differences in number of subjects per group seen by each counsellor was based on a 2X2 table with small frequencies, Fisher's Exact Test was applied to this chi-square analysis to determine statistical significance.

Effect of Counsellor on Implementation Characteristics. Counsellor characteristics (i.e., autonomy supportiveness, competence feedback, care, and control), and implementation characteristics (i.e. group size, number of sessions, and number of weeks between the post-treatment and the follow-up) between counsellors were assessed using t-tests. Levene's test for equality of variances was applied to t-tests which produced unequal variances (mostly due to the unequal sample sizes between counsellors). As in the previous analyses, the "quasi t'test" for unequal variances was conducted in determining statistical significance. No significant differences in counsellor characteristics were found between the two counsellors. These findings suggest that the researcher did not introduce an experimenter bias in regard to the counsellor characteristics. However, a significant difference was found in group sizes between counsellors, $t(44) = -2.45$, $p = .02$. The researcher conducted groups that were significantly larger than the counsellor (see Table 8). In order to determine whether this significant difference was due to the single group of four members which was lead by the researcher, the chi-square median test was applied. The results indicated no significant median differences in group sizes between the two counsellors ($\chi^2 = 1.03$, $df = 1$, $p = .31$).

There was also a significant difference between counsellors in the number of sessions attended by subjects, $t' = -5.17(43.70)$, $p = .000$. The researcher conducted groups whose members attended a significantly larger number of sessions than the counsellor. Levene's test of the equality of variances indicated that the variances between the two groups were significantly different ($F = 22.61$, $p = .000$). Again, due to the small number of groups lead by the researcher, a chi-square median test was conducted. The median differences between counsellor in number of sessions attended by subjects remained significant ($\chi^2 = 9.83$, $df = 1$, $p = .002$). Counsellor was thus included as a covariate in analyses including number of sessions.

Table 8.

Means and Standard Deviations (in Parentheses), and T-Tests, in Comparisons between the Two Counsellors, for Implementation Characteristics and Counsellor Characteristics.

Characteristics	Group Counsellor (N=33)	The Researcher (N=13)	t or t' (df)*
Group size	2.00 (0.79)	2.69 (1.03)	-2.45 (44)*
Number of sessions	2.88 (0.89)	3.85 (0.38)	-5.17 (43.7)**
Number of weeks between post-test and follow-up	17.61 (4.03)	17.50 (3.46)	-0.15 (44)
Therapist Interpersonal Styles			
Relative Autonomy Index	15.06 (3.09)	15.98 (2.90)	-.92 (44)
Competence Feedback	5.17 (1.33)	5.69 (1.34)	-1.18 (44)
Autonomy Supportive	4.38 (1.76)	4.97 (1.94)	-1.00 (44)
Caring	6.87 (0.35)	6.49 (1.26)	1.65 (44)
Control	1.36 (0.86)	1.17 (0.55)	0.76 (44)

Note: $p < 0.05^*$, $p < 0.01^{**}$, $p < 0.001^{***}$

a. T-tests are two-tailed. The quasi-t' was used to calculate the counsellor difference in number of sessions, due to a significant inequality of variance between the two groups.

Attrition Analyses

Among the 68 subjects who agreed to participate in the study and who completed the VPF, 46 completed the study, and 22 subjects did not complete it. The subjects who did not complete the study included: 1) subjects who agreed to participate in the study but never attended the pre-treatment session (N = 16), 2) subjects who attended the pre-treatment session and one treatment session (N = 4), and 3) subjects who attended at least two treatment sessions and who completed the post-treatment, but were not available at follow-up (N = 2). Because of the small and unequal sample sizes in the second and third groups, we grouped all of the subjects who did not complete the study, (total N = 22), and compared them to the subjects who completed it (N = 46). The results from two other analyses comparing: 1) subjects who completed at least one treatment session and subjects who never attended, and 2) subjects who attended one session and subjects who attended at least two sessions are also included. However, their results should be interpreted with caution because of their unequal and small sample sizes.

All of the following analyses include the comparability of groups at the VPF assessment (2 to 3 weeks prior to the pre-treatment assessment) because all subjects who agreed to participate in the study completed VPF's. Attrition analyses also included the comparability of groups on pre-treatment variables among subjects who completed the pre-treatment assessment.

Comparability of Program Participants (n= 46) vs. Nonparticipants (n= 22), at Pre-Treatment, in the Original Sample (N = 68). The first attrition analyses involve the comparison of all nonparticipants (N = 22) with participants (N = 46) in variables which are known to predict RTW. Collapsing across treatment condition, t-tests were conducted on the following demographic, medical, social-environmental and psychological variables: age, number of years of education, rating of heart condition, rating of overall health, ratings of depression and anxiety, number of months since subjects were last at work,

number of months worked prior to CABG, income prior to CABG, number of hours worked per week at one's job prior to CABG, the Blishen-McRoberts Occupational Status Index, rating of job satisfaction prior to CABG, rating of the extent to which subjects' believe that their physician will allow them to return to work, rating of the extent to which subjects' believe that their employer will allow them to return to work, rating of the extent to which subjects' families will receive sufficient financial income to fulfill their needs if subjects do not return to work confidence in returning to one's old job with one's old employer, intention to return to work, cognitive facilitators of RTW, perception of physical and mental health, and risk of not returning to work. For all values with unequal means and variances, the "quasi t'test" for unequal variances was conducted in determining statistical significance. There was a statistically significant difference between the two groups in their rating of job satisfaction prior to CABG, $t(66) = -2.18, p = .03$. Treatment participants rated themselves as being less satisfied with their jobs ($M = 5.30, SD = 1.33$) than nonparticipants ($M = 6.00, SD = .98$). No other statistically significant difference was found between the two groups.

Chi-square tests were conducted on the following demographic variables: gender, marital status (married or cohabiting, versus single, separated, or divorced)¹¹, work status at the time of the VPF assessment (working full-time or part-time, versus not working), nature of first cardiac event prior to CABG (MI versus angina, cardiac surgery or no other cardiac event) type of business in which subjects were employed (private business or government, versus self-employed), and source of financial support (sick leave from employer, versus private disability insurance, versus Workers' Compensation Board, Canada Pension Plan, general welfare, unemployment insurance, family benefits Act, savings, spouse's

¹¹ With the exception of gender, all of the categorical variables contained too many categories to allow large enough expected cell frequencies, rendering the chi-square analyses invalid. In order to increase the cell frequencies, the original categories were grouped into larger categories. The values were categorized in the following manner: 1) keeping the categories with the highest frequencies separately from other categories, and 2) grouping all of the other categories with small frequencies into one, generic category.

earnings, or none of the above). For all 2X2 tables, Yates' correction for continuity was applied in determining statistical significance. Fisher's exact test was applied to all 2 X 2 tables with very small expected frequencies.¹² There were no statistically significant differences (at the $p < .05$ level) between the two groups on any of these variables. Because the expected frequencies were less than 2 for more than 25% of the cells (Glass and Hopkins, 1996), it was not possible to conduct a valid chi-square test on work status at the VPF administration. The small cell frequencies reflected the small percentage (3%) of subjects who had returned to work full-time or part-time, regardless of level of participation in the study.

The overall results suggest that treatment participants and nonparticipants were similar in virtually all variables known to predict RTW and non-RTW. They also indicate that the subjects who participated in the study were fairly representative of the population of cardiac patients who were originally recruited based on the initial selection criteria. Nonparticipants, however, appear to have been more satisfied with their jobs. Perhaps, these patients felt that they did not need assistance in returning to work.

Comparability of Subjects who Attended at least One Session ($n = 52$) and Subjects who Attended None ($n = 16$) at Pre-Treatment, in the Original Sample ($N = 68$). Chi-squares and t-tests were conducted on the same demographic, medical, social-environmental and psychological variables measured above to compare subjects who never attended any session ($N = 16$), and subjects who attended at least one session ($N = 52$). There were no statistically significant differences (at the $p < .05$

¹² When more than 20% of cells contain expected values less than 5, it is often recommended that a valid chi-square test cannot be conducted (Christensen & Stoup, 1991). However, some authors (Roscoe & Bryars, 1979; Conover, 1974) have shown that the chi-square statistic works well when the average cell expected frequency is as low as 2 (Note that the average expected frequency is less restrictive than the minimum expected frequency). According to Glass and Hopkins (1996), Yates' correction for continuity that is usually recommended for contingency tables is not only unnecessary, but causes the already conservative values for α to be even more conservative (Camilli and Hopkins, 1978). Fisher's exact probability test for 2 X 2 contingency tables with very small expectancies is recommended, but it not necessary since the chi-square test of association gives accurate probability statements even with very small n 's (Glass & Hopkins, 1996).

level) between the group means, nor among group cell frequencies. As with the previous analyses, it was not possible to conduct a valid chi-square test on work status at the VPF administration because of the small percentage (2.9%) of subjects who had returned to work.

Comparability of Program Completers ($n=46$) vs. Noncompleters ($n=6$), at Pre-Treatment, Among the Attenders ($N=52$). Chi-squares and t-tests were conducted on the same demographic, medical, social-environmental and psychological variables measured above to compare subjects who attended at least one session but who never completed the study ($N=6$), and study completers ($N=46$). In addition, t-tests were conducted on pre-treatment measures of the following variables: self-efficacy, outcome expectancy, outcome values, perception of norms, intention to return to work, commitment to work, conscientiousness, self-determination (including its subscales), life satisfaction, general distress, depression, and anxiety. A statistically significant difference in group mean ages, $t = 2.03$ (8.03), $p = .047$, was found. Subjects who did not complete the study were significantly older ($M = 54.17$, $SD = 4.67$) than subjects who completed the study ($M = 48.37$, $SD = 6.75$). Statistically significant differences were also found in group ratings on the item measuring depression, $t' = 3.00$ (34.56), $p = .005$. Subjects who did not complete the study rated themselves as significantly less depressed ($M = 8.0$, $SD = .63$) than subjects who completed the study ($M = 6.59$, $SD = 2.67$). Thirdly, statistically significant differences were found between the two means on the item measuring intention to return to work, $t' = 2.07$ (24.43), $p = .05$. Subjects who did not complete the study indicated a stronger intention to return to work ($M = 9.67$, $SD = .82$), compared to subjects who completed the study ($M = 8.59$, $SD = 2.73$).

There were no statistically significant group differences from the chi-square analyses. In addition, there was a non-significant difference in the number of completers and noncompleters between the two treatment groups, indicating that there is no substantial difference between the two treatment conditions in the number of subjects who dropped out of the study. Because of small expected cell

frequencies, it was not possible to conduct valid chi-square tests on the following variables: sex, marital status, source of financial support, and work status. The small cell frequencies in the present analyses reflected the very small sample size of noncompleters.

Given the small number of noncompleters in the study, it is difficult to interpret the results without taking into account the lack of statistical power. Overall, the results suggest that noncompleters were older than completers. Noncompleters also appear to have reported lower levels of depression, and a stronger intention to return to work. It is possible that, compared to subjects who completed the study, subjects who attended at least one session, but who did not complete the study, may have found it less necessary to receive assistance or support in returning to work. The percentage of noncompleters did not differ significantly between the two treatment groups, indicating that one treatment group did not affect the differences between completers and noncompleters substantially more than the other treatment group.

Analysis of Equivalence at Pre-Treatment

As in the attrition analyses, the analyses of equivalence at pre-treatment involve the comparability of subjects in each treatment condition by VPF variables, and by pre-treatment variables measured 2 to 3 weeks following administration of the VPF.

Comparability of Participants in the Goal-Setting and Video-Tape Groups on the VPF Variables, at Pre-Treatment. The research sample consisted of 22 subjects in the goal-setting group, and 24 subjects in the video-tape group. Chi-square analyses and t-tests were conducted on the same demographic, medical, social environmental and psychological factors that were included in the attrition analyses (see Table 9). T-tests were also conducted on the estimated percentage of eligible weeks worked by a 1-year follow-up, an estimated probability of RTW score (based on VPF raw scores), and the estimated risk of non-RTW score (i.e. a standardized score with a mean of 50 and a standard deviation of 10 that is based on the combined estimated percentage of weeks worked by 1-year follow-up and the estimated

probability of RTW score). Chi-square median analyses were conducted on variables whose standard deviations were too large. These variables included: duration of unemployment prior to CABG, duration of employment prior to CABG, and number of months since the first cardiac event.

Results from the t-tests showed no statistically significant differences between group means on any of the VPF variables. Similarly, the chi-square and median chi-square analyses revealed no statistically significant group differences in cell frequencies. Overall, the results suggest that, for the research sample, random assignment led to the comparability of the two treatment groups on the factors assessed by the VPF. Finally, frequency distributions of the estimated risk of not returning to work score for each of the treatment groups, and for the total sample, demonstrates the estimated percent chance that subjects will return to work (Table A-11, Appendix A).

Comparability of Participants in the Goal-Setting and the Video-Tape Groups on Psychological Variables, at Pre-Treatment. In the research sample ($N = 46$), t-tests were conducted on the psychological measures that were taken at pre-treatment (Table 10). These measures included: self-efficacy, outcome expectancy, outcome values, behavioural intention to return to work, perception of norms, commitment to work, interest in participating in the treatment to which subjects were randomly assigned, self-determination (including intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation), life satisfaction, depression, and anxiety. As can be seen in Table 10, there were statistically significant differences in group means on the scales measuring life satisfaction, and conscientiousness. Subjects in the video-tape group reported higher scores on the Satisfaction with Life Scale. The video-tape group also had a higher mean T-score on the Conscientiousness scale, than the goal-setting group.

By and large, the randomization of subjects led to the comparability of the two treatment groups on most of the psychological variables. However, the differences found are mildly in favour of the

video-tape group. The group differences can be due to differential attrition. That is, subjects who participated in the video-tape group may have remained in that group as a result of specific personal tendencies and personality characteristics which were better suited to a relatively unstructured video-tape and discussion group. These tendencies may include greater satisfaction with life, and a stronger tendency to be persistent, planful, careful, responsible and hardworking (Costa & McCrae, 1989), characteristics of individuals who may already have a tendency to be inwardly directed in their attainment of positive life goals. On the other hand, subjects who reported lower levels of life satisfaction and conscientiousness may have been less inwardly and positively directed toward their life goals. These individuals may have been more motivated to remain in the more structured goal-setting group. Given that conscientiousness and life satisfaction may have had an effect on treatment outcomes, they were included as covariates in subsequent analyses.

Table 9.

Equivalence Analysis on Vocational Prognosis Form Variables at Pre-Treatment: Means and Standard Deviations (in Parentheses) or Percentages, and T-Tests or Chi-Squares, in Comparisons between Goal-Setting and Video-Tape Groups, for Demographic, Medical and Psychological Variables^a

Subject Characteristics	Goal-Setting Group (N=22)	Video-Tape Group (N=24)	Total (N=46)	t(df) ^b	$\chi^2(df)$
Demographic					
Age	48.86 (7.40)	47.92 (6.22)	48.4 (6.75)	0.47 (44)	
Education level	12.73 (2.66)	13.58 (2.52)	13.2 (2.59)	-1.12 (44)	
Blishen McRoberts score ^c	48.41 (16.06)	53.55 (13.32)	51.09 (14.76)	-1.19 (44)	
Pay per month	3876.12 (1700.52)	5163.80 (3347.01)	4564.88 (2756.53)	-1.55 (41)	
Hours worked per week prior to CABG	47.05 (19.49)	43.65 (16.21)	45.27 (17.73)	0.65 (44)	0.92 (1)
Sex (%)					
male	95.5	87.5	91.3		
female	4.5	12.5	8.7		2.18 (1) ^d
Marital status (%)					
single	13.6	12.5	13.0		
married	54.5	75.0	65.2		
separated	4.5	0.0	2.2		
divorced	13.6	0.0	6.5		
co-habiting	13.6	12.5	13.0		
Employment status, 2 to 3 weeks following CABG (%)					1.92 (1) ^e
back at work full-time	0.0	4.2	2.2		
back at work part-time	0.0	4.2	2.2		
not working	100.0	91.7	95.6		
Source of Income (%)					1.32 (2) ^f
Unemployment insurance	9.1	4.2	6.5		
Sick leave	36.4	45.8	41.3		

(Table 9 continues)

(Table 9 continued)

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Subject Characteristics	Goal-Setting Group (N=22)	Video-Tape Group (N=24)	Total (N=46)	t(df)	χ^2 (df)
Private health insurance	22.7	29.2	26.1		
Source of Income (%)					
Canada Pension Plan	4.5	0.0	2.2		
Family Benefits Act	4.5	0.0	2.2		
Worker's Compensation	4.5	0.0	2.2		
Savings	9.1	8.3	8.7		
Spouse's earnings	4.5	8.3	6.5		
None of the above	4.5	4.2	4.3		
Social Environment					
Duration of unemployment prior to CABG (in months)	3.80 (4.50)	3.13 (2.83)	3.45 (3.69)	0.61(44)*	
Duration of employment prior to CABG (in months)	141.80 (94.44)	136.54 (97.39)	139.05 (94.96)	0.19 (44)	
If subject does not go back to work, rating of degree to which family will have a monthly income that is sufficient for its needs (0 to 10)	6.68 (3.50)	6.21 (3.66)	6.43 (3.55)	0.45 (44)	0.25 (3)
Type of Business (%)					
Federal or provincial government	40.9	37.5	39.1		
Private business	36.4	33.3	34.8		
Self-employed	22.7	29.2	26.1		
Medical					
Nature of first cardiac event, prior to CABG	4.5	0.0	2.2		1.12 (1)*
no other cardiac event	68.2	41.7	54.3		
angina	22.7	58.3	41.3		
heart attack	4.5	0.0	2.2		
cardiac surgery					

(Table 9 continues)

(Table 9 continued)

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Subject Characteristics	Goal-Setting Group (N=22)	Video-Tape Group (N=24)	Total (N=46)	t(df)	χ^2 (df)
Medical					
Number of months since first cardiac event	24.23 (37.43)	66.92 (104.11)	46.50 (81.60)	-1.82 (44)	
Number of months since CABG	1.09 (0.43)	1.25 (1.03)	1.17 (0.80)	-0.67 (44)	
Psychological: Individual Variables^a					
Anxiety	5.50 (3.95)	6.54 (2.81)	6.04 (3.41)	-1.04 (44)	
Depression	6.77 (2.93)	6.42 (2.47)	6.59 (2.67)	0.45 (44)	
Heart condition	7.55 (2.04)	8.29 (1.60)	7.93 (1.84)	-1.39 (44)	
Overall health	7.14 (2.08)	6.79 (2.66)	6.96 (2.16)	0.54 (44)	
Confidence that employer will allow subject to return to work	9.14 (2.36)	9.08 (1.74)	9.11 (2.04)	-0.09 (44)	
Confidence that physician will give permission to return to work	8.55 (2.11)	9.54 (1.14)	9.07 (1.73)	-2.02 (44)	
Confidence about returning to old job with old employer	8.23 (3.07)	8.92 (2.26)	8.59 (2.67)	-0.87 (44)	
Intention to return to work	8.32 (2.97)	8.83 (2.53)	8.59 (2.73)	-0.64 (44)	
Job satisfaction ^b	5.31 (1.29)	5.29 (1.40)	5.30 (1.33)	0.07 (44)	
Psychological: Composite Variables^a					
Perception of physical and mental health	6.74 (2.77)	7.01 (1.55)	6.88 (1.91)	-0.48 (44)	
Cognitive facilitators of RTW	8.56 (1.89)	9.09 (1.55)	8.84 (1.72)	-1.06 (44)	
Estimated RTW risk score ^m	53.88 (15.76)	46.45 (13.02)	50.00 (14.72)	1.75 (44)	
Estimated predicted percentage of weeks worked by one-year follow-up ⁿ	61.81 (16.23)	68.75 (14.17)	65.44 (15.42)	-1.55 (44)	
Estimated RTW score ⁿ	5.76 (1.26)	6.37 (1.04)	6.08 (1.18)	-1.80 (44)	

Note: *p < 0.05; **p < 0.01; ***p < 0.001

- a. The Vocational Prognosis Form (Flynn, Cupper, Cavner, Dafoe, Mellard, Iltz, et al., 1989).
- b. T-tests are two-tailed
- c. The Blishen-McRoberts occupational index reflects prestige ratings of occupations, based on income and education. Ratings for a large number of occupations range from 17.00 (for factory occupations) to 74.00 (professional occupations). Supervisory and clerical occupations are rated at approximately 50.00.
- d. Provided that a chi-square analysis using all of the categories in Marital Status is impossible because over 20% of cells have expected frequencies below 5 (Glass and Hopkins, 1996), the five categories were combined to form two general classifications. The first classification includes subjects who are married and cohabiting, and the second includes subjects who are single, separated or divorced. Fisher's exact test was applied to the resulting 2x2 table. Unfortunately, due to the very small percentage of subjects who were either single, divorced or separated in the two treatment groups (resulting in 25% of expected frequencies below 5), the resulting chi-square was also invalid.
- e. A chi-square analysis using all of the Employment Status categories is impossible because over 20% of cells have expected frequencies below 5 (Glass and Hopkins, 1996). In consequence, the categories were combined to produce two larger classifications. One classification includes subjects who returned to work either full-time or part-time, and the second includes subjects who did not return to work. Unfortunately, the resulting chi-square analysis was also invalid because 50% of the expected cell frequencies remained less than 5.
- f. A chi-square analysis using all of the Source of Income categories is impossible because over 20% of cells have expected frequencies below 5. In consequence the 9 categories were combined to produce 3 classifications. These classifications include: 1) subjects who received sick leave from their employers, 2) subjects who received private disability pensions, and 3) subjects who received all other sources of income.
- g. For the small sample sizes in this study, the standard deviation of Duration of unemployment, and Number of months since the first cardiac event were found to be large, indicating that the values are not normally distributed. Chi-square median analyses were conducted, in addition to the t-tests (of which the values are presented in the table). The chi-squares (df) and significance levels for the three variables are the following: Duration of unemployment ($\chi^2 (1) = .48, p = .49$), Duration of employment ($\chi^2 (1) = 0, p = 1.00$), and Number of months since first cardiac event ($\chi^2 (1) = 1.39, p = .24$).
- h. A chi-square analysis using all of the Nature of First Cardiac Event categories is impossible because over 20% of cells have expected frequencies below 5 (Glass and Hopkins, 1996). In consequence, the categories were combined to produce two larger classifications. One classification includes subjects who had a MI, and the second includes subjects who had angina, cardiac surgery, or no other cardiac event. Unfortunately, the resulting chi-square analysis was also invalid because 50% of the expected cell frequencies remained less than 5.
- i. Mean scores on all but one individual psychological scale (job satisfaction) are based on ratings ranging from 0 (poor) to 10 (excellent). Scores on the Anxiety and Depression scales are scored in the inverse order, where a score of 0 indicates a high level of anxiety or depression, and a score of 10 indicates little or no anxiety or depression.
- j. Results from the t-test with equal variances indicate that the difference between group means is significant at the 0.05 level. However, Levene's test for Equality of Variance indicates that the group variances are significantly unequal ($F = 14.86, p = .000$). Results from the t-test for unequal variances reveal a non-significant difference between the two means ($p = 0.058$).

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- k. Scores on the job satisfaction scale range from 1 (I hate(d) my job) to 7 (I love(d) my job). A score of 4 indicates indifference toward one's job.
- l. The psychological composite scores reflect factors drawn from a factor analysis of 282 cardiac patients' responses on the VPF (Flynn et al., 1989). The Perception of Physical and Mental Health composite score is computed by taking the mean of the ratings on the Anxiety, Depression, Heart Condition and Overall Health scales. The Cognitive Facilitators of RTW composite is computed by taking the mean of the ratings on the scales measuring confidence that the physician will allow one to return to work, confidence that the employer will allow one to return to work, confidence about returning to one's old job with one's old employer, and intention to return to work.
- m. The Estimated RTW risk score was calculated in order to produce a standardized score which would indicate the risk of non-RTW in sample of 282 cardiac patients. First, in spite of their different interpretations, the estimated predicted percent of weeks worked was shown to correlate 0.92 with the estimated predicted RTW by one-year-follow-up in the sample of 282 subjects (Flynn et al., 1996). This correlation indicates that the two values can be used almost interchangeably to predict RTW. Thus, the RTW T-score risk was computed by first calculating the z-scores of these two variables. Secondly, the T-score for the result was calculated, producing a score which predicts probability of RTW. The T-score was subtracted from 100 in order to produce a RTW risk score, or a score indicating the probability that cardiac patients are at risk of not returning to work.
- n. $p = 0.087$
- o. The Estimated percentage of weeks worked by one-year follow-up was calculated for each subject by inserting his or her VPF scores in a prediction equation derived from Flynn et al. (1996). In this equation, the dependent variable was the percentage of the total number of weeks elapsed between the initial and the final VPF interviews (i.e. about 52 weeks on average) that the subject was actually back at work. The VPF predictors were the following: the Cognitive Facilitators of RTW composite factor, the Blighen-McRoberts Occupational Status Index, the nature of the most recent event, gender, and the duration of unemployment.
- p. The Estimated RTW score was calculated for each subject by inserting his or her VPF scores in a prediction equation (Flynn et al., 1996). In this equation, the dependent variable was whether or not subjects returned to work by follow-up. The VPF predictors were the following: Blighen McRoberts Occupational Status Index, Cognitive Facilitators of RTW composite factor, months since the subject was last at work, gender, and rating of the extent to which one's income will be sufficient if one does not return to work.

q. $p = 0.079$

Table 10.

Equivalence Analysis on Pre-Treatment Psychological Variables: Means and Standard Deviations (in Parentheses), and T-Tests, in Comparisons between Goal-Setting and Video-Tape Intervention Groups

Psychological Variables	Goal-Setting Group (N=22)	Video Tape Group (N=24)	Total (N=46)	t(df)*
Self-Efficacy ^b	5.47 (1.49)	5.56 (1.34)	5.52 (1.40)	-0.22 (44)
Outcome Expectancy	5.98 (1.15)	5.90 (1.13)	5.93 (1.13)	0.24 (44)
Outcome Value	5.91 (5.46)	5.46 (1.40)	5.67 (1.38)	1.11 (44)
Behavioural Intentions	5.46 (1.10)	5.23 (1.66)	5.34 (1.41)	0.56 (44)
Perception of Norms	5.55 (1.44)	5.35 (1.43)	5.45 (1.42)	0.45 (44)
Commitment To Work ^c	49.74 (10.56)	49.48 (11.31)	49.60 (10.83)	0.08 (44)
Conscientiousness ^d	52.48 (13.10)	59.19 (8.85)	55.98 (11.47)	-2.02 (36.44)*
Interest in participating in the intervention	5.59 (1.26)	5.50 (1.29)	5.54 (1.26)	0.24 (44)
Client Motivation for Therapy Scale ^e				
Intrinsic Motivation	4.64 (1.56)	4.27 (1.47)	4.45 (1.51)	0.82 (44)
Extrinsic Motivation				
External Regulation	2.10 (1.32)	1.78 (1.47)	1.93 (1.39)	0.78 (44)
Introjected Regulation	4.07 (1.47)	3.74 (1.53)	3.90 (3.49)	0.74 (44)
Identified Regulation	4.85 (1.60)	4.71 (1.51)	4.78 (1.54)	0.31 (44)
Integrated Regulation	4.59 (1.52)	4.44 (1.35)	4.51 (1.42)	0.35 (44)
Amotivation	2.61 (1.35)	2.13 (1.14)	2.36 (1.25)	1.31 (44)
Self-Determination	18.99 (10.19)	19.20 (9.38)	19.10 (9.66)	-0.07 (44)

(Table 10 continues)

(Table 10 continued)

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Equivalence Analysis on Pre-Treatment Psychological Variables: Means and Standard Deviations (in Parentheses), and T-Tests, in Comparisons between Goal-Setting and Video-Tape Intervention Groups

Psychological Variables	Goal-Setting Group (N=22)	Video Tape Group (N=24)	Total (N=46)	t(df)
Satisfaction with Life Scale ^a	4.02 (1.64)	4.87 (1.21)	4.46 (1.48)	-2.01 (44)*
Self-Rating Depression Scale ^a				
Overall Depression Score	46.83 (11.86)	45.59 (10.64)	46.15 (11.07)	0.35 (38) ^y
Affective Scale	1.61 (0.85)	1.59 (0.73)	1.60 (0.78)	0.08 (38)
Psychological Scale	1.92 (0.64)	1.77 (0.61)	1.84 (0.62)	0.75 (38)
Physiological Scale	1.88 (0.47)	1.85 (0.47)	1.86 (0.46)	0.19 (38)
Psychomotor Scale	2.38 (0.70)	2.45 (0.58)	2.42 (0.62)	-0.38 (38)
State-Trait Anxiety Inventory ^c				
State Anxiety	55.67 (14.78)	48.95 (9.60)	51.97 (12.50)	1.66 (28.05) ^b
Trait Anxiety	55.11 (15.10)	50.68 (12.21)	52.68 (13.59)	1.03 (38)

Note: $p < 0.05^*$, $p < 0.01^{**}$, $p < 0.001^{***}$

a. T-tests are two-tailed.

b. The scales measuring Self-Efficacy, Outcome Expectancy, Outcome Value, Behavioural Intention and Perception of Norms were constructed and validated by Maddux, Norton, & Stollenberg (1986). Subject ratings were based on Likert scales ranging from 1 (do not agree) to 7 (strongly agree).

c. Salience Inventory (Macrae, Fitzsimmons, & Casserly, 1992). Items reflect the extent to which subjects are committed to working. Subjects respond to items by rating the degree to which the item represents the way they feel. Ratings are based on Likert scales ranging from 1 (little or none) to 4 (a great deal). Total scores on each scale are converted to T-scores based on gender.

(Table 10 continued)

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- d. Neo Five Factor Inventory (Costa & McCrae, 1991). Ratings are based on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). A rating of 3 indicates a neutral opinion. The Conscientiousness scale was administered at pre-test only. The total score on the Conscientiousness scale was converted to T-scores based on age range.
- e. The t-test used for to determine differences in the group means in Conscientiousness is Welch's "quasi-t test" for unequal variances (Glass & Hopkins, 1996). The use of the t-test is based on a significant value resulting from Levene's test of Equality of Variance ($F = 5.53$, $p = 0.023$), indicating that the two group variances were significantly unequal.
- f. Pelletier, Tuson, & Haddad, 1996. Ratings are based on Likert scales ranging from 1 (does not correspond) to 7 (corresponds exactly).
- g. Diener, Emmons, Larsen, & Griffin, 1985. Ratings are based on Likert scales ranging from 1 (do not agree) to 7 (strongly agree).
- h. Zung, 1974. Ratings range from 1 (None or little of the time) to 4 (Most or all of the time). Total scores on the Overall Depression scale are converted to SDS Index ratings. Scores reflect the frequency of symptoms reported by the examinee. A score at or below 50 indicates that symptoms of depression occur within the normal range. Scores ranging from 50 to 59 indicate minimal to mild depression. Scores ranging from 60 and 69 indicate moderate to marked depression. Scores at or above 70 indicate severe to extreme depression.
- i. Degrees of freedom for the t-test involving the Self-Rating Depression scales and the State-Trait Anxiety Inventory are 38, reflecting missing data. Six subjects at the beginning of the study did not complete the two questionnaires because they were inserted into the assessment packages after the data collection had already begun.
- j. Spielberger, 1983. Items are rated on scales ranging from 1 (not at all) to 4 (very much so). Total scores on the State and Trait Anxiety scales are converted to T-scores based on age range and gender.
- k. The t-test used for to determine differences in the group means in State Anxiety is Welch's "quasi-t test" for unequal variances (Glass & Hopkins, 1996). The use of the t-test is based on a significant value resulting from Levene's test of Equality of Variance ($F = 5.58$, $p = 0.023$), indicating that the two group variances were significantly unequal.

Substantive Results ¹³*Hypothesis 1: Impact of Goal-Setting on RTW and Percentage of Eligible Weeks Worked at Follow-up*

Regression analyses were conducted to test whether there were significant differences in rate of RTW between the two treatment groups. Because there were group differences at pre-treatment in conscientiousness and life satisfaction, these variables were initially chosen to be covariates. However, neither life satisfaction, nor conscientiousness correlated significantly with RTW and with percentage of eligible weeks worked (see Table 11). Therefore, they were not included in the analyses.¹⁴ However, for the sake of comparing the results with those from equations including conceptually meaningful covariates, Tables A-13 and A-14 include findings from equations including conscientiousness as a covariate. The treatment group differences in rate of RTW and in percentage of eligible weeks worked are presented in Table 12.

A logistic regression analysis was employed to assess whether the treatment group contributed significantly to rate of RTW at follow-up.¹⁵ Similarly, a hierarchical regression analysis was conducted to assess whether the treatment group significantly contributed to percentage of eligible weeks worked at follow-up. Treatment group was not found to significantly predict either RTW or percentage of eligible

¹³ Correlations among all the variables in the substantive analyses are in Table A-12 (Appendix A).

¹⁴ According to Stevens (1986), covariates should be included in statistical analyses if they should or actually correlate with the dependent variable (DV). Including a covariate in an equation decreases the amount of error, increasing the likelihood that the results are valid and significant. However, covariates that do not significantly correlate with the DV do not contribute significantly to decreasing error, while reducing the degrees of freedom (i.e., power). In this study, neither life satisfaction, nor conscientiousness were significantly correlated with RTW or with percentage of eligible weeks worked. Therefore, they were dropped from the analyses (Glass & Hopkins, 1996).

However, some authors (Cohen & Cohen, 1983) argue that covariates that can theoretically predict the DV should be included in an equation even when they do not significantly correlate with it, because the covariates make the equation conceptually different. Therefore, for the sake of comparing the two methods of dealing with covariates, the results of equations including conceptually meaningful covariate(s) are presented in Appendix A.

¹⁵ A description of logistic regression analysis is available in Appendix B.

weeks worked (see Tables 13 and 14). These results were not different if conscientiousness was included in the analyses (see Tables A-13 and A-14 in Appendix A). Table 12 shows the percentage of subjects in each treatment group who returned to work, and their mean percentage of eligible weeks worked at follow-up.

Another question was to determine whether both interventions lead to increased RTW, compared to patients who did not participate in any treatment. A chi-square analysis was conducted to compare the percentage of treatment participants (N=46) who returned to work (78.3%), and the percentage of patients who had signed their informed consent forms at the beginning of the study (N=42), but who did not wish to participate in the intervention, who returned to work (81.0%). There was no significant difference in rates of RTW between the two samples of the cardiac population.

Table 11.

Two-Tailed Correlations Between Pre-Treatment Variables That Showed Significant Group Differences (Life Satisfaction, Conscientiousness, Group Counsellor) and the Dependent Variables (RTW, Percentage of Eligible Weeks Worked) Assessed in Hypothesis 1 and Research Question 1

Variable	RTW	Percentage of Eligible Weeks Worked
Life Satisfaction	.17	.09
Conscientiousness	.15	.05
Group Counsellor	.02	-.02

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 12.

Frequencies and Percentages (in Parentheses) of Subjects Who Returned to Work, and Means and Standard Deviations (in Parentheses) of Percent of Eligible Weeks Worked, at Follow-up, in Each Treatment Group, and the Total

Treatment Outcome	Goal-Setting Group (N=22)	Video-Tape Group (N=24)	Total (N=46)
Subjects Who Returned to Work	15 (68.1)	21 (87.5)	36 (78.3)
Percent of Eligible Weeks Worked	27.4 (28.5)	31.3 (23.5)	29.5 (25.8)

Table 13.

Logistic Regression for Hypothesis 1 (Predicting RTW Based on Treatment Group), and Research Question 1 (Predicting RTW Based on the Interaction of Treatment Group with Subject Characteristics)

Step	Independent Variable	B coefficient ^a	t (df)	p
1	Treatment Group ^b	-1.18	-1.54 (44)	.13
2	Self-Efficacy	.24	.96 (43)	.34
3	Self-Efficacy X Treatment Group	-.35	-.69 (42)	.50
2	Risk Score	-.07	-2.49 (43)	.02
3	Risk Score X Treatment Group	.11	1.07 (42)	.29
2	Self-Determination	.05	1.29 (41)	.20
3	Self-Determination X Treatment Group	.04	.48 (42)	.63
2	Depression ^c	-.05	-1.25 (37)	.22
3	Depression X Treatment Group	.04	.58 (36)	.57
2	Anxiety	-.05	-1.48 (37)	.15
3	Anxiety X Treatment Group	.03	.41 (36)	.69

Note: *p < .05, **p < .01, ***p < .001

a. The B coefficient pertains to the prediction of the logit (the logistic transformation that interprets the dichotomous dependent variable in terms of an underlying continuous probability p that ranges between 0 and 1), based on the maximum likelihood estimation rather than least squares estimation. For a more detailed definition of the logit, see Appendix B.

b. This line shows the degree to which treatment group alone predicted RTW (Hypothesis 1). The same results were found in Step 1 of the other logistic regression analyses (Research Question 1) where treatment group was the first variable to be entered in the equation. The results for each analysis were not repeated because they were identical for all variables. As can be seen in the "Step" column, the Subject Characteristic was always entered at Step 2, and its interaction with treatment group at Step 3.

c. The results for Depression and Anxiety are based on a smaller sample size than the other variables. The reason for this is that only 39 subjects completed the depression and anxiety measures. The SDS and the STAI were added to the assessment battery after the data collection had already begun. Therefore, the B coefficients for depression and anxiety were based on fewer degrees of freedom.

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Table 14.

Hierarchical Regression for Hypothesis 1(Predicting Percentage of Eligible Weeks Worked Based on Treatment Group) and Research Question 1 (Predicting Percentage of Eligible Weeks Worked Based on the Interactions Between Treatment Group and Subject Characteristics)

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Treatment Group	-.08	.08	.01		.26		(1, 44)
2	Risk Score	-.38	.38	.14	.14		6.87	(2, 43)*
3	Risk Score X Treatment Group	.46	.39	.15	.01		.32	(3, 42)
2	Self-Efficacy	.06	.10	.01	.004		17	(2, 43)
3	Self-Efficacy X Treatment Group	-.48	.15	.02	.01		.55	(3, 42)
2	Self-Determination	.05	.09	.01	.002		.09	(2, 43)
3	Self-Determination X Treatment Group	.19	.12	.01	.01		.25	(3, 42)
2	Depression	-.14	.15	.02	.02		.79	(2, 37)
3	Depression X Treatment Group	-.38	.17	.03	.01		.27	(3, 36)
2	Anxiety	-.21	.21	.04	.04		1.55	(2, 37)
3	Anxiety X Treatment Group	-.72	.25	.06	.02		.73	(3, 36)

Note: *p < .05, **p < .01, ***p < .001

Research Question 1: Impact of Interaction between Subject Characteristics, Implementation Characteristics and Treatment Condition, on Cardiac Patients' RTW and Percentage of Eligible Weeks Worked at Follow-up

A related objective was to investigate the potential interaction of treatment condition with subject characteristics (i.e. self-efficacy, risk of not returning to work, self-determination, depression, and anxiety) and with implementation characteristics (i.e., group size, number of sessions attended, and duration of follow-up), on RTW, and on the percentage of eligible weeks worked ¹⁶. Even though there was a significant difference between counsellors in the number of sessions attended by subjects, counsellor was not included as a covariate because it was not significantly correlated with RTW or with percentage of eligible weeks worked at follow-up (see Table 11).

Subject Characteristics. Logistic regression analyses were conducted to assess whether treatment group interacted with subject characteristics to predict RTW. The results are presented in Table 13. Risk score significantly predicted RTW. Similar results were found when conscientiousness was included as a covariate (see Table A-15, Appendix A). No other effects were found.

A series of hierarchical regression analyses were conducted to assess the potential interaction between treatment group and subject characteristics in predicting the percentage of eligible weeks worked at follow-up. As is shown in Table 14, risk score contributed a significant amount of variance in predicting percentage of eligible weeks worked at follow-up. Risk score also predicted percentage of eligible weeks worked when conscientiousness was the covariate (Table A-16, Appendix A). Under both conditions, no other main or interaction effects were found.

Implementation Characteristics. Logistic regression analyses were conducted to assess the interactions between type of treatment and implementation characteristics on RTW. Table 15 shows the

¹⁶ Given that only 46 subjects were included in the study, we attempted to minimize the number of statistical analyses in order to reduce the probability that any significant finding would occur due to chance alone. As a result, we selected only the most theoretically relevant variables to be analysed.

results for each of the variables assessed. None of the implementation characteristics, nor their interactions with treatment group, significantly affected RTW. When group counsellor was included as a covariate, the interaction between group counsellor and treatment group was found to be invalid (see Table A-17, Appendix A). The reason for this is that, among the small number of subjects who were in groups led by the researcher, there were not enough subjects who had returned to work (Statsoft, 1995). Therefore, it was impossible to make a comparison between the results of these statistical analyses.

Hierarchical regression analyses were conducted in order to assess the interaction of treatment group with implementation characteristics in predicting the percentage of eligible weeks worked. As can be seen in Table 16, there was a significant interaction between treatment group and number of sessions attended. Hierarchical regression analyses for each treatment group indicated that the number of sessions significantly contributed to the percentage of eligible weeks worked in the video-tape group, but not in the goal-setting group (see Table 17). The relation between number of sessions attended and percentage of eligible weeks worked for each group is presented in Figure 3.

In contrast, when group counsellor was included in the equation, there was a significant interaction between treatment group and group counsellor (Table A-18, Appendix A). These results indicated that there was a violation of the assumption of homogeneity of the regression slopes, meaning that the effect of number of sessions attended could not be interpreted without taking into account the interaction between treatment group and group counsellor. The interaction between group counsellor and treatment group is demonstrated in Figure A (Appendix A). Figure A shows that the interaction effect is based on too small number of subjects in groups led by the researcher, and is impossible to interpret.

Table 15.

Logistic Regression for Research Question 1 (Predicting RTW Based on the Interaction of Treatment Group with Implementation Characteristics)

Step	Independent Variable	B coefficient ^a	t (df)	p
1	Treatment Group ^b	-1.18	-1.54 (44)	.13
2	Group Size	.15	.33 (43)	.74
3	Group Size X Treatment Group	-1.89	-1.73 (42)	.09
2	Sessions	-.31	-.72 (43)	.48
3	Sessions X Treatment Group	.83	-1.03 (42)	.31
2	Duration of Follow-up	.01	.17 (43)	.87
3	Duration of Follow-up X Treatment Group	.22	1.03 (42)	.31

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. The B coefficient pertains to the prediction of the logit (the logistic transformation that interprets the dichotomous dependent variable in terms of an underlying continuous probability p that ranges between 0 and 1), based on the maximum likelihood estimation rather than least squares estimation. For a more detailed definition of the logit, see Appendix B.

b. The results on this line are from Step 1 of all of the logistic regression analyses, where treatment group was the first variable to be entered in the equations. These results were not repeated for each of the dependent variables because they were identical.

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Table 16.

Hierarchical Regression for Research Question 1 (Predicting Percentage of Eligible Weeks Worked Based on the Interactions between Treatment Group and Implementation Characteristics)

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Treatment Group	-.08	.08	.01		.26		(1, 44)
2	Group Size	.04	.09	.01	.002		.08	(2, 43)
3	Group Size X Treatment Group	-.36	.16	.03	.02		.82	(3, 42)
2	Number of Sessions	.02	.08	.01	.000		.01	(2, 43)
3	Number of Sessions X Treatment Group	-1.32	.37	.14	.13		6.57	(3, 42)**
2	Duration of Follow-up	.14	.16	.03	.02		.90	(2, 43)
3	Duration of Follow-up X Treatment Group	.40	.18	.03	.01		.32	(3, 42)

Note: *p < .05, **p < .01, ***p < .001

Table 17.

Predicting Percentage of Eligible Weeks Worked For Each Treatment Group Based on Number of Sessions Attended

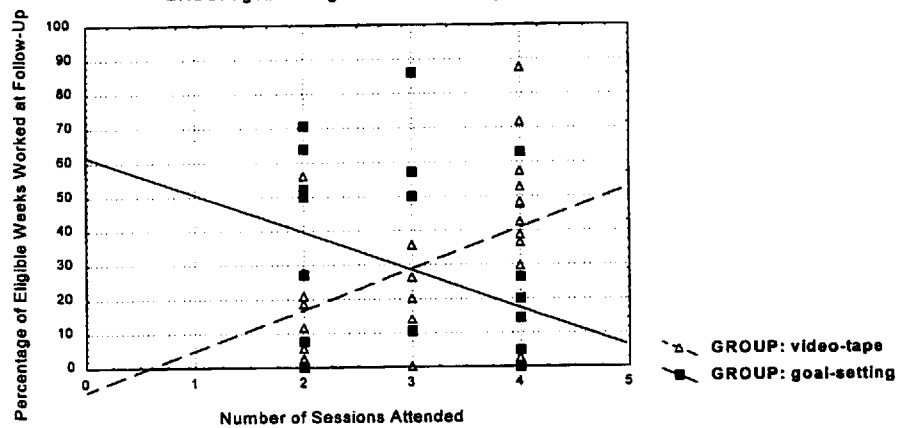
Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Sessions (Goal-Setting Group)	-.36	.36	.13		2.95		(1, 20)
1	Sessions (Video-Tape Group)	.45	.45	.20		5.56		(1, 22)*

Note: *p < .05, **p < .01, ***p < .001

Figure 3.
Relation between Percentage of Eligible Weeks Worked and
Number of Sessions Attended

GROUP: video-tape=-6.994+11.942*x+eps

GROUP: goal-setting=61.78-11.112*x+eps



Hypothesis 2: Impact of the Treatment Condition on Cardiac Patients' Satisfaction with Their Lives, with Their Jobs, and with the Intervention Received

Hierarchical regression analyses were conducted to test whether there were significant group differences in life satisfaction at follow-up, job satisfaction at follow-up (if subjects returned to work), and satisfaction with the treatment at post-treatment. Life satisfaction and conscientiousness were correlated with the outcome variables to determine whether they should be included in the equations as covariates. As can be seen in Table 18, both life satisfaction and conscientiousness were significantly correlated with life satisfaction at follow-up and with job satisfaction.

Table 18.

Two-Tailed Correlations Between Pre-Treatment Variables That Showed Significant Group Differences (Life Satisfaction, Conscientiousness, Group Counsellor) and the Dependent Variables (Life Satisfaction at Follow-up, Job Satisfaction, and Satisfaction with Services) Assessed in Hypothesis 2 and Research Question 2

Variable	Life Satisfaction at Follow-up	Job Satisfaction at Follow-up	Satisfaction with Services
Life Satisfaction	.61***	-.37*	.09
Conscientiousness	.33*	-.45**	-.09
Group Counsellor	-.01	.13	-.13

Note: *p < .05, **p < .01, ***p < .001

Therefore, both variables were considered as covariates. However, because the two covariates were highly correlated with each other ($r = .36, p = .013$), hierarchical regression analyses were conducted to see whether one covariate contributed a nonsignificant amount of variance in predicting the outcomes when the other covariate was already included in the equations. As is shown in Table A-19 (Appendix A), conscientiousness contributed very little variance to predicting life satisfaction at follow-up when life satisfaction at pre-treatment was already in the equation. Similarly, life satisfaction was found not to contribute a significant amount of variance in predicting job satisfaction when conscientiousness was already included. Thus, conscientiousness was removed from the equations predicting life satisfaction at follow-up, and life satisfaction was removed from the equations predicting job satisfaction.

After controlling the covariates at pre-treatment, there were no significant treatment group differences in life satisfaction and in job satisfaction. In addition, there were no treatment group differences in satisfaction with services. However, there was a significant treatment group-by-life satisfaction interaction in predicting life satisfaction at follow-up¹⁷. This result indicated that there was a violation of the assumption of heterogeneity of the regression slopes. Table 19 shows these results. Univariate regression analyses indicated that life satisfaction at pre-treatment contributed a significant amount of variance in predicting life satisfaction at follow-up in the goal-setting group, but not in the video-tape group (see Table 20). Figure 4 shows the relation between the covariate and treatment group in predicting life satisfaction at follow-up.

¹⁷ Similar results were found when when a theoretically meaningful covariate (life satisfaction) was included in the equation predicting satisfaction with treatment (Table A-20, Appendix A).

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Table 19.
Hierarchical Regression for Hypothesis 2: Predicting Life Satisfaction, Job Satisfaction and Satisfaction with Treatment Based on Treatment Group

Dependent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
Step	Independent Variable						
Life Satisfaction							
1	Life Satisfaction - Pre-Treatment	.66	.43		33.81		(1, 44)***
2	Treatment Group	.07	.44	.004		.32	(2, 43)
3	Life Satisfaction-Pre X Treatment Group	.91	.51	.07		6.23	(3, 42)*
Job Satisfaction							
1	Conscientiousness	-.45	.20		8.70		(1, 34)**
2	Treatment Group	.09	.21	.01		.28	(2, 33)
3	Conscientiousness X Treatment Group	-1.00	.24	.04		1.50	(3, 32)
Satisfaction with Treatment							
1	Treatment Group	.002	.000		.000		(1, 44)

Note: *p < .05, **p < .01, ***p < .001

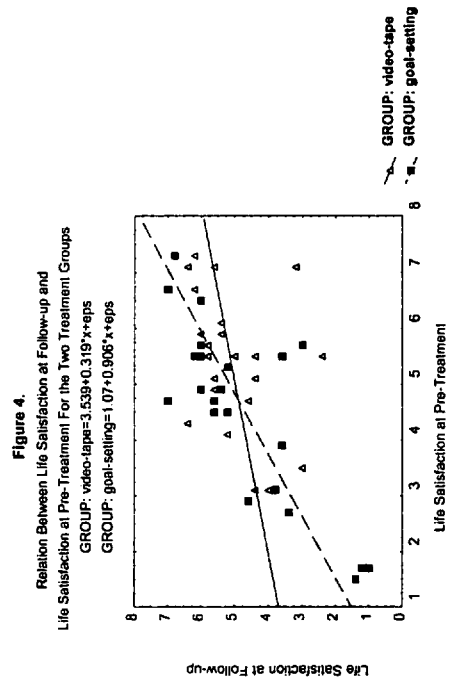
Table 20.

Group Differences in the Relation Between Life Satisfaction at Pre-Treatment (the Covariate) and Life Satisfaction at Follow-up (the Outcome)

Step	Independent Variable	Beta	R	R ²	F	df
1	Life Satisfaction at Pre-Treatment (Goal-Setting Group)	-.81	.81	.65	37.01	(1, 20)***
1	Life Satisfaction at Pre-Treatment (Video-Tape Group)	.35	.35	.13	3.14	(1, 22) ^a

Note: ^ap < .05, ***p < .01, ***p < .001

a. p = .09



Research Question 2: Impact of Interaction between Subject and Implementation Characteristics with Treatment Condition, on Cardiac Patients' Satisfaction with Their Jobs, and with Treatment

A related objective was to investigate the effects of subject and implementation characteristics on job satisfaction at follow-up (for subjects who returned to work) and on satisfaction with the treatment at post-treatment. Conscientiousness was a covariate in the analyses predicting job satisfaction.

Subject Characteristics. A series of hierarchical regression analyses were conducted to assess the effects of subject characteristics on job satisfaction at follow-up and in satisfaction with treatment. No significant main or interaction effects predicted job satisfaction (Table 21). However, there was a significant main effect of self-determination on satisfaction with treatment (Table 22). Similar results were found when the covariate was included in the equations (Table A-21, Appendix A). A hierarchical analysis was also conducted to determine whether self-determination interacted with number of sessions attended to affect satisfaction with treatment. No main or significant effects were found.

Implementation Characteristics. Hierarchical regression analyses were conducted to assess the effect of the implementation characteristics on job satisfaction and on satisfaction with treatment. Counsellor was not significantly correlated with either dependent variable (see Table 18). Therefore, it was excluded from the analyses. As is shown in Table 23, none of the implementation characteristics, nor their interactions with treatment group, predicted job satisfaction. When counsellor was added to the equation as a covariate, similar effects were found (see Table A-22, Appendix A).

A treatment-by-duration of follow-up interaction predicted satisfaction with treatment (Table 24). Similar results were found when life satisfaction was added to the equation as a covariate. Also, the analyses assessing number of sessions attended remained nonsignificant when both life satisfaction and group counsellor were used as covariates (Table A-23). Separate hierarchical regression analyses for each group revealed no significant impact of duration of follow-up on treatment satisfaction for either group (see Table 25). Figure 5 shows the nature of the interaction.

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Table 21.

Hierarchical Regression for Research Question 2: Predicting Job Satisfaction Based on Subject Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Conscientiousness Treatment Group	-.45	.45	.20		8.70		(1, 34)**
2	Conscientiousness X Treatment Group	.09	.46	.21	.01		.28	(2, 33)
3	Self-Efficacy Treatment Group	-1.00	.50	.24	.04		1.50	(3, 32)
4	Self-Efficacy X Treatment Group	-.10	.51	.26	.01		.42	(4, 31)
5	Risk Score X Treatment Group	-.25	.51	.26	.003		.12	(5, 30)
4	Risk Score Treatment Group	.30	.57	.32	.08		3.61	(4, 31) ^a
5	Self-Determination X Treatment Group	.05	.57	.32	.000		.003	(5, 30)
4	Self-Determination Treatment Group	.06	.50	.25	.004		.15	(4, 31)
5	Depression X Treatment Group	.19	.50	.25	.005		.19	(5, 30)
4	Depression Treatment Group	.25	.58	.33	.05		2.06	(4, 28)
5	Anxiety X Treatment Group	1.35	.61	.38	.04		1.93	(5, 27)
4	Anxiety Treatment Group	-.23	.55	.30	.02		.92	(4, 28)
5		-.52	.56	.31	.004		.16	(5, 27)

Note: *p < .05, **p < .01, ***p < .001

a. p = .07

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Table 22.
Hierarchical Regression for Research Question 2: Predicting Satisfaction with Treatment Based on Subject Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Treatment Group	.002	.002	.000		.000		(1, 44)
2	Self-Efficacy	-.17	.17	.03	.03		1.34	(2, 43)
3	Self-Efficacy X Treatment Group	-.57	.22	.05	.02		.80	(3, 42)
2	Risk Score	.15	.15	.02	.02		.16	(2, 43)
3	Risk Score X Treatment Group	.56	.18	.03	.01		.41	(3, 42)
2	Self-Determination	.31	.31	.09	.09		4.46	(2, 44)*
3	Self-Determination X Treatment Group	.18	.31	.10	.01		.25	(3, 43)
2	Depression	.21	.24	.06	.04		1.72	(2, 37)
3	Depression X Treatment Group	.54	.27	.07	.01		.55	(3, 36)
2	Anxiety	.25	.27	.07	.06		2.30	(2, 37)
3	Anxiety X Treatment Group	-.41	.28	.08	.01		.24	(3, 36)

Note: *p < .05, **p < .01, ***p < .001

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Table 23.
Hierarchical Regression for Research Question 2: Predicting Job Satisfaction Based on Implementation Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Conscientiousness	-.45	.45	.20		8.70		(1, 34)**
2	Treatment Group	.09	.46	.21	.01		.28	(2, 33)
3	Conscientiousness X Treatment Group	-1.00	.50	.24	.04		1.50	(3, 32)
4	Group Size	-.22	.53	.28	.04		1.59	(4, 31)
5	Group Size X Treatment Group	-.11	.53	.28	.002		.08	(5, 30)
4	Sessions	-.09	.50	.25	.01		.34	(4, 31)
5	Sessions X Treatment Group	.26	.51	.26	.01		.23	(5, 30)
4	Duration of Follow-up	.07	.50	.25	.01		.21	(4, 31)
5	Duration of Follow-up X Treatment Group	-.13	.50	.25	.000		.03	(5, 30)

Note: *p < .05, **p < .01, ***p < .001

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Table 24.
Hierarchical Regression for Research Question 2: Predicting Satisfaction with Treatment Based on Implementation Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Treatment Group	.002	.002	.000		.000		(1, 44)
2	Group Size	.06	.06	.004	.16		.69	(2, 43)
3	Group Size X Treatment Group	-.08	.07	.005	.000		.04	(3, 42)
2	Sessions	.28	.28	.08	.08		3.53	(2, 43) ^a
3	Sessions X Treatment Group	.14	.28	.08	.002		.07	(3, 42)
2	Duration of Follow-up	.07	.06	.004	.004		.18	(2, 43)
3	Duration of Follow-up X Treatment Group	-1.41	.32	.10	.09		4.33	(3, 42) ^a

Note: *p < .05, **p < .01, ***p < .001

a. p = .07

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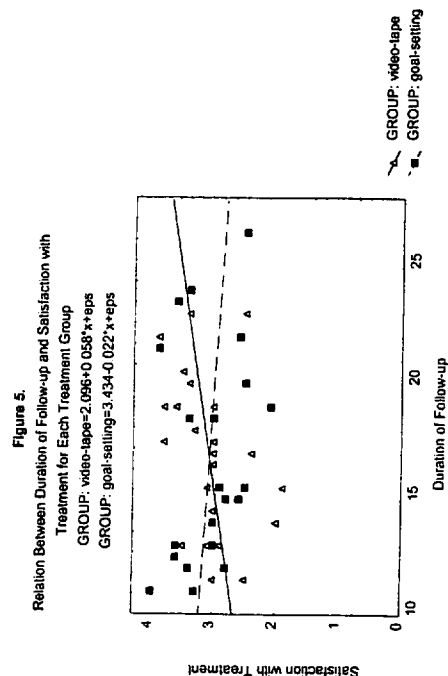
Table 25.

Hierarchical Regression for Research Question 2: Predicting Satisfaction with Treatment Based on Duration of Follow-up for Each Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Duration of Follow-up - Goal-Setting Group	-.20	.20	.04		.86		(1, 20)
1	Duration of Follow-up - Video-Tape Group	.38	.38	.14		3.72		(1, 22) ^a

Note: *p < .05, **p < .01, ***p < .001

a. p = .07



Hypothesis 3: Impact of Treatment Condition on Cardiac Patients' Psychological Status

Repeated measures analysis of variance (ANOVA) and of covariance (ANCOVA) were employed to assess whether self-efficacy and self-determination improved between pre-treatment and post-treatment, and whether treatment group interacted with changes over treatment period. In order to determine whether life satisfaction and/or conscientiousness should be used as covariates, they were correlated with self-efficacy and self-determination at post-treatment (Cohen & Cohen, 1983, see Table 26). The results showed that neither life satisfaction, nor conscientiousness were significantly correlated with either variable at post-treatment. However, the correlation between life satisfaction and self-determination was close to significant. In order to control for the possibility of an effect of life satisfaction on the change in self-determination over time, the covariate was not removed from the analysis. In addition, analyses including a theoretically relevant covariate (conscientiousness) were conducted, and their results are presented in Appendix A. Tests of the assumption of homogeneity of the regression slopes were applied.¹⁸

The results indicate no significant changes in self-determination over assessment period. The test of homogeneity of the regression slopes indicated that the assumption was not violated (Wilk's $\Lambda = .99$, $p = .89$). However, there was a main effect of self-efficacy over time (See Table 27). The self-efficacy mean scores at pre-treatment and post-treatment are shown in Table 28. Similar results were found when conscientiousness was a covariate (see Table A-24, Appendix A).

¹⁸ Wilk's Λ is used to determine whether there was an interaction between the covariate and the dependent variables (Stevens, 1986).

Table 26.

Two-Tailed Correlations Between Pre-Treatment Variables That Showed Significant Group Differences (Life Satisfaction and Conscientiousness) and the Dependent Variables (Self-Efficacy and Self-Determination at Post-Treatment) Assessed in Hypothesis 3

Variable	Self-Efficacy at Post-Treatment	Self-Determination at Post-Treatment
Life Satisfaction ^a	.09	-.27 ^a
Conscientiousness	.10	.06

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. $p = .07$.

b. The correlation between life satisfaction and conscientiousness is .36, $p = .013$

Table 27.

Repeated Measures Analysis of Variance and of Covariance to Assess Differences Between Pre-Treatment and Post-Treatment in Self-Efficacy and Self-Determination, and the Effect of Treatment Group on Those Differences

Variable	F	df	p
Self-Efficacy	4.25	(1, 44)	.02*
Treatment Group	.90	(1, 44)	.58
Self-Efficacy X Treatment Group	.26	(1, 44)	.53
Self-Determination ^a	3.49	(1, 44)	.07
Treatment Group	2.26	(1, 43)	.14
Self-Determination X Treatment Group	3.47	(1, 44)	.07

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. The assumption of homogeneity of the regression slopes was confirmed (Wilk's $\Lambda = .99$, $p = .89$).

Table 28.

Mean Self-Efficacy Scores at Pre-Treatment and Post-Treatment for the Goal-Setting and Video-Tape Treatment Groups

Treatment Group	Pre-Treatment	Post-Treatment
Goal-Setting	5.47	5.79
Video-Tape	5.56	6.10

Similarly, repeated measures multivariate analyses of variance (MANOVA) and of covariance (MANCOVA) were conducted to assess the changes over three assessment periods (pre-treatment, post-treatment, follow-up) in commitment to work, depression and anxiety. In addition, the interaction of treatment group with the change over assessment periods was assessed. As with the previous analysis, the correlations between the covariates and the dependent variables were assessed to determine whether they could affect the changes in the dependent variable (Table 29). The results indicated that both conscientiousness and life satisfaction were significantly or close-to-significantly correlated with depression and anxiety. Both variables were included as covariates.

The results indicated that there was a significant main effect of assessment period over the change in depression scores (see Table 30). Results from the test of parallelism indicated that the assumption was not violated (Wilk's $\Lambda(6, 64) = .94, p = .91$). Unweighted mean depression scores showed a slight increase between pre-treatment and post-treatment, but decreased by follow-up (see Table 31). Tukey HSD post hoc comparisons indicated that there were significant differences between means at pre-treatment and follow-up ($p = .0003$), and between post-treatment and follow-up ($p = .0002$).

Table 29.

Two-Tailed Correlations Between Pre-Treatment Variables That Showed Significant Group Differences (Life Satisfaction and Conscientiousness) and the Dependent Variables (Commitment to Work, Depression and Anxiety).

Variable	Commitment to Work	Depression	Anxiety
Life Satisfaction ^b	-.01	-.36*	-.39**
Conscientiousness	.12	-.25	-.30*

Note: *p < .05, **p < .01, ***p < .001

Table 30.

Repeated Measures Analysis of Variance and of Covariance to Assess Differences Between Pre-Treatment, Post-Treatment and Follow-up in Commitment to Work, Depression and Anxiety, and the Effect of Treatment Group on Those Differences

Variable	Wilk's Λ	F	df	p
Treatment Group		.05	(1, 44)	.83
Commitment to Work	.98		(2, 43)	.66
Commitment to Work X Treatment Group	.94		(2, 43)	.28
Treatment Group		.73	(1, 36)	.40
Depression	.71		(2, 37)	.002
Depression X Treatment Group	1.00		(2, 37)	.96
Treatment Group		.01	(1, 36)	.90
Anxiety	.99		(2, 37)	.86
Anxiety X Treatment Group	.92		(3, 37)	.23

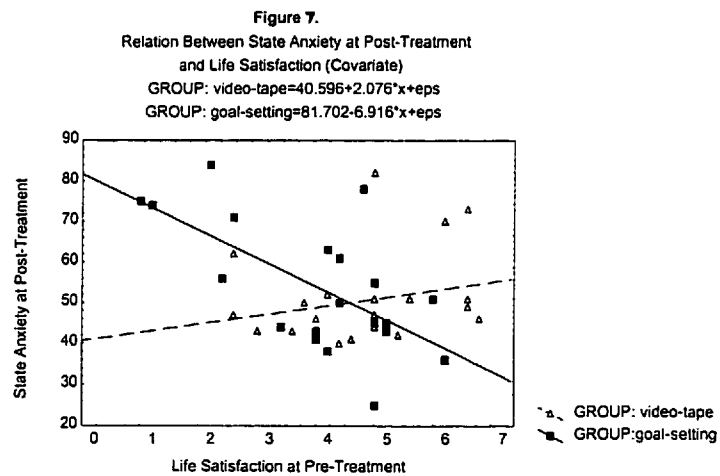
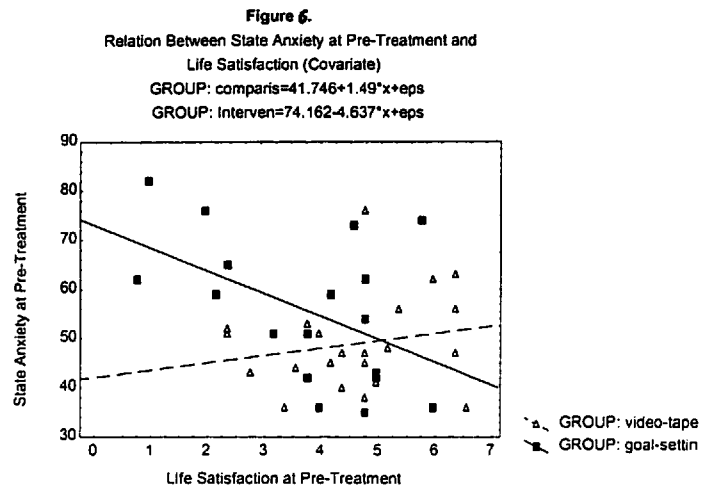
Note: *p < .05, **p < .01, ***p < .001

Table 31.

Mean Depression Scores at Pre-Treatment, Post-Treatment and Follow-up for the Goal-Setting and Video-Tape Treatment Groups

Treatment Group	Pre-Treatment	Post-Treatment	Follow-Up
Goal-Setting	46.83	47.17	40.00
Video-Tape	45.59	45.50	37.86

Other results indicated neither main nor interaction effects in state anxiety. However, the assumption of homogeneity of the regression slopes was violated (Wilk's $\Lambda(3, 34) = .61, p = .01$). Additional repeated measures ANCOVA's were conducted in order to assess whether one or both covariates interacted with anxiety, and at what assessment period (s). When life satisfaction was the only covariate, it interacted significantly with treatment group (Wilk's $\Lambda(3, 34) = .76, p = .02$). However, when conscientiousness was the only covariate, it did not significantly interact with treatment group (Wilk's $\Lambda(3, 34) = .83, p = .09$). Univariate tests of parallelism indicated that life satisfaction interacted significantly with treatment group at pre-treatment to affect anxiety ($F(1, 36) = 5.28, p = .03$), and at post-treatment ($F(1, 36) = 10.16, p = .003$), but not at follow-up ($F(1, 36) = 1.07, p = .31$). Figures 6 and 7 show the relation between life satisfaction at pre-treatment and anxiety at pre-treatment and at post-treatment.



Discussion

In principle, the interpretation of experimental results is based a number of basic assumptions. For example, in general, we assume that there is adequate experimental control, that there is adequate power, that the hypotheses are based on sound theory, and that statistical analyses produce valid and replicable effects. Clinical trial research also often has the added goal of making an intervention applicable and replicable in a clinical setting, with a population that has an apparent, and often complex (psychological) need, at a minimum cost (Kiess & Bloomquist, 1985).

Many textbooks and articles explain the methods with which one should conduct experimental or clinical research to fulfill as many of these assumptions as possible (Brown & Melamed, 1990; Kirk, 1995). However, in reality, very few clinical trial studies have succeeded in fulfilling all these assumptions (Moorey & Greer, 1989). The reasons are both practical and methodological. Some of these include: the difficulty in defining and obtaining a representative clinical population, the ethical requirements for recruiting human subjects, the time and financial constraints, uncontrolled clinical environments, and the ethical responsibility to provide assistance to all individuals who might need it (Kiess & Bloomquist, 1985). The present research study is no exception.

Therefore, in order to interpret the results of this study in the context of its strengths and limitations, these aspects are discussed first. The interpretations and implications follow.

Strengths and Limitations

The present study assessed the effects of two interventions designed to assist cardiac patients to return to work. It was based on a comparative design for both ethical and methodological reasons. In consequence, the hypotheses were to detect differences in outcomes between the two interventions, rather than to assess whether goal-setting was more effective than no treatment at all. Therefore, while goal-setting was compared to an intervention that did not contain the key components theorized to affect

RTW (based on the theoretical model), it is uncertain whether the comparison intervention (watching and discussing video-tapes) did not contain important therapeutic components that were not identified in the theory. Nevertheless, as Basham (1986) argued, a comparative design increases the likelihood that significant findings will reflect true effects. In addition, it precludes the complexity of defining and assessing the effects of placebo or no-treatment control conditions (see section describing the experimental design).

A study must have a large enough sample size to obtain a more precise estimate of experimental error, thus permitting a more precise estimate of treatment effects (Kirk, 1995). In this study, the *a priori* power analysis of sample sizes indicated that 50 subjects per group were needed in regression analyses with two predictor variables to attain a medium effect size ($f = 0.15$) and power of .80 (Cohen, 1977). In actuality, we obtained 22 subjects in the goal-setting group, and 24 subjects in the video-tape group, and assessed the effects of several predictor variables. A *post hoc* power analysis of regression analysis with 46 subjects, an effect size of .33 (Basham, 1986), and an α of .05 indicated that the power was .54 (Cohen, 1977). That is, the odds were only a little over 50-50 that the statistical analyses produced significant effects and that the null hypothesis was actually rejected (Cohen, 1977). In the present study, 86 analyses were conducted to test the hypotheses and research questions. Among these analyses, only nine (10.5%) produced significant results. Therefore, it is possible that all of the significant results obtained in this study were due to chance.

The importance of successful randomization of subjects to experimental groups in ensuring the validity of an experimental design cannot be over emphasized (Brown & Melamed, 1990). In this study, however, randomization did not produce completely equivalent groups. First, there were differences between treatment groups in life satisfaction and conscientiousness at pre-treatment. In addition, there were differences between group counsellors in the number of sessions attended by subjects. These

group differences led to the inclusion of covariates in many of the statistical analyses. Including the covariates in equations reduced the degrees of freedom, and sometimes introduced complexities such as violations of the assumption of homogeneity of variance. However, according to Tabachnik & Fidell (1986), one can include up to one variable for every 10 subjects in a regression analysis or an ANOVA without losing too many degrees of freedom. In most statistical analyses, the ratio was higher than 1 to 10, and the lowest ratio was 1 to 9.

The interventions were offered in group format to provide subjects with group support, save therapist time, and facilitate data collection. However, as can be seen in Table A-9 (Appendix A), approximately 24% of all subjects attended individual sessions either because other group members did not complete the study, or because there were not enough subjects recruited to produce a group. In addition, another 41% of subjects attended groups with only two members. Even though groups of two members are different from individuals, they generally do not undergo the processes that are observed in bigger groups (Rose, 1989). Nevertheless, the non-individual mode of treatment created a nuisance variable [i.e., "group" being made up of 16 groups (and 11 individuals) nested within the two treatment conditions]. Two strategies that have been suggested to deal with this nuisance variable involve treating all units as groups while disregarding the individual level of analysis, or a hierarchical design, where group variability is nested within the two treatment conditions (Brown & Melamed, 1990). Both of these strategies would have had the advantage of controlling for group as a nuisance variable. However, they would have disregarded that 11 individuals who did not undergo treatment in a group setting. In addition, focusing on group as the unit of analysis, or including it as a nuisance variable nested within the two treatment conditions, would have reduced the degrees of freedom to the extent that there would have remained very little power. Therefore, the analyses were conducted with the individual as the only unit of analysis. Nevertheless, the risk of using this strategy was that it assumed that the nuisance variable

had no impact. In consequence, the results were liberally biased (Kirk, 1995).

Finally, study samples in clinical trial studies must represent the population of patients for whom the experimental intervention is designed. First, in the present study, the sample of cardiac patients was not uniformly at high risk of not returning to work because difficulties in subject recruitment made it impossible to obtain the desired sample size. Second, patients who are referred to the University of Ottawa Heart Institute tend to have more medical complications than the general population of cardiac patients (Copper, 1997), and may show psychosocial profiles that differ from those of the general cardiac patient population. Therefore, the results may not have been generalizable to high-risk patients coming from a general population of cardiac patients.

As a result of the limitations of this study, the statistical analyses were exploratory and the interpretations are speculative. The following sections describe only possible theoretical explanations for the results. Each hypothesis and research question is addressed individually, and in the order in which they were presented in the "Substantive Results" section.

Hypothesis 1: Impact of the Goal-Setting Treatment on RTW and on Percentage of Eligible Weeks

Worked at Follow-up

The results provided no support for the hypothesis that there were significant treatment group differences in rates of RTW and in percentage of eligible weeks worked at follow-up. In this regard, it seems appropriate to consider the two treatments as about equally effective or ineffective in motivating cardiac patients to return to work.

There are several possible reasons why the goal-setting intervention was not more effective than the intervention based on the viewing of video-tapes and discussion. The video-tape intervention was an active comparison group with the potential to be an effective intervention in its own right. Thus, as an active comparison intervention, the video-tape intervention was more difficult to improve upon than

would have been a passive or wait-list control group.

Secondly, some components of the video-tape intervention may have had a motivating effect on subjects. Even though none of the video-tapes addressed goal-setting, problem-solving, or motivation to return to work per se, issues that were addressed (i.e. humour and work, stress, and dealing with difficult people) may have assisted subjects in dealing with issues that could have contributed to RTW when they were addressed in a RTW-oriented discussion group. Interestingly, while the issues addressed in the video-tapes are recognized to make an important contribution to job turnover, absenteeism, mental health, and job satisfaction, in a non-medical population (Karasek & Theorell, 1990), no study that we are aware of has assessed their contribution to RTW among cardiac patients.

In addition, group discussion may have also functioned as an active treatment in itself. Research on the outcomes of unstructured discussion groups has shown that they can provide the opportunity for self-disclosure, developing trusting relationships, and identification with other individuals with similar experiences. These outcomes have been shown to enhance psychological adjustment among a number of social groups, such as medical patients, individuals with addictions, and parents of disabled children (Cragan & Wright, 1986). In addition, the social support that patients could have experienced in the video-tape group could have affected the psychosocial processes aimed at by the goal-setting treatment. That is, the video-tape treatment could have enhanced patients' self-efficacy and motivation to return to work by allowing patients to receive the appropriate type of support from other cardiac patients (Ben-Sira & Eliezer, 1990), obtain important normative information (Ajzen & Fishbein, 1980), and receive efficacy-related feedback (Bandura, 1986; Locke & Latham, 1990). Finally, subjects' expectations and interest in benefiting from the intervention, especially in the presence of other cardiac patients, as well as their awareness of participating in an experiment (Hawthorne effect), may have effected the outcomes of the intervention (Christensen, 1985).

Thirdly, research increasingly shows that the characteristics of interventions interact with subject characteristics and process variables to effect outcomes (Amabile, Hill, Hennessey, and Tighe, 1994; Deci & Ryan, 1985b; Freedman & Phillips, 1989; Griffith, 1994). As the significant results in this study suggest, it may have been more realistic to establish hypotheses about which treatment was most beneficial for which subjects, than to compare treatment groups alone. Or, it may have been more realistic to recruit only those subjects who were at high risk of not returning to work. However, the limitations in the recruitment procedure made it impossible to recruit a large enough sample size of high risk patients.

Only 10 subjects in the present study were at high risk of not returning to work, and only 10 subjects did not return to work by follow-up. This constitutes 21.7%, a percentage that is consistent with the percentage of cardiac patients in the general population who do not return to work (Heart and Stroke Foundation of Canada, 1991). In addition, there was no significant difference between the rate of RTW of patients who participated in the study, and of the 42 subjects who did not participate. These similarities suggest that the sample used in this study can be similar to the general population of cardiac patients. These findings also suggest that both interventions were ineffective in increasing rates of RTW among cardiac patients. However, as with the general population of cardiac patients, only a small percentage were at high risk of not returning to work. The small number of subjects at risk of not returning made it very difficult to assess whether goal-setting was superior to viewing video-tapes and discussion for the high-risk population for which the intervention was originally designed.

Similarly, as with the general population of cardiac patients, a majority of subjects were moderately to highly adjusted to work. Data obtained from the VPF indicate that the mean occupational status score and salary levels correspond to those of individuals occupying clerical and supervisory positions. A majority of subjects worked full-time, were married or co-habiting, were employed by the

Federal or Provincial government, and had been employed for a mean of 11.6 years prior to their first cardiac event. These subjects also reported an above-average certainty that their family income would be sufficient if they did not return to work, and above-average ratings of perception of physical and mental health, and above-average ratings of confidence in being able to return to work. Scores on the psychological adjustment variables indicated that, on the average, subjects reported moderate to high levels of self-efficacy, conscientiousness, and life satisfaction. They also reported low to average levels of depression and anxiety. It is possible that, as with the general population of cardiac patients, many subjects would have returned to work and to an adjusted lifestyle without undergoing any intervention. It is also possible that there was a ceiling effect in the scores on the measures of psychological adjustment, and that any changes would have been difficult to observe.

Another characteristic which could have interacted with subject characteristics in affecting RTW is the timing at which the interventions were implemented. A majority of subjects entered the study two weeks following hospital discharge, and began treatment approximately two weeks later. With the exception of a small number of subjects who returned to work during their recovery, a majority of subjects were advised not to return to work until six months following discharge. Further, subjects who entered the cardiac rehabilitation program were occupied several days a week for a period of six months. In spite of the recent finding that a majority of cardiac patients are functionally capable of returning to work earlier than six months (Gattiker & Dennis, 1992), and the finding that a failure to return to work after six months of unemployment can lead to failure to return, patients were informed that they were not "ready" to return. Thus, it is possible that the goal of the experimental condition to encourage patients to return to work were counteracted by their physicians, who discouraged patients to return to work at the time of the intervention.

In addition, at the time that treatment was implemented, it was too early for many patients to

return to work. A large majority of patients were just entering their recovery period, and reported just beginning to engage in basic activities such as walking and driving. Thus, even though the original purpose of the study was to provide treatment as early as possible to prevent patients from not returning to work, perhaps it could have been more beneficial had it been implemented at a time when subjects were more ready to consider RTW in the near future.

Research Question 1: Impact of Interaction Between Subject and Implementation Characteristics and Treatment Condition, on Cardiac Patients' RTW and Percentage of Eligible Weeks Worked at Follow-up

Subject Characteristics

Consistent with the predictive literature, risk of not returning to work was a significant predictor of RTW and of percentage of eligible weeks worked by follow-up. The risk score measured confidence in obtaining the physician's and employer's permission to return to work, confidence in returning to one's old job with one's old employer, intention to return to work, occupational status, gender, and number of months since the last cardiac event (Flynn et al., 1996). These results support the use of the Vocational Prognosis Form (Flynn et al., 1989) to predict RTW and the percentage of eligible weeks worked at follow-up in cardiac patients. They also support the predictive literature that identified the above variables as good predictors of RTW (Boulay et al., 1983; Bryant & Mayou, 1988; Chirikos & Nickel, 1984; Conroy et al., 1986; Davidson et al., 1979; Engblom et al., 1994; Ericksson, 1988; Fitzgerald et al., 1989; Gehring et al., 1988; Gohlke et al., 1992; Jenkins et al., 1983; Mark et al., 1992; Misra et al., 1985; Myrtek, 1987; Pilote et al., 1992; Schiller & Baker, 1976; Schuster et al., 1995; Shapiro et al., 1972; Sieber et al., 1986; Stanton et al., 1983)¹⁹. These findings also showed that specific demographic (occupational status, number of months since the last cardiac event), social-environmental (perception of physician's and employer's advice), and psychological factors (confidence in returning to

¹⁹ Given that the study included only four females, gender did not contribute significantly to the predictive effect of risk score in this study.

one's old job with one's old employer, and intention to return to work) can have an impact on RTW above and beyond the effect of an intervention designed to increase motivation to resume employment. These results suggest that to increase rates of RTW, such factors should be addressed more directly than through an intervention designed to modify patients' motivation alone.

Implementation Characteristics

Number of sessions was positively associated with percentage of eligible weeks worked at follow-up for subjects who participated in the video-tape treatment, but there was no relation with percentage of eligible weeks worked among subjects who participated in the goal-setting treatment. Subjects who attended more sessions in the discussion group may have been had more exposure to the counsellor and to the group, and consequently, more opportunities to engage in discussions related to their recovery and RTW.

On the contrary, subjects who attended more sessions of goal-setting did not benefit more from treatment than subjects who attended fewer sessions. One explanation for these results is that the goal-setting task was simple and relatively easy to learn. Once patients attended one goal-setting session, they had already attained the weekly goal-setting task and received the written information needed to continue setting goals without assistance. Given that the goal-setting condition was more task-oriented and less support-oriented than the video-tape condition, members of the goal-setting groups may not have gained more by attending more sessions and by being more exposed to the counsellor and the group. In their analysis of the effectiveness of goal-setting, Locke & Latham (1990) showed that treatment effectiveness depended more on task requirement than on time span, time interval or format. Accordingly, the goal-setting treatment may have been equally effective had it been designed to last for fewer than four sessions.

Another explanation for the session-by-treatment interaction has to do with the timing of the

intervention. As had been explained in the discussion of Hypothesis 1, a majority of subjects were at an early stage of recovery from CABG. Their physical condition, advice from their physicians not to return to work for six months after CABG, as well as their involvement in a cardiac rehabilitation program, may have made it difficult for subjects to consider returning to work as soon as possible. In consequence, goal-setting may have been more appropriate at a later recovery stage, perhaps when patients experienced fewer physical limitations (i.e., when they could begin driving), and felt more ready to return to work. On the other hand, discussions with other patients undergoing similar experiences may have been appropriate at that recovery stage (Ajzen & Fishbein, 1980; Ben-Sira & Eliezer, 1990), and may have been instrumental in increasing control and predictability over RTW (Krantz, 1980; Seligman, 1975), developing constructive coping abilities (de Shazer, 1985; O'Hanlon & Weiner-Davis, 1989) and increasing self-efficacy (Bandura, 1986).

Hypothesis 2: Impact of Goal-Setting and Video-Tape Treatments on Life Satisfaction, Job Satisfaction and Satisfaction with Treatment

Life satisfaction, job satisfaction and satisfaction with treatment were considered to be important outcomes of treatment because of their contribution to quality of life. Because the goal of the interventions was to increase rates of RTW, their effect on RTW would not have had the same value had it been detrimental to cardiac patients' quality of life. However, neither RTW, nor percentage of eligible weeks worked, correlated significantly with life satisfaction or job satisfaction. It can be reasonably said that, in the present study, the measures of quality of life produced scores that were independent of RTW.

The hypotheses that there were treatment differences in life satisfaction, job satisfaction (for patients who returned to work), and satisfaction with treatment at post-treatment were not confirmed. As with the primary treatment outcomes (RTW and percentage of eligible weeks worked), the two treatments can be said to be equally effective or ineffective in increasing quality of life. However, there was a significant treatment group interaction with life satisfaction at pre-treatment to affect life

satisfaction at follow-up. Although there was an increase in life satisfaction in both treatment groups, the increase was significantly higher in the goal-setting group than in the video-tape group.

There are several possible explanations for this interaction. First, subjects in the video-tape group already reported higher levels of life satisfaction at pre-treatment, compared to subjects in the goal-setting group. Therefore, their level of satisfaction may have been more difficult to improve upon than the lower level of life satisfaction reported by subjects in the goal-setting group. There could also have been a ceiling effect in life satisfaction scores, making it difficult to detect any change in life satisfaction when the pre-treatment scores are already high. Secondly, it is possible that the goal-setting treatment was more successful in assisting subjects in improving their life satisfaction than the video-tape treatment. In this study, the life satisfaction measure assessed subjects' global evaluation of their quality of life based on their own, internal values and criteria (Diener et al., 1985). According to Diener et al. (1985), life satisfaction depends upon the degree to which individuals perceive themselves to achieve the standards and goals that they set for themselves. In this study, the goal-setting treatment aimed to increase motivation by assisting subjects in setting specific, challenging and self-relevant goals. If subjects succeeded in attaining goals that were self-relevant, their goal-setting may have lead to greater life satisfaction, but not necessarily to stronger motivation to return to work if RTW was not a self-relevant goal.

Research Question 2: Impact of Interaction Between Subject and Implementation Characteristics and Treatment Condition, on Cardiac Patients' Job Satisfaction and Satisfaction with Treatment

Subject Characteristics

Self-determination significantly predicted cardiac patients' satisfaction with treatment.

According to Deci & Ryan (1985a), individuals who are self-determined about a behaviour feel like they have the choice to engage in that behaviour. If self-determined subjects felt that they had a choice to participate in treatment, and they participated, then it is likely that the treatment fulfilled their intrinsic

needs (i.e., to do things that are personally satisfying, enjoyable and creative) and extrinsic needs (i.e., to do things that lead to a desired external outcome) (Deci & Ryan, 1985a). If satisfaction is defined as the degree to which individuals perceive themselves to achieve the standards and goals that they set for themselves (Diener et al., 1985), it is not an unexpected finding that subjects who felt that they had the choice to participate in treatment and who participated in treatment, were satisfied with it at post-treatment. This finding validates the concept of Self-Determination as it is defined, as well as the modified version of the CMOTS Self-Determination Scale (Pelletier et al., 1997) that was used to assess it. It also suggests that the treatments addressed the issues that were of concern to cardiac patients who wanted assistance in returning to work, validating the content of both treatments.

Implementation Characteristics

Duration of follow-up significantly interacted with treatment to affect treatment satisfaction. The results indicate that duration of follow-up was positively correlated with satisfaction with treatment for the video-tape group, but negatively correlated with satisfaction with treatment for the goal-setting group. However, when each group was assessed individually, none of the effects were significant.

One plausible explanation for the significant interaction is that some outliers in the data biased the results. With small sample sizes, it is common for a significant interaction effect to reveal itself to be nonsignificant when each group is assessed individually (Glass & Hopkins, 1996). Therefore, these results are not likely to be replicable.

Hypotheses 3: Impact of the Goal-Setting or Video-Tape Interventions on Changes in Psychological Processes

Self-Efficacy

Subjects in both treatment groups experienced significant improvements in self-efficacy between pre-treatment and post-treatment, with no significant main effect for treatment condition. These results

may indicate that both treatments were equally effective in enhancing confidence in returning to work. Based on the theoretical model presented in this thesis, cardiac patients can modify their RTW-related expectations, their health-related appraisals, and their ability to cope with environmental constraints by setting specific, challenging, and self-relevant goals and learning specific coping strategies in a supportive and competence-enhancing environment (Deci & Ryan, 1985a, de Shazer, 1985; O'Hanlon & Weiner-Davis, 1989), all of which are believed to improve self-efficacy (Bandura, 1986). In addition, however, it is possible that group discussion of self-relevant issues alone may have a similar impact on self-efficacy, especially at the early recovery stage from CABG (Ajzen & Fishbein, 1980; Ben-Sira & Eliezer, 1990). The absence of a no-treatment control group made it impossible to assess changes related to specific treatments.

Another explanation is that the positive physical outcomes of CABG may have lead to subjects' more positive perceptions of their ability to return to work. A majority of patients who undergo CABG experience an improvement in functional capacity (Gattiker & Dennis, 1992). Functional capacity is the only medical factor that has been positively associated with RTW (Mark et al., 1992) and with adjustment to work (Cazabon, 1991; Young et al., 1992). Other studies show that positive health-related appraisals can enhance RTW, as much as negative health-related appraisals can discourage it (Mark et al., 1992; Reigel, 1993; Smith & O'Rourke, 1988). Given that the majority of the cardiac patients who participated in this study were relatively adjusted, it is possible that recovery from CABG had a positive impact on their health-related appraisals and on their perceived (and actual) capacity to return to work.

Depression

Depressive symptomatology was also found to significantly improve over assessment periods in both treatment groups. The most significant improvement occurred at follow-up, with no significant main effect of treatment group. As with the changes observed in self-efficacy, the absence of a no-

treatment control group precludes the interpretation of changes associated with treatment.

There are several plausible explanations for this finding. First, in general, depression level is typically high immediately following cardiac treatment, followed by a reduction during the first post-hospital months (Littman, 1993). Thus, it is possible that the pattern of depression observed in this population reflects its "natural" evolution during recovery from CABG, and may have occurred whether or not patients underwent treatment to return to work. In other words, it is possible that treatment had no significant effect on patients' depression levels.

Second, a majority of subjects reported low to moderate levels of depression at pre-treatment. Given that most subjects were already well-adjusted, it is possible that the observed reduction in depression was due to adaptive coping strategies that patients already used to deal with their cardiac disability. Thus, the difficulties in coping with recovery that have been observed in patients who did not return to work in previous studies (Ben-Sira & Eliezer, 1990) may not have occurred at a high frequency among the patients who participated in this study. Whether or not treatment assisted patients in using adaptive coping strategies cannot be determined because of the absence of a no-treatment control group.

However, given that depressive symptomatology improved significantly in both treatment groups, it is possible that the two treatments were equally effective in facilitating patients' adaptation to recovery from CABG and to their imminent RTW. According to the studies that found associations between depression and RTW, depression tends to occur in cardiac patients who return to jobs that they are not satisfied with (Cay & Walker, 1988; Mayou & Bryant, 1987; Stanton et al., 1983), and when patients have negative work-related expectations (Gareth, 1973; Zyzanski et al., 1982). Even though there was not effect of treatment condition on job satisfaction, virtually all patients who returned to work reported moderate to high levels of job satisfaction. As such, both treatments could have contributed to the observed increase in self-efficacy. In addition, both treatments contained active ingredients for

improving depression during recovery, such as promoting positive health-related appraisals, dealing with obstacles, and enhancing support (Mark et al., 1992; Reigel, 1993; Smith & O'Rourke, 1988).

Anxiety

Finally, even though anxiety did not appear to change over assessment period, it significantly interacted with life satisfaction at pre-treatment and post-treatment. The results indicate that when anxiety levels were higher for goal-setters at pre-treatment or post-treatment, life satisfaction was lower. In contrast, no such relation was observed in the video-tape group. Therefore, it can be assumed that a reduction in anxiety over assessment period would be accompanied by the opposite trend in life satisfaction at pre-treatment, but only for subjects in the goal-setting group.

If life satisfaction is defined as the degree to which individuals perceive themselves to achieve the standards and goals that they set for themselves (Diener et al., 1985), and state anxiety is defined as a state in which an individual perceives a self-relevant task or situation as challenging, threatening or harmful (Lazarus & Launier; Bandura, 1977), these definitions confirm the negative correlation between life satisfaction and state anxiety. Given that this negative correlation was found predominantly in the goal-setting group, it is possible that goal-setters were more anxious about issues that were personally relevant to them than subjects in the video-tape group at pre-treatment. However, at follow-up, when life satisfaction increased among the goal-setters and anxiety levels did not, there was no longer any interaction between life satisfaction and state anxiety.

Summary and Conclusion

In conclusion, a number of limitations made the analyses exploratory and the results tentative. The significant results, however, led to speculations that are supported by the literature and the psychosocial model presented in this thesis. For example, the significant relations between risk score and the two measures of RTW support the extensive literature on the multiple predictors of RTW among

cardiac patients. Similarly, the rates of RTW and the changes in depression scores over time that were observed in this study are consistent with those found in the literature. These consistencies suggest that, had the sample size been larger, perhaps similar results would have emerged.

Even though there are many explanations for the lack of significant treatment group differences in the outcomes, the similar percentage rates of RTW between the study sample and the general cardiac population, and between the study sample and a sample of subjects who did not participate in the study, suggest that neither intervention was successful in improving RTW rates. However, this conclusion should be taken with caution. The 42 subjects who did not participate in the study were not randomly assigned to a no-treatment control group and could have been self-selected based on a lower risk of not returning to work. If this sample was indeed at lower risk of not returning to work, similar RTW rates would have indicated that both of the interventions were successful, and not the contrary.

The experience of conducting this controlled clinical trial was a learning experience. As a result, many decisions would have been made differently had their outcomes been known before beginning the study. One of these decisions regards the recruitment of subjects from a general inpatient population, rather than from a structured, rehabilitation program. Patients who were recruited while still in hospital were difficult to persuade to return to the University of Ottawa Heart Institute after they had been discharged. In a rehabilitation program, the clinical trial would have been scheduled together with other activities, saving both patients' time and providing greater structure to the study. In addition, such a captive population would have been easier to contact and to follow up. Secondly, patients in a rehabilitation program have been known to experience greater difficulties adapting to their cardiac illness (Oldridge et al., 1990), and may have been at greater risk of not returning to work. Thus, these patients would have been more suitable for an intervention. This suggests that, in future research, the availability of the population should be evaluated prior to beginning an intervention study.

Another decision was to ask patients to participate in the study just a few weeks following CABG. This decision was based on the findings that the longer patients remained out of work, the lower the chances of RTW (Boulay et al., 1983; Eriksson, 1988; Flynn et al., 1989; Gehring et al., 1988; Gohlke et al., 1992; Jenkins et al., 1983; Misra et al., 1985; Schiller & Baker, 1976). However, while six months was identified as that the maximum duration of unemployment before patients showed decreased RTW rates, very few studies addressed the minimum duration of recovery required before patients are physically and psychologically ready to return to work. Only one study (Gattiker & Dennis, 1992) claimed that a majority of cardiac patients with few or no signs of cardiac complications could return to work within 30 to 40 days of treatment. However, little is known about when patients with greater complications are physically capable of returning to work, and how all patients can be prepared to deal with a RTW. Future research to assess patients' capacity to return to work at different periods may be needed before a clinical trial can effectively assist patients to return to work and avoid disability.

Readiness to return to work can be conceived in a number of ways. First, as with other medical populations, cardiac patients go through several stages of physical recovery from CABG before resuming normal activities (Bar-On & Dreman, 1987). Affective and cognitive changes can also occur during each period of recovery. For example, depression has been observed to increase immediately following treatment, to gradually decrease during the first post-hospital months (Littman, 1993). Cardiac patients may also re-evaluate their social and work roles, their personal values, and their habits during this period of time, and make significant changes in their lifestyles (Ben-Sira & Eliezer, 1990). Thus, the recovery period at which patients would have benefited most from a RTW intervention needed to be addressed before offering treatment. In future research, assessing cardiac patients' recovery needs could lead to more efficient and effective interventions to assist patients to return to work.

A second way to describe readiness or lack of readiness to return to work is in regard to patients

who do not return to work even after full recovery from CABG. In this perspective, readiness to work involves the personal decision to take action toward returning to work, and is not a stage of recovery that takes place over time. The model presented in this thesis may have been more appropriate for these patients at high risk of not returning to work. Thus, by including a small sample of patients whose relationship with RTW differed, the study was less able to determine whether the experimental intervention was effective for patients at highest risk of not returning to work. As with intervention studies with other medical populations (Andersen, 1990), future clinical trial research should account for differences between patients whose relationship with the outcomes (i.e., work) is different.

It is possible that the cardiac patients who participated in this study and who did not return to work were at a recovery stage that did not correspond with the interventions received. In addition, it is possible that a majority of cardiac patients who participated in the study would have returned to work without assistance because they were not experiencing enough problems with returning to work. Assessing patients' readiness to return to work would have been useful in identifying the needs of the population, and the appropriate intervention (or the decision not to intervene).

Finally, many cardiac patients who participated in this study were confronted with situations in their workplace that could not have been changed with goal-setting or social support alone. Some of these included downsizing, salary cuts, increased workloads, increased work stress, and the offer of pre-retirement pension plans. For some subjects, the decision not to return to their old job appeared to be the best course of action, regardless of motivation to work. In such circumstances, goal-setting appeared to be insufficient to assist patients in their occupational decisions. More in-depth vocational counselling for relocation, occupational change and pre-retirement would have been more appropriate. Because of the importance of such events on RTW, however, they should be assessed in future research before choosing the appropriate treatment to assist cardiac patients in returning to work.

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Appendix A

Table A-1.	Correlations and Significance Levels Between RTW, Percentage of Eligible Weeks Worked at Follow-up, and Follow-up Duration, For Subjects in Both Treatment Groups (N=46)
Table A-2.	Frequencies and Percentages of Subjects who Completed Follow-ups After Different Post-Follow-up Durations for the Goal-Setting Group, the Video-Tape Group, and the Total
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- Table A-16. Hierarchical Regression for Hypothesis 1: Predicting Percentage of Eligible Weeks Worked Based on Subject Characteristics and Treatment Group
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- Table A-19. Hierarchical Regression for Hypothesis 2 (Predicting Life Satisfaction and Job Satisfaction Based on Treatment Group and Two Covariates)
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- Table A-21. Hierarchical Regression for Hypothesis 2 and Research Question 2 (Predicting Satisfaction With Treatment Based on Subject Characteristics and Treatment Group)
- Table A-22. Hierarchical Regression for Research Question 2 (Predicting Job Satisfaction Based on Group Size and Treatment Group)
- Table A-23. Hierarchical Regression for Research Question 2 (Predicting Satisfaction with Treatment Based on Group Size and Treatment Group)
- Table A-24. Repeated Measures Analysis of Variance to Assess Differences Between Pre-Treatment and Post-Treatment in Self-Efficacy and Self-Determination, and the Effect of Treatment Group (With Conscientiousness as a Covariate) on Those Differences

Table A-1.

Correlations and Significance Levels Between RTW, Percentage of Eligible Weeks Worked at Follow-up, and Follow-up Duration, For Subjects in Both Treatment Groups (N=46)

	Duration of Follow-up	RTW	Percentage of Eligible Weeks Worked at Follow-up
Duration of Follow-up	1.0000 p= ---	.0302 p=.842	.1448 p=.337
RTW	.0302 p=.842	1.000 p= ---	.5845 p=.000
Percentage of Eligible Weeks Worked at Follow-up	.1448 p=.337	.58451 p=.000	1.000 p= ---

Note: Correlations are two-tailed.

Table A-2.

Frequencies and Percentages of Subjects who Completed Follow-ups After Different Post-Follow-up Durations for the Goal-Setting Group, the Video-Tape Group, and the Total

Number of Weeks Followed up	Goal-Setting Intervention		Video-Tape Intervention		Total	
	Frequencies	Percentages	Frequencies	Percentages	Frequencies	Percentages
11.0-15.5	13	59.1	10	41.7	23	50.0
16.0-20.0	4	18.2	10	41.7	14	30.4
20.5-26.5	5	22.7	4	16.6	9	19.6

Note: Differences between the mean post-follow-up durations for each type of intervention and for the combined interventions are shown in Table 8.

Table A-3.

Numbers and Percentages of Subjects in Each Treatment Group, and in Both Groups, Who Attended and Did Not Attend the HIPRC

Attendance at HIPRC	Goal-Setting Group	Video-Tape Group	Total
No			
N	12	9	21
Column %	50.00	40.91	
Row %	57.14	42.86	
Total %	26.09	19.57	45.65
Yes			
N	12	13	25
Column %	50.00	59.09	
Row %	48.00	52.00	
Total %	26.09	28.26	54.35
All Grps	24	22	46
Total %	52.17	47.83	100.00

Note: Pearson χ^2 : .38, df=1, p=.55

Table A-4.

Correlations Among the CMOTS Scales at Pre-Treatment and Post-Treatment, for the Original Sample and the Research Sample (in Parentheses)^a

Assessment Occasion	Intrinsic Motivation	Integrated Regulation	Identified Regulation	Introjected Regulation	External Regulation	Amotivation
Pre-Treatment						
Self-Determination						
Intrinsic Motivation	.79*** (.78)***	.69*** (.69)***	.70*** (.67)***	.49* (.44)*	-.28* (-.35)*	.19 (.19)
Integrated Regulation		.62*** (.63)***	.74*** (.70)***	.62*** (.60)***	.12 (.09)	.006 (.11)
Identified Regulation			.80*** (.81)***	.56*** (.52)***	.26 (.23)	-.13 (-.28)
Introjected Regulation				.72*** (.70)***	.31* (.30)*	-.11 (-.09)
External Regulation					.39** (.37)*	-.11 (.02)
						.29* (.02)
Post-Treatment						
Self-Determination						
Intrinsic Motivation	.84*** (.85)***	.77*** (.77)***	.70*** (.70)***	.44** (.44)**	-.39** (-.39)**	-.56*** (-.55)***
Integrated Regulation		.71*** (.71)***	.63*** (.63)***	.50*** (.51)***	-.03 (-.03)	-.20 (-.21)
Identified Regulation			.80*** (.80)***	.42** (.42)**	-.03 (-.03)	-.08 (-.08)
Introjected Regulation				.54*** (.54)***	.06 (.06)	-.06 (-.06)
External Regulation					.32* (.33)*	.02 (.03)
						.49*** (.49)***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. Correlations are two-tailed.

Table A-5.

Correlations Among the TIS Scales at Post-Treatment, for the Original Sample and the Research Sample (in Parentheses)^a

Assessment Occasion	Autonomy Supportive	Competence Feedback	Care	Control
Relative Autonomy Index	.87*** (.86)***	.78*** (.77)***	.28 (.28)	-.40** (-.40)**
Autonomy Supportive		.64*** (.63)***	.04 (.04)	-.12 (-.10)
Competence Feedback			.09 (.09)	.03 (.04)
Care				-.50*** (-.50)***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. Correlations are two-tailed.

Table A-6.

Correlations Among the SDS Scales at Pre-Treatment, Post-Treatment, and Follow-up, for the Original Sample and the Research Sample (in Parentheses)^a

Assessment Occasion	Affective	Psychological	Physiological	Psychomotor
Pre-Treatment				
Overall Score				
Affective	.66*** (.67)***	.90*** (.91)***	.83*** (.84)***	.31* (.32)*
Psychological		.65*** (.65)***	.44*** (.47)***	.19 (.27)*
Physiological			.63*** (.65)***	.12 (.18)
Psychomotor				.19 (.16)
Post-Treatment				
Overall Score				
Affective	.72*** (.73)***	.92*** (.92)***	.80*** (.79)***	.39** (.42)**
Psychological		.67*** (.67)***	.51*** (.51)***	.21 (.24)
Physiological			.60*** (.59)***	.23 (.28)*
Psychomotor				.21 (.23)
Follow-Up				
Overall Score				
Affective	.77***	.91***	.86***	.60***
Psychological		.63***	.60***	.46***
Physiological			.68***	.50***
Psychomotor				.35**

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. Correlations are two-tailed.

Table A-7.

Correlations Between Items Administered to the Goal-Setting and Video-Tape Groups At the End of Each Session, and their Sample Sizes^a

Items	Session 1	Session 2	Session 3	Session 4
1. Clarity of goals^b				
Session 1				
r	1.00	.64***	.51**	.51**
n	43	37	28	23
Session 2				
r		1.00	.62***	.51*
n		37	26	20
Session 3				
r			1.00	.23
n			28	20
8. Support^c				
Session 1				
r	1.00	.59***	.61**	.44
n	37	32	24	19
Session 2				
r		1.00	.57**	.77***
n		35	21	14
Session 3				
r			1.00	.92***
n			25	16

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

a. Correlations are two-tailed.

b. How clear were your goals during this session? (1=not at all, 7=quite a bit)

c. How much support did you get from the members of your Work Adjustment Group today? (1=not at all, 7=quite a bit)

Table A-8.

Correlations Among Questions Administered to the Goal-Setting Group At the End of Each Session^a

Items	Session 4	Session 1	Session 2	Session 3
1. Confidence^b				
Session 1				
r		1.00	.78***	.82***
n		22	20	15
Session 2				
r			1.00	.80***
n			20	14
Session 3				
r				1.00
n				15
Session 4				
r				.75**
n				13
2. Commitment^c				
Session 1				
r		1.00	.32	.54*
n		22	20	14
Session 2				
r			1.00	.51
n			20	13
Session 3				
r				1.00
n				14
Session 4				
r				.70*
n				11
3. Importance^d				
Session 1				
r		1.00	.64**	.48
n		22	20	15
Session 2				
r			1.00	.55*
n			20	14
Session 3				
r				1.00
n				15
Session 4				
r				.71**
n				13
4. Expectation to Gain^e				
Session 1				
r		1.00	.42	.43
n		22	20	15
Session 2				
r			1.00	.88***
n			20	14
Session 3				
r				1.00
n				15
Session 4				
r				.42
n				13

Note: *p < .05, **p < .01, ***p < .001

a. Correlations are two-tailed.

b. How confident are you that you will actually be able to achieve the personal goals that you set this week to be completed by next week? (1=not confident at all, 7=very confident)

c. How committed are you to achieving your personal goals you set this week for completion by next week? (1=not at all committed, 7=very committed)

d. How important is it to you to be able to achieve the personal goals you set this week for next week? (1=not at all important, 7=very important)

e. How much do you expect to gain by achieving your personal goals? (1=nothing to be gained, 7=quite a bit to be gained)

Table A-9.

Number of Groups, Frequencies^a and Percentages (In Parentheses) of Group Sizes for the Goal-Setting and Video-Taped Groups, and the Combined Groups

Group Size	Goal-Setting Group		Video-Tape Group		Total	
	Number of Groups	Frequencies (%)	Number of Groups	Frequencies (%)	Number of Groups	Frequencies (%)
1	7	7 (31.8)	4	4 (16.7)	11	11 (23.9)
2	5	10 (45.5)	5	9 (37.5)	10	19 (41.3)
3	2	5 (22.7)	3	7 (29.2)	5	12 (26.1)
4				4 (16.7)	1	4 (8.7)

a. Frequencies represent the number of subjects who attended groups of each size. Frequencies which are not divisible by the group size (i.e. 19 subjects could not have attended two-member groups) occurred as a result of subject drop-out.

Table A-10.

Frequencies and Percentages of Subjects who Attended Two, Three or Four Sessions of the Goal-Setting and Video-Tape Interventions, and the Total

Number of Sessions Attended	Goal-Setting Intervention		Video-Tape Intervention		Total	
	Frequencies	Percentages	Frequencies	Percentages	Frequencies	Percentages
2	8	36.4	7	29.2	15	32.6
3	4	18.2	5	20.8	9	19.6
4	10	45.5	12	50.0	22	47.8

Note: Subjects who were included in the study had to have attended a minimum of two sessions.

Table A-11.

Frequencies of Estimated Percent Chance of Returning to Work Among Subjects in the Goal-Setting Group, the Video Tape Group, and the Combined Groups

Value	Count	Cumul. Count	Percent	Cumul. Percent
Goal-Setting Group				
26.6700	1	1	4.545455	4.5455
29.9000	1	2	4.545455	9.0909
40.6500	1	3	4.545455	13.6364
43.1300	1	4	4.545455	18.1818
43.4300	1	5	4.545455	22.7273
55.7600	1	6	4.545455	27.2727
58.4900	1	7	4.545455	31.8182
60.0700	1	8	4.545455	36.3636
62.3600	1	9	4.545455	40.9091
63.2000	1	10	4.545455	45.4545
63.2100	1	11	4.545455	50.0000
63.5200	1	12	4.545455	54.5455
65.0600	1	13	4.545455	59.0909
66.3800	1	14	4.545455	63.6364
69.1000	1	15	4.545455	68.1818
73.1000	1	16	4.545455	72.7273
76.2700	1	17	4.545455	77.2727
77.2000	1	18	4.545455	81.8182
78.0200	1	19	4.545455	86.3636
79.9700	1	20	4.545455	90.9091
80.6300	1	21	4.545455	95.4545
83.7900	1	22	4.545455	100.0000
Video Tape Group				
40.6100	1	1	4.166667	4.1667
42.9700	1	2	4.166667	8.3333
46.1100	1	3	4.166667	12.5000
47.9200	1	4	4.166667	16.6667
59.1400	1	5	4.166667	20.8333
60.3600	1	6	4.166667	25.0000
63.3600	1	7	4.166667	29.1667
66.2400	1	8	4.166667	33.3333
66.5200	1	9	4.166667	37.5000
67.2100	1	10	4.166667	41.6667
70.1100	1	11	4.166667	45.8333
71.2900	1	12	4.166667	50.0000
71.7900	1	13	4.166667	54.1667

Table A-11 continues...

Table A-11 continued...

Frequencies of Estimated Percent Chance of Returning to Work Among Subjects in the Goal-Setting Group, the Video Tape Group, and the Combined Groups

Value	Count	Cumul. Count	Percent	Cumul. Percent
71.8500	1	14	4.166667	58.3333
73.2400	1	15	4.166667	62.5000
73.9900	1	16	4.166667	66.6667
75.0600	1	17	4.166667	70.8333
75.4000	1	18	4.166667	75.0000
77.3900	1	19	4.166667	79.1667
77.4000	1	20	4.166667	83.3333
78.2200	1	21	4.166667	87.5000
87.0100	1	22	4.166667	91.6667
88.1700	1	23	4.166667	95.8333
98.7400	1	24	4.166667	100.0000
Combined Groups				
26.6700	1	1	2.173913	2.1739
29.9000	1	2	2.173913	4.3478
40.6100	1	3	2.173913	6.5217
40.6500	1	4	2.173913	8.6957
42.9700	1	5	2.173913	10.8696
43.1300	1	6	2.173913	13.0435
43.4300	1	7	2.173913	15.2174
46.1100	1	8	2.173913	17.3913
47.9200	1	9	2.173913	19.5652
55.7600	1	10	2.173913	21.7391
58.4900	1	11	2.173913	23.9130
59.1400	1	12	2.173913	26.0870
60.0700	1	13	2.173913	28.2609
60.3600	1	14	2.173913	30.4348
62.3600	1	15	2.173913	32.6087
63.2000	1	16	2.173913	34.7826
63.2100	1	17	2.173913	36.9565
63.3600	1	18	2.173913	39.1304
63.5200	1	19	2.173913	41.3043
65.0600	1	20	2.173913	43.4783
66.2400	1	21	2.173913	45.6522
66.3800	1	22	2.173913	47.8261
66.5200	1	23	2.173913	50.0000
67.2100	1	24	2.173913	52.1739
69.1000	1	25	2.173913	54.3478
70.1100	1	26	2.173913	56.5217

Table A-11 continues...

Table A-11 continued...

71.2900 1 27 2.173913 58.6957

Frequencies of Estimated Percent Chance of Returning to Work Among Subjects in the Goal-Setting Group, the Video tape Group, and the Combined Groups

Value	Count	Cumul. Count	Percent	Cumul. Percent
71.7900	1	28	2.173913	60.8696
71.8500	1	29	2.173913	63.0435
73.1000	1	30	2.173913	65.2174
73.2400	1	31	2.173913	67.3913
73.9900	1	32	2.173913	69.5652
75.0600	1	33	2.173913	71.7391
75.4000	1	34	2.173913	73.9130
76.2700	1	35	2.173913	76.0870
77.2000	1	36	2.173913	78.2609
77.3900	1	37	2.173913	80.4348
77.4000	1	38	2.173913	82.6087
78.0200	1	39	2.173913	84.7826
78.2200	1	40	2.173913	86.9565
79.9700	1	41	2.173913	89.1304
80.6300	1	42	2.173913	91.3043
83.7900	1	43	2.173913	93.4783
87.0100	1	44	2.173913	95.6522
88.1700	1	45	2.173913	97.8261
98.7400	1	46	2.173913	100.0000

Table A-12. Correlations Among All Variables Included in the Substantive Analyses

(A legend is available at the end of the table)

Variable	GROUP	GRPSIZE	SESSIONS	LEADER	RISKSCOR	WEEKSVFF	RTW
GROUP	1.0000 N=46 p= ---	-.3049* N=46* p=.039*	-.0664 N=46 p=.661	.1177 N=46 p=.436	.2549 N=46 p=.087	-.0221 N=46 p=.884	-.2340 N=46 p=.118
GRPSIZE	-.3049* N=46* p=.039*	1.0000 N=46 p= ---	.1813 N=46 p=.228	-.3465* N=46* p=.018*	-.2124 N=46 p=.156	.0573 N=46 p=.705	.1146 N=46 p=.448
SESSIONS	-.0664 N=46 p=.661	.1813 N=46 p=.228	1.0000 N=46 p= ---	-.4928* N=46* p=.001*	-.0838 N=46 p=.580	.1168 N=46 p=.440	-.0881 N=46 p=.560
LEADER	.1177 N=46 p=.436	-.3465* N=46* p=.018*	-.4928* N=46* p=.001*	1.0000 N=46 p= ---	.0641 N=46 p=.672	.3513* N=46* p=.017*	.0204 N=46 p=.893
RISKSCOR	.2549 N=46 p=.087	-.2124 N=46 p=.156	-.0838 N=46 p=.580	.0641 N=46 p=.672	1.0000 N=46 p= ---	-.0301 N=46 p=.842	-.4524* N=46* p=.002*
WEEKSVFF	-.0221 N=46 p=.884	.0573 N=46 p=.705	.1168 N=46 p=.440	.3513* N=46* p=.017*	-.0301 N=46 p=.842	1.0000 N=46 p= ---	.0302 N=46 p=.842
RTW	-.2340 N=46 p=.118	.1146 N=46 p=.448	-.0881 N=46 p=.560	.0204 N=46 p=.893	-.4524* N=46* p=.002*	.0302 N=46 p=.842	1.0000 N=46 p= ---
SE_PRE	-.0326 N=46 p=.830	-.0076 N=46 p=.960	.1404 N=46 p=.352	-.0769 N=46 p=.612	-.2800 N=46 p=.059	.2029 N=46 p=.176	.1506 N=46 p=.318
SDET_PRE	-.0111 N=46 p=.941	.0385 N=46 p=.799	.1670 N=46 p=.267	-.1225 N=46 p=.417	-.1574 N=46 p=.296	.0326 N=46 p=.830	.1944 N=46 p=.196
SDET_POS	-.2369 N=46 p=.113	.2603 N=46 p=.081	.4587* N=46* p=.001*	-.2527 N=46 p=.090	-.1449 N=46 p=.337	.2512 N=46 p=.092	.1109 N=46 p=.463
LSS_PRE	-.2896 N=46 p=.051	-.0024 N=46 p=.987	-.0710 N=46 p=.639	.1514 N=46 p=.315	-.2154 N=46 p=.151	-.0781 N=46 p=.606	.1660 N=46 p=.270
LSS_POST	-.2978* N=46* p=.044*	.1181 N=46 p=.434	-.0548 N=46 p=.718	.0737 N=46 p=.627	-.1917 N=46 p=.202	-.0370 N=46 p=.807	.1343 N=46 p=.373
LSS_FOLL	-.1293 N=46 p=.392	.1932 N=46 p=.198	-.0326 N=46 p=.830	-.0584 N=46 p=.700	-.3335* N=46* p=.024*	-.1213 N=46 p=.422	.3453* N=46* p=.019*
ZUNG_PRE	.0565 N=40 p=.729	-.0555 N=40 p=.734	.0698 N=40 p=.669	-.1802 N=40 p=.266	.5767* N=40* p=.000*	-.1026 N=40 p=.529	-.2103 N=40 p=.193

Variable	GROUP	GRPSIZE	SESSIONS	LEADER	RISKSCOR	WEEKSVFF	RTW
ZUNG_POS	.0749 N=42 p=.637	.0070 N=42 p=.965	.0294 N=42 p=.853	-.1284 N=42 p=.418	.6047* N=42* p=.000*	.0071 N=42 p=.965	-.2060 N=42 p=.191
ZUNG_FOL	.1025 N=46 p=.498	-.1159 N=46 p=.443	.1322 N=46 p=.381	.0457 N=46 p=.763	.3037* N=46* p=.040*	.0523 N=46 p=.730	-.4870* N=46* p=.001*
STATE_PR	.2705 N=40 p=.091	.0068 N=40 p=.967	-.0874 N=40 p=.592	.1323 N=40 p=.416	.5306* N=40* p=.000*	-.0236 N=40 p=.885	-.2728 N=40 p=.089
STATE_PO	.1210 N=42 p=.445	-.0107 N=42 p=.946	.0129 N=42 p=.936	-.0960 N=42 p=.545	.5484* N=42* p=.000*	-.0432 N=42 p=.786	-.2226 N=42 p=.156
STATE_FO	.1492 N=46 p=.322	-.0998 N=46 p=.509	.1882 N=46 p=.210	-.0491 N=46 p=.746	.2878 N=46 p=.052	-.0259 N=46 p=.864	-.3919* N=46* p=.007*
CSQ_POS	.0015 N=46 p=.992	.0572 N=46 p=.706	.2747 N=46 p=.065	-.1843 N=46 p=.220	.1435 N=46 p=.341	.0644 N=46 p=.671	-.2119 N=46 p=.157
TCONSC	-.2956* N=46* p=.046*	.0171 N=46 p=.910	-.0289 N=46 p=.849	-.0056 N=46 p=.971	-.2462 N=46 p=.099	-.0218 N=46 p=.886	.1538 N=46 p=.308
TWPRE	.0122 N=46 p=.936	-.2185 N=46 p=.145	-.0268 N=46 p=.860	-.2029 N=46 p=.176	-.0421 N=46 p=.781	-.2925* N=46* p=.049*	.1795 N=46 p=.232
TWPOS	-.1614 N=46 p=.284	-.1146 N=46 p=.448	-.2197 N=46 p=.142	-.1585 N=46 p=.293	-.1512 N=46 p=.316	-.0953 N=46 p=.529	.2873 N=46 p=.053
TWFOL	.0905 N=46 p=.550	-.1355 N=46 p=.369	.1191 N=46 p=.431	-.0956 N=46 p=.527	-.0500 N=46 p=.741	-.0318 N=46 p=.834	.3496* N=46* p=.017*
TMSQ	.2053 N=36 p=.230	-.1972 N=36 p=.249	-.0718 N=36 p=.677	.1257 N=36 p=.465	.4031* N=36* p=.015*	.1500 N=36 p=.383	0.0000 N=36 p=1.00
PCTWFOLL	-.0760 N=46 p=.615	.0634 N=46 p=.675	.0209 N=46 p=.890	-.0214 N=46 p=.888	-.3773* N=46* p=.010*	.1448 N=46 p=.337	.5845* N=46* p=.000*

Variable	SE_PRE	SDET_PRE	SDET_POS	LSS_PRE	LSS_POST	LSS_FOLL	ZUNG_PRE
GROUP	-.0326 N=46 p=.830	-.0111 N=46 p=.941	-.2369 N=46 p=.113	-.2896 N=46 p=.051	-.2978* N=46 p=.044*	-.1293 N=46 p=.392	.0565 N=40 p=.729
GRPSIZE	-.0076 N=46 p=.960	.0385 N=46 p=.799	.2603 N=46 p=.081	-.0024 N=46 p=.987	.1181 N=46 p=.434	.1932 N=46 p=.198	-.0555 N=40 p=.734
SESSIONS	.1404 N=46 p=.352	.1670 N=46 p=.267	.4587* N=46* p=.001*	-.0710 N=46 p=.639	-.0548 N=46 p=.718	-.0326 N=46 p=.830	.0698 N=40 p=.669
Variable	SE_PRE	SDET_PRE	SDET_POS	LSS_PRE	LSS_POST	LSS_FOLL	ZUNG_PRE
LEADER	-.0769 N=46 p=.612	-.1225 N=46 p=.417	-.2527 N=46 p=.090	.1514 N=46 p=.315	.0737 N=46 p=.627	-.0584 N=46 p=.700	-.1802 N=40 p=.266
RISKSCOR	-.2800 N=46 p=.059	-.1574 N=46 p=.296	-.1449 N=46 p=.337	-.2154 N=46 p=.151	-.1917 N=46 p=.202	-.3335* N=46* p=.024*	.5767* N=40* p=.000*
WEEKSVFF	.2029 N=46 p=.176	.0326 N=46 p=.830	.2512 N=46 p=.092	-.0781 N=46 p=.606	-.0370 N=46 p=.807	-.1213 N=46 p=.422	-.1026 N=40 p=.529
RIW	.1506 N=46 p=.318	.1944 N=46 p=.196	.1109 N=46 p=.463	.1660 N=46 p=.270	.1343 N=46 p=.373	.3453* N=46* p=.019*	-.2103 N=40 p=.193
SE_PRE	1.0000 N=46 p=---	-.0715 N=46 p=.637	-.0167 N=46 p=.912	.1059 N=46 p=.484	.1242 N=46 p=.411	.2348 N=46 p=.116	-.2958 N=40 p=.064
SDET_PRE	-.0715 N=46 p=.637	1.0000 N=46 p=---	.5868* N=46* p=.000*	-.0736 N=46 p=.627	-.0625 N=46 p=.680	.0515 N=46 p=.734	-.0477 N=40 p=.770
SDET_POS	-.0167 N=46 p=.912	.5868* N=46* p=.000*	1.0000 N=46 p=---	-.2663 N=46 p=.074	-.1296 N=46 p=.391	-.1554 N=46 p=.302	.0559 N=40 p=.732
LSS_PRE	.1059 N=46 p=.484	-.0736 N=46 p=.627	-.2663 N=46 p=.074	1.0000 N=46 p=---	.7118* N=46* p=.000*	.6592* N=46* p=.000*	-.4636* N=40* p=.003*
LSS_POST	.1242 N=46 p=.411	-.0625 N=46 p=.680	-.1296 N=46 p=.391	.7118* N=46* p=.000*	1.0000 N=46 p=---	.5455* N=46* p=.000*	-.5021* N=40* p=.001*
LSS_FOLL	.2348 N=46 p=.116	.0515 N=46 p=.734	-.1554 N=46 p=.302	.6592* N=46* p=.000*	.5455* N=46* p=.000*	1.0000 N=46 p=---	-.6368* N=40* p=.000*
ZUNG_PRE	-.2958 N=40 p=.064	-.0477 N=40 p=.770	.0559 N=40 p=.732	-.4636* N=40* p=.003*	-.5021* N=40* p=.001*	-.6368* N=40* p=.000*	1.0000 N=40 p=---

ZUNG_POS	-.2737 N=42 p=.079	-.1487 N=42 p=.347	-.0081 N=42 p=.959	-.4329* N=42* p=.004*	-.5205* N=42* p=.000*	-.5501* N=42* p=.000*	.8212* N=40* p=.000*
ZUNG_FOL	-.2354 N=46 p=.115	.0593 N=46 p=.696	.1102 N=46 p=.466	-.3599* N=46* p=.014*	-.3553* N=46* p=.015*	-.7261* N=46* p=.000*	.3289* N=40* p=.038*
STATE_PR	-.2079 N=40 p=.198	-.0737 N=40 p=.652	-.0409 N=40 p=.802	-.2760 N=40 p=.085	-.4381* N=40* p=.005*	-.5497* N=40* p=.000*	.6234* N=40* p=.000*
STATE_PO	-.2166 N=42 p=.168	.0523 N=42 p=.742	.1155 N=42 p=.466	-.3046* N=42* p=.050*	-.3980* N=42* p=.009*	-.5634* N=42* p=.000*	.6494* N=40* p=.000*
Variable	SE_PRE	SDET_PRE	SDET_POS	LSS_PRE	LSS_POST	LSS_FOLL	ZUNG_PRE
STATE_FO	-.1701 N=46 p=.258	-.0408 N=46 p=.788	.0381 N=46 p=.802	-.3919* N=46* p=.007*	-.4314* N=46* p=.003*	-.7143* N=46* p=.000*	.3937* N=40* p=.012*
CSQ_POS	-.1737 N=46 p=.248	.3064* N=46* p=.038*	.5692* N=46* p=.000*	-.0232 N=46 p=.878	-.0327 N=46 p=.829	-.0233 N=46 p=.878	.2025 N=40 p=.210
TCONSC	.2148 N=46 p=.152	.1666 N=46 p=.268	.0611 N=46 p=.687	.3649* N=46* p=.013*	.4101* N=46* p=.005*	.3484* N=46* p=.018*	-.4274* N=40* p=.006*
TWPRE	.0448 N=46 p=.768	.2121 N=46 p=.157	-.0721 N=46 p=.634	.0223 N=46 p=.883	-.0049 N=46 p=.974	-.1240 N=46 p=.412	.1323 N=40 p=.416
TWPOS	.1897 N=46 p=.207	-.0468 N=46 p=.757	-.2243 N=46 p=.134	.1468 N=46 p=.330	.3090* N=46* p=.037*	.1075 N=46 p=.477	-.0529 N=40 p=.746
TWFOL	.2696 N=46 p=.070	.0496 N=46 p=.744	-.2079 N=46 p=.166	-.0115 N=46 p=.939	.1194 N=46 p=.429	.2180 N=46 p=.146	-.0685 N=40 p=.674
TMSQ	-.1524 N=36 p=.375	.0396 N=36 p=.819	.0919 N=36 p=.594	-.3737* N=36* p=.025*	-.4969* N=36* p=.002*	-.5710* N=36* p=.000*	.4172* N=33* p=.016*
PCTWFOLL	.0642 N=46 p=.671	.0465 N=46 p=.759	.0043 N=46 p=.977	.0887 N=46 p=.558	.1473 N=46 p=.329	.2283 N=46 p=.127	-.1413 N=40 p=.384

Variable	ZUNG_POS	ZUNG_FOL	STATE_PR	STATE_PO	STATE_FO	CSQ_POS	TCONSC
GROUP	.0749 N=42 p=.637	.1025 N=46 p=.498	.2705 N=40 p=.091	.1210 N=42 p=.445	.1492 N=46 p=.322	.0015 N=46 p=.992	-.2956* N=46* p=.046*
GRPSIZE	.0070 N=42 p=.965	-.1159 N=46 p=.443	.0068 N=40 p=.967	-.0107 N=42 p=.946	-.0998 N=46 p=.509	.0572 N=46 p=.706	.0171 N=46 p=.910
SESSIONS	.0294 N=42 p=.853	.1322 N=46 p=.381	-.0874 N=40 p=.592	.0129 N=42 p=.936	.1882 N=46 p=.210	.2747 N=46 p=.065	-.0289 N=46 p=.849
LEADER	-.1284 N=42 p=.418	.0457 N=46 p=.763	.1323 N=40 p=.416	-.0960 N=42 p=.545	-.0491 N=46 p=.746	-.1843 N=46 p=.220	-.0056 N=46 p=.971
RISKSCOR	.6047* N=42* p=.000*	.3037* N=46* p=.040*	.5306* N=40* p=.000*	.5484* N=42* p=.000*	.2878 N=46 p=.052	.1435 N=46 p=.341	-.2462 N=46 p=.099
Variable	ZUNG_POS	ZUNG_FOL	STATE_PR	STATE_PO	STATE_FO	CSQ_POS	TCONSC
WEEKSVFF	.0071 N=42 p=.965	.0523 N=46 p=.730	-.0236 N=40 p=.885	-.0432 N=42 p=.786	-.0259 N=46 p=.864	.0644 N=46 p=.671	-.0218 N=46 p=.886
RTW	-.2060 N=42 p=.191	-.4870* N=46* p=.001*	-.2728 N=40 p=.089	-.2226 N=42 p=.156	-.3919* N=46* p=.007*	-.2119 N=46 p=.157	.1538 N=46 p=.308
SE_PRE	-.2737 N=42 p=.079	-.2354 N=46 p=.115	-.2079 N=40 p=.198	-.2166 N=42 p=.168	-.1701 N=46 p=.258	-.1737 N=46 p=.248	.2148 N=46 p=.152
SDET_PRE	-.1487 N=42 p=.347	.0593 N=46 p=.696	-.0737 N=40 p=.652	.0523 N=42 p=.742	-.0408 N=46 p=.788	.3064* N=46* p=.038*	.1666 N=46 p=.268
SDET_POS	-.0081 N=42 p=.959	.1102 N=46 p=.466	-.0409 N=40 p=.802	.1155 N=42 p=.466	.0381 N=46 p=.802	.5692* N=46* p=.000*	.0611 N=46 p=.687
LSS_PRE	-.4329* N=42* p=.004*	-.3599* N=46* p=.014*	-.2760 N=40 p=.085	-.3046* N=42* p=.050*	-.3919* N=46* p=.007*	-.0232 N=46 p=.878	.3649* N=46* p=.013*
LSS_POST	-.5205* N=42* p=.000*	-.3553* N=46* p=.015*	-.4381* N=40* p=.005*	-.3980* N=42* p=.009*	-.4314* N=46* p=.003*	-.0327 N=46 p=.829	.4101* N=46* p=.005*
LSS_FOLL	-.5501* N=42* p=.000*	-.7261* N=46* p=.000*	-.5497* N=40* p=.000*	-.5634* N=42* p=.000*	-.7143* N=46* p=.000*	-.0233 N=46 p=.878	.3484* N=46* p=.018*
ZUNG_PRE	.8212* N=40* p=.000*	.3289* N=40* p=.038*	.6234* N=40* p=.000*	.6494* N=40* p=.000*	.3937* N=40* p=.012*	.2025 N=40 p=.210	-.4274* N=40* p=.006*

ZUNG_POS	1.0000 N=42 p= ---	.2514 N=42 p=.108	.6983* N=40* p=.000*	.7439* N=42* p=.000*	.3911* N=42* p=.010*	.1221 N=42 p=.441	-.4708* N=42* p=.002*
ZUNG_FOL	.2514 N=42 p=.108	1.0000 N=46 p= ---	.5293* N=40* p=.000*	.5199* N=42* p=.000*	.8961* N=46* p=.000*	.0816 N=46 p=.590	-.2462 N=46 p=.099
STATE_PR	.6983* N=40* p=.000*	.5293* N=40* p=.000*	1.0000 N=40 p= ---	.8445* N=40* p=.000*	.6702* N=40* p=.000*	.1999 N=40 p=.216	-.6395* N=40* p=.000*
STATE_PO	.7439* N=42* p=.000*	.5199* N=42* p=.000*	.8445* N=40* p=.000*	1.0000 N=42 p= ---	.6104* N=42* p=.000*	.1505 N=42 p=.341	-.4159* N=42* p=.006*
STATE_FO	.3911* N=42* p=.010*	.8961* N=46* p=.000*	.6702* N=40* p=.000*	.6104* N=42* p=.000*	1.0000 N=46 p= ---	.0783 N=46 p=.605	-.3040* N=46* p=.040*
CSQ_POS	.1221 N=42 p=.441	.0816 N=46 p=.590	.1999 N=40 p=.216	.1505 N=42 p=.341	.0783 N=46 p=.605	1.0000 N=46 p= ---	-.1274 N=46 p=.399

Variable	ZUNG_POS	ZUNG_FOL	STATE_PR	STATE_PO	STATE_FO	CSQ_POS	TCONSC
TCONSC	-.4708* N=42* p=.002*	-.2462 N=46 p=.099	-.6395* N=40* p=.000*	-.4159* N=42* p=.006*	-.3040* N=46* p=.040*	-.1274 N=46 p=.399	1.0000 N=46 p= ---
TWPRE	.0075 N=42 p=.962	.1654 N=46 p=.272	-.0305 N=40 p=.852	.1183 N=42 p=.456	.2364 N=46 p=.114	-.0482 N=46 p=.750	.3420* N=46* p=.020*
TWPOS	-.1083 N=42 p=.495	-.1840 N=46 p=.221	-.2244 N=40 p=.164	-.1141 N=42 p=.472	-.1503 N=46 p=.319	-.2013 N=46 p=.180	.2275 N=46 p=.128
TWFOL	-.1292 N=42 p=.415	-.2236 N=46 p=.135	-.3124* N=40* p=.050*	-.3356* N=42* p=.030*	-.1613 N=46 p=.284	-.2438 N=46 p=.103	.1162 N=46 p=.442
TMSQ	.4760* N=34* p=.004*	.2950 N=36 p=.081	.4914* N=33* p=.004*	.4818* N=34* p=.004*	.3798* N=36* p=.022*	.0552 N=36 p=.749	-.4513* N=36* p=.006*
PCTWFOLL	-.0913 N=42 p=.565	-.2884 N=46 p=.052	-.1793 N=40 p=.268	-.2009 N=42 p=.202	-.1949 N=46 p=.194	-.0772 N=46 p=.610	.0487 N=46 p=.748

Variable	TWPRE	TWPOS	TWFOL	TMSQ	PCTWFOLL
GROUP	.0122 N=46 p=.936	-.1614 N=46 p=.284	.0905 N=46 p=.550	.2053 N=36 p=.230	-.0760 N=46 p=.615
GRPSIZE	-.2185 N=46 p=.145	-.1146 N=46 p=.448	-.1355 N=46 p=.369	-.1972 N=36 p=.249	.0634 N=46 p=.675

SESSIONS	-.0268 p=.860	-.2197 p=.142	.1191 p=.431	-.0718 p=.677	.0209 p=.890
LEADER	-.2029 N=46 p=.176	-.1585 N=46 p=.293	-.0956 N=46 p=.527	.1257 N=36 p=.465	-.0214 N=46 p=.888
RISKSCOR	-.0421 N=46 p=.781	-.1512 N=46 p=.316	-.0500 N=46 p=.741	.4031* N=36* p=.015*	-.3773* N=46* p=.010*
WEEKSVFF	-.2925* N=46* p=.049*	-.0953 N=46 p=.529	-.0318 N=46 p=.834	.1500 N=36 p=.383	.1448 N=46 p=.337
RTW	.1795 N=46 p=.232	.2873 N=46 p=.053	.3496* N=46* p=.017*	0.0000 N=36 p=1.00	.5845* N=46* p=.000*
SE_PRE	.0448 N=46 p=.768	.1897 N=46 p=.207	.2696 N=46 p=.070	-.1524 N=36 p=.375	.0642 N=46 p=.671
Variable	TWPRE	TWPOS	TWFOL	TMSQ	PCTWFOLL
SDET_PRE	.2121 N=46 p=.157	-.0468 N=46 p=.757	.0496 N=46 p=.744	.0396 N=36 p=.819	.0465 N=46 p=.759
SDET_POS	-.0721 N=46 p=.634	-.2243 N=46 p=.134	-.2079 N=46 p=.166	.0919 N=36 p=.594	.0043 N=46 p=.977
LSS_PRE	.0223 N=46 p=.883	.1468 N=46 p=.330	-.0115 N=46 p=.939	-.3737* N=36* p=.025*	.0887 N=46 p=.558
LSS_POST	-.0049 N=46 p=.974	.3090* N=46* p=.037*	.1194 N=46 p=.429	-.4969* N=36* p=.002*	.1473 N=46 p=.329
LSS_FOLL	-.1240 N=46 p=.412	.1075 N=46 p=.477	.2180 N=46 p=.146	-.5710* N=36* p=.000*	.2283 N=46 p=.127
ZUNG_PRE	.1323 N=40 p=.416	-.0529 N=40 p=.746	-.0685 N=40 p=.674	.4172* N=33* p=.016*	-.1413 N=40 p=.384
ZUNG_POS	.0075 N=42 p=.962	-.1083 N=42 p=.495	-.1292 N=42 p=.415	.4760* N=34* p=.004*	-.0913 N=42 p=.565
ZUNG_FOL	.1654 N=46 p=.272	-.1840 N=46 p=.221	-.2236 N=46 p=.135	.2950 N=36 p=.081	-.2884 N=46 p=.052
STATE_PR	-.0305 N=40 p=.852	-.2244 N=40 p=.164	-.3124* N=40* p=.050*	.4914* N=33* p=.004*	-.1793 N=40 p=.268

STATE_PO	.1183 N=42 p=.456	-.1141 N=42 p=.472	-.3356* N=42* p=.030*	.4818* N=34* p=.004*	-.2009 N=42 p=.202
STATE_FO	.2364 N=46 p=.114	-.1503 N=46 p=.319	-.1613 N=46 p=.284	.3798* N=36* p=.022*	-.1949 N=46 p=.194
CSQ_POS	-.0482 N=46 p=.750	-.2013 N=46 p=.180	-.2438 N=46 p=.103	.0552 N=36 p=.749	-.0772 N=46 p=.610
TCONSC	.3420* N=46* p=.020*	.2275 N=46 p=.128	.1162 N=46 p=.442	-.4513* N=36* p=.006*	.0487 N=46 p=.748
TWPRE	1.0000 N=46 p= ---	.5529* N=46* p=.000*	.4311* N=46* p=.003*	-.2451 N=36 p=.150	.1025 N=46 p=.498
TWPOS	.5529* N=46* p=.000*	1.0000 N=46 p= ---	.3537* N=46* p=.016*	-.1974 N=36 p=.248	.2336 N=46 p=.118
TWFOL	.4311* N=46* p=.003*	.3537* N=46* p=.016*	1.0000 N=46 p= ---	-.3297* N=36* p=.050*	.2524 N=46 p=.091
Variable	TWPRE	TWPOS	TWFOL	TMSQ	PCTWFOLL
TMSQ	-.2451 N=36 p=.150	-.1974 N=36 p=.248	-.3297* N=36* p=.050*	1.0000 N=36 p= ---	-.0742 N=36 p=.667
PCTWFOLL	.1025 N=46 p=.498	.2336 N=46 p=.118	.2524 N=46 p=.091	-.0742 N=36 p=.667	1.0000 N=46 p= ---

Legend:

ZUNG_PRE - Zung SDS score (depression) at pre-treatment
ZUNG_POS - Zung SDS score (depression) at post-treatment
ZUNG_FOL - Zung SDS score (depression) at follow-up
STATE_PR - STAI state anxiety score at pre-treatment
STATE_PO - STAI state anxiety score at post-treatment
STATE_FO - STAI state anxiety score at follow-up
CSQ_POS - Client Satisfaction Questionnaire score
TCONSC - Conscientiousness score
GROUP - Treatment group
GRPSIZE - Group size
SESSIONS - Number of sessions attended
LEADER - Group counsellor
RISKSCOR - Risk of not returning to work score
WEEKSVFF - Duration of follow-up (in months)
RTW - Return to work
SE_PRE - Self-Efficacy - pre-treatment
SE_POS - Self-Efficacy - post-treatment
SDET_PRE - Self-Determination - pre-treatment
SDET_POS - Self-Determination - post-treatment
LSS_PRE - Life Satisfaction - pre-treatment
LSS_POST - Life Satisfaction - post-treatment
LSS_FOLL - Life Satisfaction - follow-up
TWPRE - Commitment to work - pre-treatment
TWPOS - Commitment to work - post-treatment
TWFOL - Commitment to work - follow-up
TMSQ - Job Satisfaction score
PCTWFOLL - Percentage of Eligible Weeks Worked at Follow-up

Table A-13.

Logistic Regression for Hypothesis 1: Predicting RTW Based on Treatment Group

Step	Independent Variable	Parameter Estimate	t (df)	p
1	Conscientiousness	.02	.58 (43)	.57
2	Treatment Group	-1.06	-1.32 (43)	.19
3	Conscientiousness X Treatment Group	-.03	-.43 (42)	.67

Note: *p < .05, **p < .01, ***p < .001

Table A-14.

Hierarchical Regression for Hypothesis 1: Predicting Percentage of Eligible Weeks Worked Based on Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Conscientiousness	.03	.05	.002		.10		(1, 44)
2	Treatment Group	-.07	.08	.01			.14	(2, 43)
3	Conscientiousness X Treatment Group	.86	.18	.03	.03		1.09	(3, 42)

Note: *p < .05, **p < .01, ***p < .001

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Table A-14

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Table A-15.

Logistic Regression for Research Question 1: Predicting RTW Based on Subject Characteristics and Treatment Group^a

Step	Independent Variable	Parameter Estimate	t (df)	p
1	Conscientiousness	.03	1.03 (44)	.31
2	Treatment Group	-1.06	-1.31 (43)	.19
3	Conscientiousness X Treatment Group	-.03	-.43 (42)	.67
4	Risk of not returning to work	-.08	-2.42 (41)	.02
5	Risk of not returning to work X Treatment Group	.11	1.01 (40)	.32
4	Self-Determination	.05	1.22 (41)	.23
5	Self-Determination X Treatment Group	.07	.70 (40)	.49
4	Depression ^b	-.76	-1.86 (41)	.07
5	Depression X Treatment Group	-.26	-.30 (40)	.77
4	Anxiety	-.07	-1.49 (35)	.14
5	Anxiety X Treatment Group	-.01	-.09 (34)	.93

a. Steps 1, 2 and 3 are identical for the analyses including each of the subject characteristics. Therefore, their parameter estimates are presented only once.

b. Only 39 subjects completed the depression and anxiety measures. The reason for this is that the SDS and the STAI were added to the assessment battery after the data collection had already begun. Therefore, the parameter estimates for depression and anxiety are based on fewer degrees of freedom than the parameter estimates for risk of not returning to work and self-determination.

Table A-16.
Hierarchical Regression for Hypothesis 1: Predicting Percentage of Eligible Weeks Worked Based on Subject Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Conscientiousness	.05	.05	.002		.10		(1, 44)
2	Treatment Group	-.07	.08	.007	.004		.18	(2, 43)
3	Conscientiousness X Treatment Group	.86	.18	.03	.03		1.09	(3, 42)
4	Risk of not returning to work	-.39	.40	.17	.14		6.67	(4, 41)**
5	Risk of not returning to work X Treatment Group	.62	.42	.18	.01		.55	(5, 40)
4	Self-Determination	.12	.21	.04	.01		.51	(4, 41)
5	Self-Determination X Treatment Group	.06	.21	.04	.0004		.02	(5, 40)
4	Depression	-.12	.20	.04	.01		.40	(4, 35)
5	Depression X Treatment Group	-.35	.21	.04	.004		.14	(5, 34)
4	Anxiety	-.26	.25	.06	.03		1.26	(4, 35)
5	Anxiety X Treatment Group	-1.19	.30	.09	.03		1.18	(5, 34)

Table A-17.

Logistic Regression for Research Question 1: Predicting RTW Based on Number of Sessions Attended and Treatment Group^a

Step	Independent Variable	Parameter Estimate	t (df)	p
1	Group Counsellor	.11	.14 (44)	.89
2	Treatment Group	-1.22	-1.56 (43)	.12
3	Group Counsellor X Treatment Group	27.08	not available	not available
4	Number of Sessions	-.21	not available	not available
5	Number of Sessions X Treatment Group	-.21	not available	not available

Table A-18.

Hierarchical Regression for Research Question 1: Predicting Percentage of Eligible Weeks Worked Based on Number of Sessions Attended and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Group Counsellor	-.02	.02	.0004		.02		(1, 44)
2	Treatment Group	-.07	.08	.01	.01		.24	(2, 43)
3	Group Counsellor X Treatment Group	.79	.37	.14	.13		6.35	(3, 42)*

Note: *p < .05, **p < .01, ***p < .001

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Figure A

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Table A-19.

Hierarchical Regression for Hypothesis 2 (Predicting Life Satisfaction and Job Satisfaction Based on Treatment Group and Two Covariates)

Step	Dependent Variable	Beta	R	R ²	ΔR ²	F	ΔF
Life Satisfaction							
1	Life Satisfaction	.66	.66	.43		33.81	(1, 44)***
2	Conscientiousness	.12	.67	.45	.01	1.05	(2, 43)
3	Treatment Group	.10	.68	.46	.01	.64	(3, 42)
4	Life Satisfaction X Treatment Group	.85	.72	.51	.06	4.83	(4, 41)*
5	Conscientiousness X Treatment Group	.23	.72	.52	.001	.14	(5, 40)
1	Conscientiousness	.35	.35	.12		6.07	(1, 44)*
2	Life Satisfaction	.61	.67	.45	.33	25.44	(2, 43)***
3	Treatment Group	.10	.68	.46	.01	.64	(3, 42)
4	Conscientiousness X Treatment Group	.46	.68	.46	.01	.50	(4, 41)
5	Life Satisfaction X Treatment Group	.82	.72	.52	.05	4.32	(5, 40)*
Job Satisfaction							
1	Life Satisfaction	-.37	.37	.14		5.52	(1, 34)*
2	Conscientiousness	-.37	.51	.27	.13	5.64	(2, 33)*
3	Treatment Group	.02	.52	.27	.000	.02	(3, 32)
4	Life Satisfaction X Treatment Group	-.33	.52	.27	.01	.38	(4, 31)
5	Conscientiousness X Treatment Group	-.72	.54	.29	.02	.73	(5, 30)
1	Conscientiousness	-.45	.45	.20		8.70	(1, 3)***
2	Life Satisfaction	-.26	.51	.27	.06	2.46	(2, 43)
3	Treatment Group	.02	.52	.27	.000	.02	(3, 32)
4	Conscientiousness X Treatment Group	-.79	.54	.29	.02	.92	(4, 31)
5	Life Satisfaction X Treatment Group	-.25	.54	.29	.01	.20	(5, 30)

Note: *p < .05, **p < .01, ***p < .001

Table A-20.

Hierarchical Regression for Hypothesis 2: Predicting Satisfaction with Treatment, Based on Subject Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR^2	F	ΔF	df
1	Life Satisfaction - Pre-Treatment	-.02	.02	.001		.02		(1, 44)
2	Treatment Group	-.01	.02	.001	.000		.001	(2, 43)
3	Life Satisfaction-Pre X Treatment Group	.04	.03	.001	.000		.01	(3, 42)
4	Risk Score	.15	.15	.02	.02		.01	(4, 41)
5	Risk Score X Treatment Group	.51	.17	.03	.01		.41	(5, 40)
4	Self-Determination	.31	.31	.09	.09		4.26	(4, 41)*
5	Self-Determination X Treatment Group	.18	.32	.10	.01		.25	(5, 40)
4	Depression	.31	.30	.09	.07		2.80	(4, 35)
5	Depression X Treatment Group	1.33	.31	.15	.06		2.42	(5, 34)
4	Anxiety	.33	.31	.10	.08		3.20	(4, 35)
5	Anxiety X Treatment Group	-.21	.32	.10	.00		.05	(5, 34)

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table A-21.
Hierarchical Regression for Hypothesis 2 and Research Question 2: Predicting Job Satisfaction, Based on Subject Characteristics and Treatment Group

Step	Independent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Life Satisfaction - Pre-Treatment	-.37	.37	.14		5.52	.31	(1, 34)* (2, 33)
2	Treatment Group	.09	.38	.15	.01			
3	Life Satisfaction-Pre X Treatment Group	-.61	.42	.18	.03		1.26	(3, 32)
4	Risk Score	.33	.53	.28	.10		4.21	(4, 31)*
5	Risk Score X Treatment Group	.31	.53	.28	.002		.09	(5, 30)
4	Self-Determination	.01	.42	.18	.000		.002	(4, 31)
5	Self-Determination X Treatment Group	.24	.43	.19	.01		.34	(5, 30)
4	Depression	.30	.53	.28	.08		2.98	(4, 28)
5	Depression X Treatment Group	1.77	.61	.37	.09		3.91	(3, 27)
4	Anxiety	.39	.57	.33	.13		5.30	(4, 28)*
5	Anxiety X Treatment Group	.19	.57	.33	.001		.04	(5, 27)

Note: *p < .05, **p < .01, ***p < .001

Table A-22.

Hierarchical Regression for Research Question 2 (Predicting Job Satisfaction Based on Group Size and Treatment Group)

Step	Dependent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Group Counsellor	-.18	.18	.03		1.55		(1, 44)
	Conscientiousness	-.13	.22	.05	.02		.75	(2, 43)
3	Treatment Group	-.02	.23	.05	.000		.01	(3, 42)
4	Group Counsellor X							
	Treatment Group	-.25	.25	.06	.01		.56	(4, 41)
5	Conscientiousness X							
	Treatment Group	-.94	.31	.09	.03		1.31	(5, 40)
6	Group Size							
	Group Size X	-.001	.31	.09	.000		.000	(6, 39)
7	Treatment Group	-.14	.31	.10	.002		.09	(7, 38)

Note: *p < .05, **p < .01, ***p < .001

Table A-23.

Hierarchical Regression for Research Question 2 (Predicting Satisfaction with Treatment Based on Group Size and Treatment Group)

Step	Dependent Variable	Beta	R	R ²	ΔR ²	F	ΔF	df
1	Life Satisfaction	-.02	.02	.001		.02		(1, 44)
2	Treatment Group	.02	.02	.001	.000		.001	(2, 43)
3	Life Satisfaction X Treatment Group	.04	.03	.001	.000		.001	(3, 42)
4	Sessions	.29	.28	.08	.08		3.45	(4, 41)
5	Sessions X Treatment Group	.12	.28	.08	.001		.05	(5, 40)
4	Duration of Follow-Up	.06	.07	.005	.004		.16	(4, 41)
5	Duration of Follow-Up Treatment Group	-1.42	.31	.10	.09		4.14	(4, 40)*
1	Group Counsellor	-.18	.18	.03		1.55		(1, 44)
2	Life Satisfaction	.01	.18	.03	.000		.001	(2, 43)
3	Treatment Group	.03	.19	.05	.02		.69	(3, 42)
4	Group Counsellor X Treatment Group	-.28	.23	.05	.000		.003	(4, 41)
5	Life Satisfaction X Treatment Group	.03	.23	.05	.03		1.31	(5, 40)
6	Group Size	.06	.23	.05	.002		.10	(6, 39)
7	Group Size X Treatment Group	-.02	.23	.05	.000		.001	(7, 38)

Note: *p < .05, **p < .01, ***p < .001

Table A-24.

Repeated Measures Analysis of Variance to Assess Differences Between Pre-Treatment and Post-Treatment in Self-Efficacy and Self-Determination, and the Effect of Treatment Group (With Conscientiousness as a Covariate) on Those Differences

Variable	F	df	p
Self-Efficacy	6.35	(1, 44)	.02*
Treatment Group	.04	(1, 43)	.83
Self-Efficacy X Treatment Group	.40	(1, 44)	.53
Self-Determination ^a	3.49	(1, 44)	.07
Treatment Group	.65	(1, 43)	.43
Self-Determination X Treatment Group	3.47	(1, 44)	.07

Note: *p < .05, **p < .01, ***p < .001

a. The assumption of homogeneity of the regression slopes was confirmed (Wilk's Λ = .99, p = .89).

NOTE TO USERS

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Appendix B

Logistic Regression Analysis

General Description

Logistic regression analysis (Statsoft, 1995) is a method for computing the relationship between a list of independent variable(s) and a dependent variable when the dependent variable is dichotomous (i.e. RTW at follow-up). This procedure is a generalization of multiple regression analysis (or analysis of variance) because its purpose is to estimate and interpret the nature of the relationship between the dependent variable and a list of independent variables in terms of a regression function.

However, multiple regression analysis assumes that the relationship between the dependent and independent variables is linear in nature. In order for a multiple regression model to adequately represent a linear relationship, the dependent and independent variables must be *continuous*. For example, multiple regression analysis can be used to define the linear relationship between risk of not returning to work, and percentage of eligible weeks work by follow-up. Provided that the relationship between risk of not returning to work and percentage of eligible weeks worked can be interpreted as continuous (i.e. the lower the risk of not returning to work, the higher the percentage of eligible weeks worked), it can be represented by a linear function (percentage of eligible weeks worked = function of (risk of not returning to work X slope of the relationship)).

When the dependent variable is *dichotomous* (i.e., a subject will either return or not return to work), the relationship between dependent and independent variables is not linear. Because multiple regression analysis does not recognize the dichotomous nature of the dependent variable (i.e., 1= returned, 0=did not return), it will fit a model that leads to predicted values that are greater than 1 or less than 0, which is not valid. Logistic regression rephrases the problem so that the predicted variable is a continuous variable that naturally stays within the 0-1 boundaries. This is accomplished via the *logit* or *logistic* transformation.

The logistic transformation interprets the dichotomous dependent variable in terms of an underlying continuous probability p that ranges between 0 and 1. The probability of p can be transformed as:

$$p' = \log_e [p/(1-p)]$$

Theoretically, p' can assume any value between minus and plus infinity. Since the logistic transformation solves the issue of the 0-1 boundaries for the dependent variable, the transformed values can be used in an ordinary regression equation. The same transformation can also be applied to dichotomous independent variables.

Application of Regression Equation and Interpretation of Results

In standard multiple regression, the regression coefficients are estimated by "finding"

those coefficients that minimize the residual variance (sum of squared residuals) around the regression line. Any deviation of an observed score from a predicted score indicates some loss in the accuracy of the prediction (i.e., due to random error). Therefore, it can be said that the least squares estimation is to minimize a *loss function*. When the loss function is at its minimum, the same parameter estimates as in a multiple regression model (i.e. intercept, slope) can be obtained.

In logistic regression analysis, one method for minimizing loss is the *Quasi-Newton Method*. The Quasi-Newton Method evaluates how fast a slope is changing at any point, and in which direction, towards the minimum of a loss function. It accomplishes this by estimating the first-order (i.e., the slope of a function at a particular point) and second-order derivatives (i.e., the slope of the slope). Using a maximum likelihood procedure, the Quasi-Newton method produces parameter estimates pertaining to the logits (not to the probabilities of RTW) at each step of the loss function (or iteration), until the procedure converges (i.e., or arrives at the final parameter estimates). In principle, the parameter estimates can be interpreted in terms of an intercept, and a slope (Statsoft, 1995).

In the present study, the purpose of logistic regression is to obtain the parameter estimates for the intercept, and for the slope of the variables that are entered into the regression equation (via the B coefficient), to predict RTW. STATISTICA also provides the standard error of the parameter estimate, a *t* value (obtained by dividing the B coefficient by its standard error), and its significance level. The results can be interpreted as the degree to which each of the variables entered into the regression equations contribute to actual RTW.

Appendix C

- C-1. Recruitment Form
- C-2. Informed Consent Form
- C-3. Medical Clearance Form
- C-4. Treatment Manual
- C-5. Implementation Check



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1053 Carling Avenue, Ottawa, Ontario, Canada K1Y 4E9

Recruitment Script and Information Sheet

"A research study on the outcome of a program designed to foster vocational adjustment among people who have received cardiac treatment. The study is conducted by Dr. Robert Flynn, Associate Professor of Psychology, Dr. William Dafoe, Director of the Heart Institute Prevention and Rehabilitation Centre, and Ms. Vivian Iacovino, Doctoral Student in Clinical Psychology, and Ms. Laura Cupper, vocational counsellor at the Heart Institute Prevention and Rehabilitation Centre. It is being carried out with the collaboration of the Heart Institute Prevention and Rehabilitation Centre and has been approved by the Human Research Ethics Committee of the Ottawa Civic Hospital.

"Potential participants for the study are people who have been treated at the University of Ottawa Heart Institute and who meet the following criteria:

1. They must have been given medical clearance to return to work within the next six months.
2. They must be able to speak, understand, and read English, although English need not be their mother tongue.
3. They must meet the inclusion criteria based on the Vocational Prognosis Form, a questionnaire designed to assess your present return-to-work situation.

"You have been identified as a potential participant for the study based on the first two criteria. Should you agree to participate in the study, Ms. Iacovino will call you at home to assess (using the Vocational Prognosis Form) whether you meet the inclusion criteria approximately two weeks after your discharge from the Heart Institute. If you do not meet the inclusion criteria based on the Vocational Prognosis Form, you may be given feedback on your responses to the questionnaire.

"I would like to tell you about the project and what is involved. The purpose of the study is to evaluate two different programs for fostering vocational adjustment among patients of the University of Ottawa Heart Institute. The first program we call "Program A"; the second, "Program B". The two methods represent alternative approaches for assisting patients be better adjusted to work. We expect both methods to be effective, but would like to find out whether one method is more effective than the other. Participants in both groups will receive all of the other services normally offered at the University of Ottawa Heart Institute."

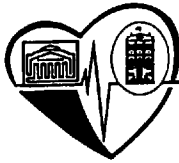
"Both Program A and Program B would require first that you fill out questionnaires assessing your present work state, how you are adapting to returning to work, your interests and expectations about participating in this program, your values, and your general life satisfaction. Then you will be asked to attend five group sessions with Vivian Iacovino as your counsellor within a five-week period. For the following ten weeks, you will then be asked to make weekly lists of activities which you can accomplish in order to return to work as soon as possible. At the end of the ten weeks, you will be asked to fill out the same questionnaires again. The reason for this is for us to measure any changes that you may have experienced during the time that you participated in the program."

"You can withdraw from the program at any time. Your withdrawal will not in any way influence other services that you receive at the Heart Institute. Also, if you wish, we will send you the findings from our study when it is completed."

"Do you wish to participate in this program after being discharged from the Heart Institute?"

If the answer is "yes": "I would like to sign your agreement to participate in the study. As soon as we receive the form with your signature, we will begin the study."

If the answer is "no": "You are welcome to participate at any time in the future should you change your mind. You can also call Vivian Iacovino at 595-9160 or 564-6875 should you have any questions regarding the program in the near future. Thank-you for your time."



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1053 Carling Avenue, Ottawa, Ontario, Canada K1Y 4E9

Informed Consent Form

Project Investigators: Dr. Robert Flynn (564-6875)
Dr. William Dafoe (761-4754)
Ms. Vivian Iacovino (595-9160)

We are conducting study whose purpose is to evaluate two different programs for helping patients of the University of Ottawa Heart Institute return to work. The two methods represent alternative approaches for assisting patients return to work. We would like to find out whether one method is more effective than the other.

Participation in this study is voluntary. If you agree to participate by signing this consent form, you will be required to complete a questionnaire in order to assess your suitability for this project. If you meet our criteria for participation, you will be asked to participate for a period of 4 months. You will also be asked to allow us to contact your physician, so that we will know that you have been given medical clearance to return to work. Finally, you will be randomly assigned to one of the two programs.

You will attend four weekly sessions. The first and last sessions will last 2 hours, whereas the second and the third sessions will last 1 hour and 1/2. During the first 30 minutes of the first session and the last 30 minutes of the fourth session, you will complete questionnaires assessing your work values, confidence in returning to work, your satisfaction with your life, your intention to return to work and your interest in participating in a program for assisting you in returning to work. During the other 1 and 1/2 hours of Sessions #1 and #4, and during Sessions #2 and #3, you will participate in the activities that make up the particular program to which you were randomly assigned. Three months after you have completed your program, you will be asked to answer some questionnaires over the telephone. Hospitalization will not be required.

Your participation in this study may help you better understand how to deal with potential problems you can encounter when returning to work. It may also help you develop skills for returning and remaining at work. The findings from the study also help us develop programs which can help future cardiac patients return to work with little difficulty.

The study involves essentially no risk or discomfort. All information will be respected according to the ethical guidelines of the Ottawa Civic Hospital and the College of Psychologists. Your names will be known only to the people who are directly involved in the research. These include Dr. Flynn, Dr. Dafoe, Ms. Iacovino, Ms. Laura Cupper, Ms. Chantal Létourneau, and staff at the University of Ottawa Heart Institute. Anonymity will be assured through the pooling of all data so that published results will be presented in group format only, with no individuals being identified. Also, we retain the authority to terminate your participation in the study if we receive information (i.e. regarding your physical capacity to return to work) which indicates that you may develop a cardiac complication if you return to work.

Some of the sessions will be audiotaped. This is in order to ensure that the counsellor(s) provide services in a consistent fashion. All of the information on the audiotapes is confidential and the audiotapes will be destroyed at the end of the study.

You may withdraw your consent and discontinue participation in this study at any time. Moreover, your decision to participate in this study, to refuse to participate, to be unable to give consent for participating, or to withdraw later will have no effect whatsoever on any service that you may be currently receiving or may receive in the future at the University of Ottawa Heart Institute or at the Ottawa Civic Hospital. Should you still wish to address your concerns regarding a return to work after you have withdrawn from the study, we may provide you with a referral to an appropriate counsellor.

We shall be pleased to answer any questions you may have about this study. Should you have any questions, now or in the future, please contact Vivian Iacovino (595-9160) or Dr. Flynn (564-6875).

I the undersigned, _____,
(please print your name)

have been informed about what is involved in the study described above and agree to participate as a research subject.

I understand that I have and will continue to have opportunities to obtain information from the research staff.

I also understand that I will be given a copy of this signed consent form to keep.

Date: _____

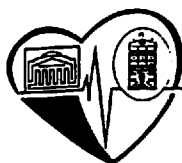
Signature of Participant: _____

Signature of Witness: _____

I can be contacted at the following phone number: _____

It is easier to reach me at the following times: _____

I will receive a summary of the findings of this study, upon its completion, by providing my address, as follows:



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1053 Carling Avenue, Ottawa, Ontario, Canada K1Y 4E9

Medical Clearance Form for Participation in the Work-Adjustment Program

Letter to Dr. _____

Date: _____

Department: _____

A research study approved by the Heart Institute Administrative Committee is being carried out in order to evaluate the effectiveness of a short-term intervention in assisting cardiac patients return to work. The investigation is undertaken by Dr. Robert Flynn, Associate Professor of Psychology, University of Ottawa, Dr. William Dafoe, Director of the Heart Institute Prevention and Rehabilitation Centre (HIPRC), Ms. Laura Cupper, vocational counsellor at the HIPRC, and Ms. Vivian Iacovino, doctoral student in Clinical Psychology, University of Ottawa. The intervention includes 4 group sessions over a period of 4 weeks during which patients independently set weekly goals directed toward returning to work, or watch videotapes based on issues related to return-to-work.

We have identified your patient(s) (see names below), as potential candidates for our study. However, in order to qualify for our study, he/she must be medically cleared to return to work within the next 6 months. Therefore, can we have your written decision concerning his/her readiness¹ to return to work within the next 6 months.

The information on this form will be filed at the Heart Institute Prevention and Rehabilitation Centre and will remain confidential.

Should you have any questions regarding the study, you may call Vivian Iacovino at 595-9160 or Laura Cupper at 761-4558.

I confirm that (please check off the column indicating whether each of the following patients can return to work within the next 6 months):

Patient's Name:	Yes	No	Not Certain At This Time	Comments
_____	___	___	___	_____
_____	___	___	___	_____

Physician's signature: _____

¹ It is understood that if the medical condition or other circumstances change, you may wish to advise a non-work-return.

**Treatment Manual for Goal-Setting Intervention for the Return-to-Work of Cardiac Patients
by Vivian Iacovino**

Step I: Nursing coordinator, Heart Institute: to identify inpatients who fulfil criteria for inclusion in the study.

Step II: Vocational counselor: to recruit inpatients using the following steps:

1. See patients in hospital wards.
2. Introduce study (read recruitment script) and ask patients to sign a consent form (see consent form).
3. Inform patients that we will ask their physicians for their approval about them returning to work within the following six months.
4. Provide names of patients who have provided written consent, and their discharge dates, to Vivian Iacovino.

Step III: Researcher: to administer the VPF two to three weeks following hospital discharge:

1. Contact all patients who were recruited and administer the VPF over the telephone (10-15 minutes).
2. Bring Medical Clearance Form to physicians to get subjects' medical clearance to return to work within the following six months.
3. Randomize all subjects to intervention and comparison groups.
4. Schedule times for Session #1.
5. Inform all subjects that they can receive feedback about their responses on the VPF.

Step IV: Introduction to the Study and Pre-Test (For Goal-Setting and Video-Tape Groups).

Session #1: Pre-test: (approximately 20 to 30 minutes)

1. (Welcome clients to the session).

Hello. My name is (Researcher's name). I am responsible for the Work-Adjustment program. If you have any questions or complaints, you can contact me at (researcher's telephone number). (The counsellor's name) will be here to work with you in approximately 30 minutes.

For the next 30 minutes, I will inform you about the program, and then I would like you to complete a number of questionnaires. The reason for these questionnaires is to help us evaluate the program.

As part of the program, you will be required to: 1) complete a battery of questionnaires; 2) attend four one-hour sessions during which you will engage in a number of activities; and 3) complete other questionnaires at the end of the program, and approximately three months later by telephone. If you wish, you can request additional assistance in returning to work during and/or after completing the program.

Some sessions will be audio taped to insure the consistency of service delivery during the study. The audio taping will be focused on the therapist. In addition, all information is confidential and the tapes will be destroyed at the end of the study. Your participation is voluntary and you may choose to withdraw from the study at any time. Your withdrawal will not have any effect on any services that you receive either at the HIPRC or at the Heart Institute. Does anyone have any questions?

2. (Ask subjects to complete the following questionnaires: scales measuring self-efficacy and behavioural intention (Return to Work Questionnaire), the Salience Inventory, the Conscientiousness Scale of the NEO Five-Factor Inventory, a short version of the Motivation Toward Psychotherapy Scale, the Life Satisfaction Scale, the Zung Depression Scale, and the State-Trait Anxiety Inventory).

There are several questionnaires that I would like you to complete prior to starting the program.

The Salience Inventory assesses the importance of different activities in your life. The Return to Work Questionnaire, the Life Satisfaction Scale, the Zung Depression Scale, The STAI, and the Conscientiousness scale measure your general satisfaction with life, how you are feeling about yourself, and your attitude toward accomplishing your tasks. The MTPS measures how you feel about participating in the Work-Adjustment program.

Step V: Four sessions: Duration of 1 hour per session.

A. Goal-Setting Group:

Session #1:

1. (Introduce subjects to the counsellor (yourself) and the intervention).

Hello. My name is (counsellor's name). I will be your counsellor for the next four sessions.

The purpose of this study is to design a program to help people be better adjusted to and feel better about returning to work. Many people who undergo some form of cardiac treatment have some trouble returning to work. This can occur for a number of reasons. For example, some people feel that their jobs are too stressful, or that they are no longer able to fulfill the requirements of their job. They may feel less motivated to return to work because they do not know how if they will be able to cope with a return.

The purpose of this program is to help you set goals which are relevant to you in returning to work. You are here with the goal of returning to work. In order to feel like you have control over your return to work (RTW), and that you can be satisfied with your RTW, it is important that you set goals that are relevant to making you feel better about returning to work. Therefore, for example, if setting more time to see your family will help you feel better about returning to work because you feel like your job prevented you from seeing them in the past, then planning family activities can be one of your goals.

Let's start with more general questions about returning to work, then we will set more specific goals. In a more general sense, you may want to return to your old job, or to a new job. You may want to work full-time or part-time. Any one of these goals can be thought of as your long-term goal. Later, in order to help you successfully achieve your long-term goal, we can set short-term goals. The purpose of setting these goals is to bring you closer to overcoming the obstacles that can prevent you from returning to work, or from returning to work with greater confidence and satisfaction.

2. (Hand out package for Session #1, see Appendix I at the end of manual).

All of the goals that we will set for the next three weeks will be written on work sheets like the one I just handed out to you. For this session, I would first like you to answer the questions on Page 1. This will help you decide what your ultimate RTW goal is. So, for example, question #1 asks you to specify whether you would ultimately like to return to your old job or to a new job. Question number two asks to indicate whether you would ultimately like to work full-time or part-time, and so on. If you don't intend to return to work, ignore questions 1 to 4 and complete only question 5.

(Usually, some discussion among members of the group occurs at this time. Encourage the discussion, asking individual members who identify obstacles to think about what goals can be realistically attained. Also, provide support. This part of Session 2 could last up to 15 minutes.)

3. (Set Two-month goals)

Next, you will make of list of tasks that can bring you closer to returning to work within the next two months. Please go to page 2. On page 2 of your package, you can write your list. On page 3, a list of possible tasks to help you return to work is provided for you. However, it is important that the tasks that you choose are relevant to you, even if it may not be relevant to someone else. I also encourage you to add goals to your list that are not listed on page 3.

4. (Provide rationale for setting short-term goals).

Next, we will set some goals to be achieved by the next session (next week). In order for short-term goals to be effective, they must be weekly, specific, and challenging and self-relevant.

(Hand out "Information Sheet" - See Appendix II)

A specific weekly goal gives us a clear idea of what we are trying to accomplish. It gives us something clear-cut to work toward and provides a standard against which we can measure our progress. One way to make a goal specific is to write it down in behavioural terms. For example, you can set the goal of making an appointment with your cardiologist in order to find out when you can return to work. This is a specific goal because what is to be accomplished is clear, i.e., making a telephone call to and setting an appointment with your cardiologist. It is also easy to measure your progress toward the goal. By the end of the week, you can see whether you made the appointment that you had planned on the previous week.

A challenging weekly goal, i.e., a goal that is difficult but attainable, provides us with the necessary motivation to complete a task. For example, your goal may be to increase the amount of time you spend exercising by 30 minutes by next week. You know that if you invest some effort in your exercise, you can achieve your increase of 30 minutes of exercise by next week. Your decision to invest that extra effort to improve your exercise time by 30 minutes per week may be more motivating than if you planned to maintain an improvement rate of 15 minutes per week. In addition, your goal of increasing your exercise time by 30 minutes per week is less difficult and more attainable than a goal of increasing your exercise time by two hours.

A relevant goal is important to you and helps you fulfill your values. Your values may involve your family, leisure activities, or other issues or activities which are important to you. Goals have to be personally relevant for them to be motivating.

5. (Set short-term goals).

It is important that all tasks be listed in behavioural terms. For example, you may plan to inquire about problems that can prevent you from feeling comfortable at work. For example, instead of writing "find a way of reducing cigarette smoke in the office" on your list, you can write the name of a person to contact, when to contact him or her and what you would like to know about reducing smoking in your workplace. On your list, you may write "Telephone Mr. Smith to ask him about establishing nonsmoking regulations."

6. (Set goals to be attained by the following session).

Next, we will set goals that you can attain by next week. Please go to page 4. On page 4, you are asked to list the goals that you think you can attain by next week. From the list of tasks you have just completed, write down the tasks that, together, constitute specific and difficult but attainable goals for the next week only.

On the right-hand side of the page, please rate how important or relevant each task is for your return to work, where a rating of 0 means that the task is not relevant at all for your returning to work and a rating of 7 means that it is very relevant for returning to work.

At the end of the page, please rate the overall goal difficulty of all of your weekly goals together, based on the following scale:

Level-3 goals: are weekly goals that together, are specific but so difficult that they are not really attainable. If together, the difficulty level of your goals is at level 3, then you may delete some of your goals or replace them with goals that are less difficult. Continue to replace or change your goals until you feel that their summed level of difficulty is at level 2.

Level-2 goals: are weekly goals that together, are specific, difficult, but really attainable.

Level-1 goals: are weekly goals that together, are specific but so easy to attain that they are not really motivating. If together, the difficulty level of your goals is at level 1, then you may add new goals for this week, or change your goals until you feel that their summed level of difficulty is at level 2.

(Show subjects page 2 of Information Sheet - See Appendix II).

7. (Assess level of confidence, commitment to, importance and gains of achieving weekly goals, and perceived social support) (see Appendix IV).

On page 5, you will find questions about how you feel about achieving the goals that you set during this session, as well as how much support you received. Please rate the items on scales from 1 to 7:

Question 1 assesses how confident you feel about achieving your goals before the next session. Question 2 measures your level of commitment to the tasks, question 3 measures the importance of all of the goals together, question 4 measures how much you expect to gain by achieving your weekly goals.

On the following page, you will answer questions about how you feel about setting goals and about the date set by your physician to return to work.

(Discuss any responses which indicate that goals are too difficult or not difficult enough, assist subjects to set more realistic goals at level 2.)

(Hand out "Questions About Goals" package to subjects - See Appendix III: Session #1).

There are some techniques that you can use when you feel like you don't know what goals to set for returning to work, or if you feel like you cannot attain your goals.

The "Questions About Goals" package I handed out to you help you overcome your obstacles to returning to work by asking you to answer some specific questions. On pages 1 and 2 of your package, the questions can help you with working toward your goals, troubleshooting around your goals, and then evaluating your goals. The last two pages contain examples. The first example is a list of goals on how to deal with having to make pasta, and the second example lists how to prepare yourself and cope with a visit to a specialist or a new doctor. As you

can see, if you think about it long enough, you can find many ways of dealing with a problem.

I would like you to answer the questions on the "Questions About Goals" package at home before you come back next week. Answering these questions should help you think about your goals differently than the way you thought about them in the past.

8. (Conclusion.)

(Hand out folders to subjects to put their Information Sheet, their "Questions About Goals" Sheet and their goal sheet).

In order to ensure that we have a copy of the work that you did today, I would like to make a photocopy your work sheets. I would like you to bring back the sheets on which you wrote down your goals, as well as your Information Sheet and your "Questions About Goals" package, so that we can work with them again next week. Any questions? If you have any questions or concerns during the week, please call (the researcher's name) at (the researcher's telephone number).

8. (Confirm attendance for the following week.)

(Prior to Sessions #2, #3 and #4, photocopy the page containing each subject's list of weekly goals from the previous week, and staple it on top of next session's package. At the beginning of each session, hand subjects the package with a copy of the previous week's goals.)

Sessions 2, 3 and 4:

1. (Check goals attained during the previous week.)

At the beginning of Session #2 only, discuss subjects' responses to the questions in the "Questions About Goals" package. Subjects who did answer the questions can do it during the session.).

At the beginning of all Sessions and At Session #2: (Provide subjects with work sheet packages for each session (see Appendix I: Sessions 2, 3 and 4)). At the bottom of the top page (the photocopy of their list of goals from the previous session), ask subjects to list the goals that were attained during the past week, and to rate the success with which they attained them.

2. (Assist subjects in identifying ways of overcoming obstacles that prevented them from attaining their goals.)

Once you've written down the activities that you carried out, please list the activities that were planned but not carried out on the next page, and your obstacles to attaining your goals. Then answer the questions on page 2, which can help you think about alternative ways of overcoming your obstacles.

(Discuss subjects' answers to all questions systematically. Encourage discussion among members of the group.)

(Once questions on Page 2 have been completed, set goals for the following week on Page 3.)

Given what you have learned about the goals you set last week, now set goals for the following week that are specific, challenging, and personally relevant.

For subjects whose goals were too difficult or too easy during the previous week, do the following:

If goals were too difficult: (describe the difference between level-3 and level-2 goals.)

Level-3 goals: are weekly goals that together, are specific but so difficult that they are not really attainable. If together, the difficulty level of your goals is at level 3, then you may delete some of your goals or replace them with goals that are less difficult. Continue to replace or change your goals until you feel that their summed level of difficulty is at level 2.

Level-2 goals: are weekly goals that together, are specific, difficult, but really attainable

How do you think that you can set your goal such that it will be at level 2 rather than level 3? What can make your goals easier to attain, more specific, or less challenging? How can we break up the activity into several less challenging goals? Do you think that for this week, setting these new goals will be challenging enough, but not impossible to attain? (Assist subjects set new goals for the next week.)

On the right-hand side of page 2, please rate how important or relevant each task is for your return to work, where a rating of 0 means that the task is not relevant for your returning to work and a rating of 7 means that it is very relevant for returning to work.

Please rate the overall goal difficulty of all of your weekly goals put together based on the following scale.

If the goals were too easy: (describe the difference between level-1 and level-2 goals.)

Level-1 goals: are weekly goals that together, are specific but so easy to attain that they are not really motivating. If together, the difficulty level of your goals is at level 1, then you may add new goals for this week, or change your goals until you feel that their summed level of difficulty is at level 2.

Level-2 goals: are weekly goals that together, are specific, difficult, but really attainable.

How do you think that you can set your goal such that it will be at level 2 rather than at level 1? What can make your goal more specific and/or more challenging? How can we add more activities to it so that your goals are more challenging? Do you think that for this week, setting these new goals will be challenging enough, but not impossible to attain? (Assist subjects set new goals for the next week.)

On the right-hand side of page 2, please rate how important or relevant each task is for your return to work, where a rating of 0 means that the task is not relevant for your returning to work and a rating of 7 means that it is very relevant for returning to work.

Please rate the overall goal difficulty of all of your weekly goals put together based on the following scale:

3. (For subjects who attained their goals:)

As we did last week, we will now set goals that you can attain by next week. Please go to page 2. On page 2 (Appendix I), write down the tasks that, together, constitute specific and difficult but attainable goals for the next week only.

On the right-hand side of the page, please rate how important or relevant each task is for your return to work, where a rating of 0 means that the task is not relevant for your returning to work and a rating of 7 means that it is very relevant for returning to work.

Please rate the overall goal difficulty of all of your weekly goals put together based on the following scale:

Level-3 goals: are weekly goals that together, are specific but so difficult that they are not really attainable. If together, the difficulty level of your goals is at level 3, then you may delete some of your goals or replace them with goals that are less difficult. Continue to replace or change your goals until you feel that their summed level of difficulty is at level 2.

Level-2 goals: are weekly goals that together, are specific, difficult, but really attainable.

Level-1 goals: are weekly goals that together, are specific but so easy to attain that they are not really motivating. If together, the difficulty level of your goals is at level 1, then you may add new goals for this week, or change your goals until you feel that their summed level of difficulty is at level 2.

4. (For all subjects, assess level of confidence, commitment to, importance and gains of achieving weekly goals, as well as social support).

On page 4, you will find questions about how you feel about achieving the goals that you set during this session. Please rate the items on the scales from 1 to 7:

Question 1 assesses how confident you feel about achieving your goals before the next session. Question 2 measures your level of commitment to the tasks, question 3 measures the importance of all of the goals together, and question 4 measures how much you expect to gain by achieving your weekly goals. In addition, questions 5 and 6 assess how supported you felt by the group and by your counsellor.

On the following page, you will answer questions about how you feel about returning to work and about the date set by your physician.

(Discuss any responses which indicate that subjects are not sufficiently confident or committed, or that their goals are not sufficiently important to be motivating. Note them down, with their reasons. If goals are still too difficult or not difficult enough, assist subjects to set more realistic goals at level 2.)

6. (Conclusion.)

In order to ensure that we have a copy of the work that you did today, I would like to keep a copy of your work sheets. Please bring back your work sheet for next week. If you have any questions or concerns during the week, please call (the researcher) at (the researcher's telephone number)

Post-test Session (For the researcher):

2. (Ask subjects to complete the following questionnaires: scales measuring self-efficacy and behavioural intention (Return to Work Questionnaire), the Salience Inventory, a short version of the Motivation Toward Psychotherapy Scale, the Life Satisfaction Scale, the RTW-Post-Test questionnaire, the Client Satisfaction Questionnaire, the Zung Depression Scale, and the State-Trait Anxiety Inventory).

The first questionnaire is the Salience Inventory. It assesses the importance of different activities in your life.

The Return to Work Questionnaire, the Life Satisfaction Scale, the Zung Depression Scale, and The STAI measure your general satisfaction with life, how you are feeling about yourself, and your attitude toward accomplishing your tasks. The MTPS measures how you feel about participating in the Work-Adjustment program. Lastly, the CSQ asks you to evaluate the quality of the services offered through the Work-Adjustment program.

I would like to call you again in approximately 3 months in order to see how you are coping with your RTW. In 3 months, I would also like to ask you some questions over the telephone, lasting about 20 minutes. (Confirm that it is OK to call subjects in 3 months.)

B. Video-Tape Group:

The pre-test session for the comparison group is identical to the pre-test session for the intervention group.

Sessions #1 to #4:

1. (Introduce subjects to the videotape intervention).

The purpose of the program you are participating in is to help you become better adjusted at work. The purpose of the next four sessions is to view and discuss some issues that are related to RTW.

2. (Introduce subjects to the videotape).

For Session 1: The videotape that we will be watching today is entitled "Humour, Risk, and Change".

For Session 2: The videotape that we will be watching today is entitled "Health, Stress and Coping"

For Session 3: The videotape that we will be watching today is entitled "Difficult People".

For Session 4: The videotape that we will be watching today is entitled "Head, Heart, and Health".

3. (Discussion of issues addressed by videotapes).

Do any of you have any questions about the issues addressed by the videotape we just watched?

(Answer any questions by encouraging the subjects to discuss the issue, providing support, and focusing on subjects' experience. Avoid: a) interpreting subjects' behaviour, b) active attempts to correct distorted thinking or provide feedback or advice to subjects, c) focusing on interpersonal conflicts, d) giving specific behavioural instructions, e) focusing on a specific psychological theme [Noycross & Goldfried, 1992]).

4. Following each session, ask subjects to fill out one questionnaire assessing the clarity of their goals, the way that they feel about their RTW, and their perceived level of social support in the session (See Appendix IV).

5. (Confirm appointments for the following sessions and provide Vivian's telephone number in case subjects have any questions).

Post-Test Session

The post-test session for the videotape group is identical to the post-test session for the goal-setting group.

I would like to call you again in 3 months in order to see how it is going. In 3 months, I would also like to ask you some questions over the telephone, lasting about 20 minutes. (Confirm that it is OK to call subjects in 3 months.)

Follow-up Session

The 3-month follow-up will take place over the telephone. Subjects will be asked to answer questions from the Vocational Follow-up Form, Minnesota Satisfaction Questionnaire (only if they have already returned to work), the Salience Inventory, the Life Satisfaction Scale, the RTW-Follow-up questionnaire, the Zung Depression Scale, and the STAI.

Appendix I

Sessions #1-4

Long-Term Goal of Returning to Work (Session #1 only)

For each of the items, please indicate which response reflects what type of employment you would ultimately want to attain at your return to work.

1. I would ultimately like to return to _____.

- a) my old job
- b) a new job

2. I would ultimately like to return to work _____.

- a) full-time
- b) half-time
- c) part-time

3. I would ultimately like to return to _____.

- a) a permanent job
- b) a temporary job

4. I would like to return to work _____.

- a) for my old employer
- b) for a different employer

5. I would not like to return to work (check only if this applies to you) _____.

Page 2. Setting Short-Term Goals Related to Returning to Work (Session #1 only)**Relevant Short-Term Goals For Returning to Work Within the Next Two Months**

Please list as many goals as you would like to achieve within the next 2 months.

1. _____
2. _____
3. _____
4. _____
5. _____

Possible Short-Term Goals Related to Returning to Work (Session #1 only)

Page 3.

- a) Contacting my physician to get medical clearance for returning to work.
- b) Contacting my old employer in order to ask him or her when I can return to work.
- c) Learning about different ways of interacting with my co-workers.
- d) Meeting with my employer in order to discuss the conditions for my return to work.
- e) Attending exercise classes.
- f) Arranging to have regular transportation for going to work. (Speaking with a family member, friend or colleague about being driven to work every morning, for the next few weeks).
- g) Spending more time with my family.
- h) Applying for a new job in my old company.
- i) Applying for a new job in a new company.
- j) Discussing my work concerns with a vocational counsellor.
- k) Arranging to get involved in a leisure or community activity.
- l) Discussing my return to work with my spouse/family/friend.
- m) Setting an appointment with my physician in order to discuss my health concerns.
- n) Getting informed about training for new job.
- o) Attending a course which will help me be more qualified at my job.
- p) Clarifying with a physiotherapist, occupational therapist or vocational counsellor what tasks I am capable and not capable of doing.
- q) Attending sessions at the HIPRC.

Page 4. Weekly Goals Directed Toward Returning to Work (Sessions #1-4)

Session number: _____

Tasks to Be Completed

By Next Week:

not at all
relevantvery
relevant

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7

Difficulty level of all weekly goals put together (level 1, 2 or 3): _____

For Next Week Only: Date: _____

What goals did you achieve during the past week? Please list them on the lines below. Then, on the following scale, rate how successful you were in achieving each of your goals.

**Goals Achieved Over
the Past Week**Not at all
successfulPartially
successfulVery
successful

0.....1.....2.....3.....4.....5

0.....1.....2.....3.....4.....5

0.....1.....2.....3.....4.....5

0.....1.....2.....3.....4.....5

0.....1.....2.....3.....4.....5

Overall:

0.....1.....2.....3.....4.....5

Sessions # 2, 3, and 4

(Page 1 includes a photocopy of goal sheet from the previous week. Only the bottom part of the page should be completed.)

Page 2.

Activities Planned but Not Carried Out During Session _____

1. _____
2. _____
3. _____

Factors which prevented me from attaining my goals:

1. _____
2. _____
3. _____

What is going to prevent me in the future from attaining my goals?

1. _____
2. _____
3. _____

Ways in which I can overcome my obstacles and find a solution to attain my goal(s):

1. _____
2. _____
3. _____
4. _____

Based on my previous experience, how would I modify my situation?

1. _____
2. _____
3. _____
4. _____

Appendix II

Page 1.

Information Sheet: Session #1**Setting Goals for Your Return to Work**

To be able to set good goals, you can consider the following things:

Goals must be specific and measurable:

Bad example: "I want to get back to my job".

Good example: "I have to do a lot of overhead reaching in my job. I need to increase the strength in my left arm to be able to lift at least 10 lbs. overhead".

Goals are more motivating if they are challenging:

Bad example #1: "I'm going to walk for 10 minutes per day so that I don't exert myself too much".

Bad example #2: "I'm going to jog for 2 hours every day so that I will get into shape quickly".

Good example: "I'm going to walk for one hour per day. It's more than I am used to, but it won't compromise my health".

Goals are better if they are realistic:

Bad example: "I'm planning on winning the lottery so that I do not have to worry about returning to work".

Good example: "By taking regular breaks, I am able to work around the house maybe two to three hours. I would like to increase this to four or five hours within the next six weeks".

Goals are better if they are more meaningful and more relevant:

Bad example: "I want to remember to put my socks in the laundry basket every morning".

Good example: "I want to arrange a meeting with my supervisor to negotiate a modified work position".

page 2.

Weekly Goals: Difficulty Levels

Level-3 goals: are weekly goals that together, are specific but so difficult that they are not really attainable. If together, the difficulty level of your goals is at level 3, then you may delete some of your goals or replace them with goals that are less difficult. Continue to replace or change your goals until you feel that their summed level of difficulty is at level 2.

Level-2 goals: are weekly goals that together, are specific, difficult, but really attainable.

Level-1 goals: are weekly goals that together, are specific but so easy to attain that they are not really motivating. If together, the difficulty level of your goals is at level 1, then you may add new goals for this week, or change your goals until you feel that their summed level of difficulty is at level 2.

Appendix III

Questions About Your Goals: Session #1

Working Toward Your Goals

It is important to have some strategies or ways of approaching your goals. The following questions will help you develop skills and strategies on working on the goals that you have set.

1. What have I already done towards achieving my goals?

2. What else do I think I need to help me achieve my goals?

3. What kinds of things are going to help me?

Troubleshooting Around Goals

Some things that you may have attempted to change in the past that have not been successful require a different approach. In trying to look at different ways of tackling your goals for returning to work, consider some of the following:

1. Often goals involve trying to change a problem. Ask yourself are there any times or situations when that problem is less bothersome or does not occur?

2. What is different about those times or those circumstances?

3. Is there anything that you do differently then, either in the way you think, the activities that you do, or other behaviours and feelings?

4. How do you make that happen?

5. What do you do right now to address that problem?

6. Does it work? If not, why do you keep doing it?

7. Sometimes doing anything differently is better than continuing to do something that does not work. Can you make a list of all of the possible things that you can do that could help you solve your problem?

Evaluating Your Goals

When you set a goal, it is important to know that you have some way of evaluating or judging whether you have managed to reach it. Consider the following questions:

1. How will I know that I have reached my goal or what will be the first sign to me that I have reached my goal?

2. Who else will notice or who would be the first person to notice that I have done that?

3. How will I be different when I have reached my goal?

4. What would somebody else notice?

How To Deal With Having to Make Pasta

1. Buy a box of spaghetti.
2. Pretend you made it yourself.
3. Order ready made pasta in.
4. Get a pasta machine.
5. Avoid pasta and eat something else.
6. Have a pasta party so others can make it.
7. Find easier pasta to make.
8. Learn to adapt to life without pasta.
9. Get a higher or lower kitchen table on which to work on.
10. Get someone to pull the handle for the pasta maker.
11. Give up pasta from your diet.
12. Invite over friends who make pasta.
13. Convince yourself that pasta is no good.
14. Marry an Italian.
15. Divorce and marry an Italian.
16. Write Pasquale and ask for pasta samples.
17. Hire a cook.
18. Eat at restaurants that serve pasta.
19. Invite your mother to stay at home so she can make pasta.
20. Take pain killers and make pasta.

How do You Prepare Yourself and Cope With a Visit to a Specialist or New Doctor?

1. Make a list of your questions and concerns and bring it to the appointment.
2. Find out what information the specialist or new doctor has on you.
3. Send a list summarizing your medical treatment and history before you go into the appointment.
4. Get your GP, rehabilitation worker, etc., to send material.
5. Talk to your lawyer.
6. Find out how to get to the doctor's office so that you don't get lost.
7. Make a list of all the medications that you are taking.
8. Bring a book to read in the waiting room.
9. Do relaxation before you go in.
10. Phone the receptionist to find out what the doctor will usually ask on the first session.
11. Schedule the appointment at a time that is convenient.
12. Find out how long you are likely to wait.
13. Try to get information from the referral source about what the doctor is like.
14. Get information about what kind of doctor he or she is.
15. Make sure you have specific requests or questions for the doctor.
16. Bring any x-rays or reports you have.
17. Keep a diary or record of your symptoms.
18. Bring a list of people you would like reports or tests to go to.
19. Schedule the appointment at a time when you are either at your worst or your best, whichever is more important.
20. Rehearse or practice what you want to say to the doctor.
21. Decide what you want to wear.
22. Bring a translator.

23. Bring your husband/wife/children.
24. Bring a note pad so you can take notes.
25. Review your medical history before you go in.

Appendix IV

Page 6. Questions About Your Session Number: _____

1. How clear were your goals during this session?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

2. How satisfied are you with the date set by your physician to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

3. How strongly do you intend to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

4. How capable do you feel about returning to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

5. How strongly do you value returning to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

6. How strongly do you expect to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

7. How strongly do you feel that your return to work depends on your decision to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

8. How much support did you get from the members of your Work Adjustment group today?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

Session number: _____

1. How confident are you that you will be able to achieve the personal goals you set this week?

Not at all confident		a little confident		moderately confident		very confident
-------------------------	--	-----------------------	--	-------------------------	--	-------------------

1	2	3	4	5	6	7
---	---	---	---	---	---	---

2. How committed are you to achieving the personal goals you set this week?

Not at all committed		a little committed		moderately committed		very committed
-------------------------	--	-----------------------	--	-------------------------	--	-------------------

1	2	3	4	5	6	7
---	---	---	---	---	---	---

3. How important is it to you to be able to achieve the personal goals you set this week for next week?

Not at all important		a little important		moderately important		very important
-------------------------	--	-----------------------	--	-------------------------	--	-------------------

1	2	3	4	5	6	7
---	---	---	---	---	---	---

4. How much do you expect to gain by achieving your goals?

Nothing to be gained		a little to be gained		a moderate amount to be gained		quite a bit to be gained
-------------------------	--	--------------------------	--	--------------------------------------	--	-----------------------------

1	2	3	4	5	6	7
---	---	---	---	---	---	---

5. How supportive did you find the group members?

Not at all supportive		a little supportive		moderately supportive		very supportive
--------------------------	--	------------------------	--	--------------------------	--	--------------------

1	2	3	4	5	6	7
---	---	---	---	---	---	---

C-5.

[illegible]

C-5.

[illegible]

C-5.

12

C-5. INTERVENTION PROCESS CHECKLIST (Researcher, Time 1, 20 Audiotapes)

Type of Treatment	Goal-Setting										Video-Tape									
Session Number	1	1	1	2	2	2	3	3	4	4	1	1	1	2	2	2	3	3	4	4
Cassette Number	1	2	11	4	6	11	5	9	13	19	3	17		7	12	15	8	12	10	16
Specific Activity																				
Subjects referred directly to topic of video-tape (attitude, stress, difficult people, stress).												x	x	x	x	x	x	x	x	x
Counselor asked subjects what they thought of video-tape.												x								x
Subjects answered questionnaires at the end of the session.	x	x	x	x	x		x	x	x			x	x	x	x				x	x

C-5,

INTERVENTION PROCESS CHECKLIST (Researcher, Time 2, 8 Audiotapes)

[illegible]

C-5.

Type of Treatment	Goal-Setting					Video-Tape				
	1	2		3	4		1	2	3	4
Session Number	1	2			4					
Cassette Number	11	20		5	13		17	7	21	16
Specific Activity										
Subjects completed a list of goals for the following week.	x	x		x	x					
Subjects rated the relevance and difficulty level of their goals.	x	x		x	x					
Counselor gave homework assignment to subjects ("Troubleshooting....").	x									
Subjects went over the "Troubleshooting" question-naire with the counselor.		x								
Subjects rated how successful they were at achieving the goals set during the previous week.		x		x	x					

C-5.

Type of Treatment	Goal-Setting							Video-Type				
Session Number	1		2		3		4		1	2	3	4
Cassette Number	11		20		5		13		17	7	21	16
Specific Activity												
Subjects made a list of goals not achieved during the previous week, and answered specific questions about those goals.			x		x		x					
Counselor provided feedback to subjects about goals that they set during the previous week.			x		x		x					
Counselor gave feedback to subjects about the specificity, relevance and challenge of goals that they were actually setting.	x		x		x		x					
Counselor suggested what goals subjects could set for the following week.	x		x		x							

C-5. INTERVENTION PROCESS CHECKLIST (Researcher, Time 2, 8 Audiotapes)

Type of Treatment	Goal-Setting					Vico-Tape				
	1	2	3	4		1	2	3	4	
Session Number										
Cassette Number	11	20	5	13		17	7	21	16	
Specific Activity										
Counselor directed subjects to return to goal-setting activities	x	x	x	x						
Counselor reflected ideas, made interpretations, or asked questions.	x	x	x	x		x	x	x	x	
Subjects spontaneously set goals through discussion.	x									
Subjects discussed their RTW.	x	x		x		x	x	x	x	
Subjects discussed issues less related to RTW.	x	x	x	x		x	x		x	
Subjects discussed health-related issues.	x	x		x		x	x	x	x	
Counselor introduced the video-tape.						x		x	x	

C-5. INTERVENTION PROCESS CHECKLIST (Researcher, Time 2, 8 Audiotapes)

Type of Treatment	Goal-Setting					Vico-Tape				
	1	2	3	4		1	2	3	4	
Session Number	1									
Cassette Number	11	20	5	13		17	7	21	16	
Specific Activity										
Subjects referred directly to topic of video-tape (attitude, stress, difficult people, stress).						x	x	x	x	
Counselor asked subjects what they thought of video-tape.						x		x	x	
Subjects answered questionnaires at the end of the session.	x	x	x	x		x	x	x	x	

C-5.

INTERVENTION PROCESS CHECKLIST (Thesis Supervisor, 8 Audiotapes)

[illegible]

C-5.

Type of Treatment	Goal-Setting					Video-Tape				
	1	2	3	4			1	2	3	4
Session Number	1	2	3	4			1	2	3	4
Cassette Number	11	20	5	13			17	7	21	16
Specific Activity										
Subjects completed a list of goals for the following week.	x	x	x	x						
Subjects rated the relevance and difficulty level of their goals.	x	x	x	x						
Counselor gave homework assignment to subjects ("Troubleshooting...").	x									
Subjects went over the "Troubleshooting" question-naire with the counselor.		x								
Subjects rated how successful they were at achieving the goals set during the previous week.		x	x	x						

5.

Type of Treatment	Goal-Setting					Vico-Tape				
	1	2	3	4		1	2	3	4	
Session Number	1	2		4						
Cassette Number	11	20	5	13		17	7	21	16	
Specific Activity										
Subjects made a list of goals not achieved during the previous week, and answered specific questions about those goals.		x		x						
Counsellor provided feedback to subjects about goals that they set during the previous week.		x	x	x						
Counsellor gave feedback to subjects about the specificity, relevance and challenge of goals that they were actually setting.	x	x	x	x						
Counsellor suggested what goals subjects could set for the following week.	x		x							

C-5.

Type of Treatment	Goal-Setting						Video-Tape						
	1	2	3	4			1	2	3	4			
Session Number	1	2											
Cassette Number	11	20	5	13			17	7	21	16			
Specific Activity													
Counsellor directed subjects to return to goal-setting activities		x	x										
Counsellor reflected ideas, made interpretations, or asked questions.	x	x	x	x			x	x	x	x			
Subjects spontaneously set goals through discussion.													
Subjects discussed their RTW.	x	x	x				x		x				
Subjects discussed issues less related to RTW.			x	x			x	x		x			
Subjects discussed health-related issues.	x	x	x				x	x	x				
Counsellor introduced the video-tape.									x				

C-5. INTERVENTION PROCESS CHECKLIST (Thesis Supervisor, 8 Audiotapes)

Type of Treatment	Goal-Setting								Vico-Tape							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Session Number	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Cassette Number	11	20	5	13					17	7	21	16				
Specific Activity																
Subjects referred directly to topic of video-tape (attitude, stress, difficult people, stress).									x	x	x	x				
Counselor asked subjects what they thought of video-tape.									x		x	x				
Subjects answered questionnaires at the end of the session.			x						x	x	x	x				

Appendix D

- D-1. Vocational Prognosis Form
- D-2. Self-Efficacy Scales
- D-3. Commitment Scale of the Salience Inventory
- D-4. Client Motivation for Therapy Scale (Earlier version known as the Motivation Toward Psychotherapy Scale)
- D-5. Conscientiousness Scale of the NEO-FFI
- D-6. Satisfaction with Life Scale
- D-7. Zung Self-Rating Depression Scale
- D-8. State-Trait Anxiety Inventory
- D-9. Vocational Follow-Up Form
- D-10. Client Satisfaction Questionnaire - 8 Item Version
- D-11. Minnesota Satisfaction Questionnaire - Short Form
- D-12. Questionnaire Administered to the Goal-Setting Group
- D-13. Questionnaire Administered to the Goal-Setting and Video-Tape Groups

VOCATIONAL PROGNOSIS FORM (VPF)

NAME: _____

ADDRESS: _____

TELEPHONE NO. _____ HOME: _____ WORK: _____

DATE OF BIRTH: _____ SEX: _____

DATE OF DISCHARGE FROM HEART INSTITUTE: _____

DID PATIENT HAVE COPY OF THE VPF IN FRONT OF HIM/HER DURING THE TELEPHONE INTERVIEW: YES _____ NO _____

DATE WHEN TELEPHONE INTERVIEW WAS CARRIED OUT: _____

HEALTH

A. What was the nature of your 1st cardiac event?

1. I've never had a cardiac event
2. I had angina
3. I had angioplasty
4. I had a heart attack
5. I had cardiac surgery (valve, bypass, transplant, etc)

When: _____
 month year

B. What was the nature of your most recent cardiac event:

1. I've never had a cardiac event
2. I've only had one cardiac event
3. I've had angina (chest pain)
4. I've had angioplasty
5. I've had an M.I. (heart attack)
6. I've had cardiac surgery (valve, bypass, transplant, etc).

When: _____
 month year

C. What is your current marital status?

1. single
2. married and living with spouse
3. separated
4. divorced
5. widowed
6. co-habiting

1. How many years of formal education have you completed?
- 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
 (Primary) (Secondary) (College/University)
2. As of the last week, how would you rate the condition of your heart on a 0 to 10 scale, where 0 equals "poor", and 10 equals "excellent".
- 0 1 2 3 4 5 6 7 8 9 10
 Poor Excellent
3. As of the last week, how would you rate your overall state of physical health on a 0 to 10 scale, where 0 equals "poor", and 10 equals "excellent".
- 0 1 2 3 4 5 6 7 8 9 10
 Poor Excellent
3. As of the last week, how would you rate your overall state of emotional health on a 0 to 10 scale, where 0 equals very depressed and 10 equals very happy and 5 equals neither depressed nor happy.
1. 0 1 2 3 4 5 6 7 8 9 10
 very depressed neither depressed nor happy very happy
- On a 0 to 10 scale, where 0 equals very anxious, and 10 equals not at all anxious.
2. 0 1 2 3 4 5 6 7 8 9 10
 very anxious not at all anxious

EMPLOYMENT

- H. As of today, which of the following best describes your work situation?
1. I am already back at work for pay full time (35 hrs/wk)
 2. I am already back at work for pay part-time (20-34 hrs per wk)
 3. I am already back at work for pay part time (1-19 hrs per wk)
 4. I am not yet back at work for pay but I plan to go back to my old job with my old employer as soon as possible.
 5. I am not yet back at work for pay but I plan to go to a new job with my old employer as soon as I am able.
 6. I am not yet back at work for pay but I plan to go to a new job with a new employer as soon as I am able.

7. I am not yet back at work for pay and I do not plan to go back because I consider myself permanently retired.

I. Please describe your current or your most recent job?

1. What kind of work are/were you doing? (exact, detailed, job title)

(for example: Electrical Engineer, Stock Clerk, Farmer, Chief Quality Assurance in Computers)

2. What are/were your most important activities or duties?

(for example: kept accounting books, filed, sold cars, operated printing press, finished concrete)

3. What kind of business or industry is/was this?

(for example: T.V. and radio manufacturing, retail shoe store, provincial or federal labor dept, farm)

4. Are/were you:

- i) an employee of a PRIVATE business or individual for wages, salary or commissions?
- ii) a GOVERNMENT employee (federal, provincial, county, local government?)
- iii) self-employed in: Own business, professional practice or farm?

Own business (not incorporated) or farm

Own business (incorporated)

- iv) working WITHOUT PAY in a family business or farm

5. When did you start this job? _____
month year

6. When were you last at this job? _____
month year

7. What is/was your gross income from this job per month? _____

8. How many hours (ie. paid hours) do/did you work at this job per average week? _____

9. How do/did you like this job?

1. I hate(d) it
2. I dislike(d) it
3. I don't (didn't) like it
4. I am (was) indifferent to it
5. I like(d) it
6. I am (was) enthusiastic about it
7. I love(d) it

J. Do you think your physician will let you return to work on a 0 to 10 scale, where 0 equals definitely not, and 10 equals definitely yes, and 5 equals uncertain.

0	1	2	3	4	5	6	7	8	9	10
Definitely					Uncertain					Definitely
Not										Yes

K. Do you think your employer will let you return to the same job or a comparable job on a 0 to 10 scale, where 0 equals definitely not, and 10 equals definitely yes, and 5 equals uncertain.

0	1	2	3	4	5	6	7	8	9	10
Definitely					Uncertain					Definitely
Not										Yes

L. Are you currently receiving any income from any of the following:

1. Veterans Benefits
2. Disability Pension from Canada Pension Plan
3. Disability Pension from Quebec Pension Plan
4. Worker's Compensation Board
5. Private Disability Insurance
6. Vocational Rehabilitation Services
7. Automobile Insurance Plan of Quebec
8. Unemployment Insurance
9. Family Benefits Act
10. General Welfare Assistance
11. Sick leave from the Employer
12. Savings
13. Spouse's Earnings

15. None of the above _____ please explain

on a 0 to 10 scale, where 0 equals definitely not, 10 equals definitely yes and 5 equals uncertain.

0	1	2	3	4	5	6	7	8	9	10
Definitely Not					Uncertain					Definitely Yes

on a 0 to 10 scale, where 0 equals not at all confident, 10 equals extremely confident and 5 equals uncertain.

	0	1	2	3	4	5	6	7	8	9	10
Not at all confident						Uncertain					Extremely confident

on a 0 to 10 scale, where 0 equals not at all confident, 10 equals extremely confident and 5 equals uncertain.

0	1	2	3	4	5	6	7	8	9	10
Not at all					Uncertain					Extremely confident

0	1	2	3	4	5	6	7	8	9	10
Not at all confident					Uncertain					Extremely confident

Finally, considering all of the many issues involved (medical, financial, family, emotional), how strong would you rate, as of today, your intention to return to your old job with your old employer?

on a 0 to 10 scale, where 0 equals no intention at all of returning to my old job, 10 equals extremely strong intention of returning to my old job and 5 equals uncertain.

0	1	2	3	4	5	6	7	8	9	10
no intention					uncertain		extremely strong			
at all of							intention of			
returning to							returning to my old			
my old job							job			

Thank you very much for your cooperation.

not complete

most recent stress test results (in METS) _____

date of most recent stress test _____

study I.D. # _____

Return to Work Questionnaire

1. I believe that I can return to work.

do not agree	slightly agree	moderately agree	strongly agree
--------------	----------------	------------------	----------------

1.....2.....3.....4.....5.....6.....7

2. Returning to work would be a difficult thing for me to do.

do not agree	slightly agree	moderately agree	strongly agree
--------------	----------------	------------------	----------------

1.....2.....3.....4.....5.....6.....7

3. When I become aware of problems related to returning to work, I remain hopeful that I can still return to work.

do not agree	slightly agree	moderately agree	strongly agree
--------------	----------------	------------------	----------------

1.....2.....3.....4.....5.....6.....7

4. Returning to work would make me feel good about myself.

do not agree	slightly agree	moderately agree	strongly agree
--------------	----------------	------------------	----------------

1.....2.....3.....4.....5.....6.....7

5. If I return to work, it will be easier to feel good about myself.

do not agree	slightly agree	moderately agree	strongly agree
--------------	----------------	------------------	----------------

1.....2.....3.....4.....5.....6.....7

6. I place a lot of value on returning to work.

do not agree	slightly agree	moderately agree	strongly agree
--------------	----------------	------------------	----------------

1.....2.....3.....4.....5.....6.....7

7. Heart patients like me who return to work are generally happier and more successful than those who don't return to work.

do not agree slightly agree moderately agree strongly agree

1.....2.....3.....4.....5.....6.....7

8. Our society places much value on returning to work after a heart attack or bypass surgery.

do not agree slightly agree moderately agree strongly agree

1.....2.....3.....4.....5.....6.....7

9. People whose opinions I care about feel it is important that I return to work.

do not agree slightly agree moderately agree strongly agree

1.....2.....3.....4.....5.....6.....7

10. I intend to return to work as soon as possible.

do not agree slightly agree moderately agree strongly agree

1.....2.....3.....4.....5.....6.....7

11. If I find that a return to work is too difficult, I will stop trying.

do not agree slightly agree moderately agree strongly agree

1.....2.....3.....4.....5.....6.....7

12. The next time I am out of work for a certain period of time, I will return to work.

do not agree slightly agree moderately agree strongly agree

1.....2.....3.....4.....5.....6.....7

Saliency Inventory (Super and Nevill, 1985)

For each statement, circle the response that best represents your opinion.

1 means Little or none

2 means Some

3 means Quite a lot

4 means A great deal

A. It is or will be important to me to be good in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

B. I am or expect to be very much involved in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

C. I would like to be remembered for what I did in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

D. I would like to be active for many years in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

E. I am committed to being active in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

F. I am or will be proud to do well in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

G. I feel personally involved in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

H. I admire people who are good at:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

I. I find it fulfilling to take part in:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

J. I would like to have plenty of time for:

- | | | | | |
|-----------------------|---|---|---|---|
| 1. studying | 1 | 2 | 3 | 4 |
| 2. working | 1 | 2 | 3 | 4 |
| 3. community service | 1 | 2 | 3 | 4 |
| 4. home and family | 1 | 2 | 3 | 4 |
| 5. leisure activities | 1 | 2 | 3 | 4 |

MTPSPRE

Interest in Undergoing a RTW Intervention

1. How interested are you in participating in the Work-Adjustment program?

not interested slightly moderately very interested
interested interested interested

1.....2.....3.....4.....5.....6.....7

Section A: Why did you decide to participate in this Work Adjustment program?

- | | Does not
correspond | | Corresponds
moderately | | Corresponds
exactly | | |
|---|------------------------|---|---------------------------|---|------------------------|---|---|
| 1. Because other people think that it's a good idea for me to participate in a Work Adjustment program. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Honestly, I have the impression that the program will not be worth it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. For the pleasure I expect to experience when I get into discussions with other members of the Work Adjustment program. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Because I would feel guilty if I was not doing anything about returning to work. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. Because I can learn how to make changes in my current work situation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

		Does not correspond		Corresponds moderately			Corresponds exactly	
6.	Because I believe that eventually the Work Adjustment program will allow me to feel better about returning to work.	1	2	3	4	5	6	7
7.	Because I would feel bad about myself if I didn't participate in the Work Adjustment program.	1	2	3	4	5	6	7
8.	Because I should have a better understanding of returning to work.	1	2	3	4	5	6	7
9.	For the enjoyment I expect to feel when I understand the process of returning to work.	1	2	3	4	5	6	7
10.	For the enjoyment I expect to feel when I learn new ways of approaching my work situation.	1	2	3	4	5	6	7
11.	Because I want to understand my work situation better.	1	2	3	4	5	6	7
12.	I wonder what I will be doing in this group; actually, I expect to find it boring.	1	2	3	4	5	6	7
13.	Because I think that I will like the feeling of improving with the help of this Work Adjustment program.	1	2	3	4	5	6	7
14.	I don't know; I never really thought about it before.	1	2	3	4	5	6	7
15.	Because I believe that the Work Adjustment program will allow me to deal with returning to work better.	1	2	3	4	5	6	7
16.	Because through the Work Adjustment program, I can come to see better ways to approach my return to work.	1	2	3	4	5	6	7

		Does not correspond		Corresponds moderately			Corresponds exactly	
17.	Because my partner/friend insists that I participate in this Work Adjustment program.	1	2	3	4	5	6	7
18.	For the personal satisfaction I think I will feel when I accomplish things through the Work Adjustment program.	1	2	3	4	5	6	7
19.	For the simple pleasure I think I will feel in learning to improve my current work situation.	1	2	3	4	5	6	7
20.	Because through the group I feel that I will learn to take responsibility to change my work situation.	1	2	3	4	5	6	7
21.	Because it is important to continue participating in the Work Adjustment program until it is finished.	1	2	3	4	5	6	7
22.	I had very good reasons for wanting to participate. Now I wonder whether I should quit.	1	2	3	4	5	6	7
23.	Because I don't want to upset people close to me who want me to participate in the Work Adjustment program.	1	2	3	4	5	6	7
24.	Because I feel that changes that I can learn to make through the program will become part of me.	1	2	3	4	5	6	7
25.	Because I value the way the program can teach me to make changes in my work situation.	1	2	3	4	5	6	7

MTPSPOST

Interest in Undergoing a RTW Intervention

1. How interesting was it to participate in the Work-Adjustment program?

not interested slightly moderately very interested
interested interested interested

1.....2.....3.....4.....5.....6.....7

Section A: Why did you participate in the Work-Adjustment program?

- | | Does not
correspond | | Corresponds
moderately | | Corresponds
exactly | |
|--|------------------------|---|---------------------------|---|------------------------|-----|
| 1. Because other people thought that it was a good idea for me to participate in the Work-Adjustment group. | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 2. Honestly, I have the impression that the Work-Adjustment program was not worth it. | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 3. For the pleasure I experienced when I got involved in the Work-Adjustment program to discuss returning to work. | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 4. Because felt guilty if I was not doing anything about returning to work. | 1 | 2 | 3 | 4 | 5 | 6 7 |
| 5. Because I wanted to learn to make changes in my current work situation. | 1 | 2 | 3 | 4 | 5 | 6 7 |

		Does not correspond		Corresponds moderately		Corresponds exactly	
6.	Because I believed that eventually the Work-Adjustment program would help me feel better about returning to work.	1	2	3	4	5	6 7
7.	Because I would have felt bad about myself if I didn't participate in the Work-Adjustment program.	1	2	3	4	5	6 7
8.	Because I wanted to have a better understanding about returning to work.	1	2	3	4	5	6 7
9.	For the enjoyment I felt when I better understood my return to work.	1	2	3	4	5	6 7
10.	For the enjoyment I felt when I learned new ways to approach my work situation.	1	2	3	4	5	6 7
11.	Because I wanted to better understand my work situation.	1	2	3	4	5	6 7
12.	I wonder what I was doing in this group; actually, I found it boring.	1	2	3	4	5	6 7
13.	Because I liked the feeling of improving my work situation with the help of this group.	1	2	3	4	5	6 7
14.	I don't know; I never really thought about it before.	1	2	3	4	5	6 7
15.	Because I believed that the Work-Adjustment group would help me better deal with returning to work.	1	2	3	4	5	6 7
16.	Because through the Work-Adjustment group I was better able to see ways in which I can approach my return to work.	1	2	3	4	5	6 7

		Does not correspond		Corresponds moderately			Corresponds exactly	
17.	Because my partner/friend insisted that I be in the Work-Adjustment group.	1	2	3	4	5	6	7
18.	For the personal satisfaction I felt when I accomplished things through the Work-Adjustment group.	1	2	3	4	5	6	7
19.	For the simple pleasure I felt when I dealt with my current work situation.	1	2	3	4	5	6	7
20.	Because through the Work-Adjustment group I felt that I was better able to take responsibility for changing my work situation.	1	2	3	4	5	6	7
21.	Because it was important to continue in the Work-Adjustment group until it was finished.	1	2	3	4	5	6	7
22.	I had very good reasons for participating. Now I wonder whether I should have quit.	1	2	3	4	5	6	7
23.	Because I didn't want to upset people close to me who wanted me to participate in the Work-Adjustment group.	1	2	3	4	5	6	7
24.	Because I felt that changes that I learned to make through the Work-Adjustment group would become part of me.	1	2	3	4	5	6	7
25.	Because I valued the way the group was able to help me make changes in my work situation.	1	2	3	4	5	6	7

Section A: Your Counsellor

		Does not correspond		Corresponds moderately			Corresponds exactly	
		1	2	3	4	5	6	7
1.	The feedback I received from the counsellor was constructive in helping me make improvements in my current work situation.	1	2	3	4	5	6	7
2.	When I asked the counsellor to help me with returning to work, she asked me what I thought before giving me her opinion.	1	2	3	4	5	6	7
3.	The counsellor gave me feedback on how I was improving.	1	2	3	4	5	6	7
4.	The counsellor tried to impose her ideas on me.	1	2	3	4	5	6	7
5.	The feedback I got from the counsellor was basically useless criticisms.	1	2	3	4	5	6	7
6.	I felt the counsellor was indifferent toward me.	1	2	3	4	5	6	7
7.	The counsellor pressured me to do what she wanted.	1	2	3	4	5	6	7
8.	The counsellor consulted me before making a decision on how to approach returning to work.	1	2	3	4	5	6	7
9.	The counsellor was controlling toward me.	1	2	3	4	5	6	7
10.	I felt that the counsellor did not care if I made improvements in returning to work.	1	2	3	4	5	6	7
11.	The counsellor provided me many opportunities to make personal decisions in returning to work.	1	2	3	4	5	6	7
12.	The counsellor did not give me choice regarding how I could approach returning to work.	1	2	3	4	5	6	7

NEO Five-Factor Inventory

This questionnaire contains 12 statements. Read each statement carefully. For each statement circle the response that best represents your opinion.

strongly disagree	disagree	neutral	agree	strongly agree
1	2	3	4	5
1. I keep my belongings clean and neat.			1 2 3 4 5	
2. I'm pretty good about pacing myself so as to get things done on time.			1 2 3 4 5	
3. I am not a very methodical person.			1 2 3 4 5	
4. I try to perform all the tasks assigned to me conscientiously.			1 2 3 4 5	
5. I have a clear set of goals and work toward them in an orderly fashion.			1 2 3 4 5	
6. I waste a lot of time before settling down to work.			1 2 3 4 5	
7. I work hard to accomplish my goals.			1 2 3 4 5	
8. When I make a commitment, I can always be counted on to follow through.			1 2 3 4 5	
9. Sometimes I'm not as dependable or reliable as I should be.			1 2 3 4 5	
10. I am a productive person who always gets the job done.			1 2 3 4 5	
11. I never seem to be able to get organized.			1 2 3 4 5	
12. I strive for excellence in everything I do.			1 2 3 4 5	

Satisfaction With Life Scale (Diener, Emmons, Larsen, and Griffin, 1985)

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement by circling the appropriate number to the right of the item. Please be open and honest in your responding.

Do not agree		Slightly agree		Moderately agree		Strongly agree
1	2	3	4	5	6	7
1. In most ways my life is close to my ideal.					1 2 3 4 5 6 7	
2. The conditions of my life are excellent.					1 2 3 4 5 6 7	
3. I am satisfied with my life.					1 2 3 4 5 6 7	
4. So far I have gotten the important things I want in my life.					1 2 3 4 5 6 7	
5. If I could live my life over, I would change almost nothing.					1 2 3 4 5 6 7	

me _____ Age _____ Sex _____ Date _____

ZUNG DEPRESSION SCALE (SDS)

	None OR a little of the time	Some of the time	Good part of the time	Most OR all of the time
1. I feel down-hearted, blue and sad.				
2. Morning is when I feel the best.*				
3. I have crying spells or feel like it.				
4. I have trouble sleeping through the night.				
5. I eat as much as I used to.*				
6. I enjoy looking at, talking to and being with attractive women/men.*				
7. I notice that I am losing weight.				
8. I have trouble with constipation.				
9. My heart beats faster than usual.				
10. I get tired for no reason.				
11. My mind is as clear as it used to be.*				
12. I find it easy to do the things I used to do.*				
13. I am restless and can't keep still.				
14. I feel hopeful about the future.*				
15. I am more irritable than usual.				
16. I find it easy to make decisions.*				
17. I find that I am useful and needed.*				
18. My life is pretty full.*				
19. I feel that others would be better off if I were dead.				
20. I still enjoy the things I used to do.*				

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name _____ Date _____ S _____
Age _____ Sex: M _____ F _____ T _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

VERY MUCH SO
MODERATELY SO
SOMEWHAT
NOT AT ALL

- | | | | | |
|--|---|---|---|---|
| 1. I feel calm | ① | ② | ③ | ④ |
| 2. I feel secure | ① | ② | ③ | ④ |
| 3. I am tense | ① | ② | ③ | ④ |
| 4. I feel strained | ① | ② | ③ | ④ |
| 5. I feel at ease | ① | ② | ③ | ④ |
| 6. I feel upset | ① | ② | ③ | ④ |
| 7. I am presently worrying over possible misfortunes | ① | ② | ③ | ④ |
| 8. I feel satisfied | ① | ② | ③ | ④ |
| 9. I feel frightened | ① | ② | ③ | ④ |
| 10. I feel comfortable | ① | ② | ③ | ④ |
| 11. I feel self-confident | ① | ② | ③ | ④ |
| 12. I feel nervous | ① | ② | ③ | ④ |
| 13. I am jittery | ① | ② | ③ | ④ |
| 14. I feel indecisive | ① | ② | ③ | ④ |
| 15. I am relaxed | ① | ② | ③ | ④ |
| 16. I feel content | ① | ② | ③ | ④ |
| 17. I am worried | ① | ② | ③ | ④ |
| 18. I feel confused | ① | ② | ③ | ④ |
| 19. I feel steady | ① | ② | ③ | ④ |
| 20. I feel pleasant | ① | ② | ③ | ④ |



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SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

ALMOST NEVER
SOMETIMES
OFTEN
ALMOST ALWAYS

- | | | | | |
|--|-------------------------|-------------------------|-------------------------|-------------------------|
| 21. I feel pleasant | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 22. I feel nervous and restless | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 23. I feel satisfied with myself | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 24. I wish I could be as happy as others seem to be | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 25. I feel like a failure | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 26. I feel rested | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 27. I am "calm, cool, and collected" | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 28. I feel that difficulties are piling up so that I cannot overcome them | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 29. I worry too much over something that really doesn't matter | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 30. I am happy | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 31. I have disturbing thoughts | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 32. I lack self-confidence | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 33. I feel secure | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 34. I make decisions easily | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 35. I feel inadequate | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 36. I am content | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 37. Some unimportant thought runs through my mind and bothers me | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 38. I take disappointments so keenly that I can't put them out of my
mind | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 39. I am a steady person | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |
| 40. I get in a state of tension or turmoil as I think over my recent concerns
and interests | ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 |

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B. Vocational Follow-Up Form (VFF) (Flynn et al., 1989)

Patient's name: _____

Telephone numbers: Home: _____ Work: _____

Date (of 6-month follow-up): _____

Date of discharge from the Heart Institute: _____

Date of initial assessment with the VPF: _____

Did the patient attend the HIPRC? (check with the HIPRC charts)

yes__no__

Instructions to read to respondents:

"We are calling you 3 months after you had completed a RTW intervention. We are interested in knowing your work situation since that date."

EMPLOYMENT

Status: (see VPF)

1. During his/her first assessment in (date) _____, the patient was:
 1. Back at old job
 2. Back at a new (different) job
 3. Not back at work yet
 4. Permanently retired
 5. Other (describe) _____

2. At the end of the intervention in (date) _____, the patient was:
 1. Back at old job
 2. Back at a new (different) job
 3. Not back at work yet
 4. Permanently retired
 5. Other (describe) _____

5. When did the person start his/her job? Month _____ Year _____

When was the person last at his/her job? Month _____ Year _____

6. Could you fill me in on what has happened, employment-wise, since you completed the RTW intervention? Please mention all major work-related events including starting job(s), leaving jobs, beginning school or training, beginning of an early retirement, rehospitization, etc.

The VPF was completed on what dates?

At the beginning of the intervention: _____

At the end of the intervention: _____

Job returned to: 1st 2nd 3rd (circle one)

7. Date of return to work: _____

8. Is the job you returned to the same as the one you had before you were hospitalized?
yes___ no___

9. If it is the same job:

Are there any changes in the job worth mentioning? (hours, wages, duties)
yes___ no___

If yes, please specify: _____

10. If it is a different job:

Job title: _____

Employer: _____

Main duties: _____

11. Are/were you:

- i) an employee of a private business or individual for wages, salary or commissions? yes___ no___
- ii) a government employee (federal, provincial, county, local government)
- iii) self-employed in: own business, professional practice or farm?
Own business (not incorporated) or farm
Own business (incorporated)
- iv) working without pay in a family business or farm

12. How many hours did you work per week? _____ wages per hour _____

13. How do/did you like this job?

- 1. I hate(d) it
- 2. I dislike(d) it
- 3. I don't (didn't) like it
- 4. I am (was) indifferent to it
- 5. I like(d) it
- 6. I am (was) enthusiastic about it
- 7. I love(d) it

14. The date you left the job (if applicable): _____

15. Reasons for leaving the job:

- 1. Fired
- 2. Laid off
- 3. Left because of illness (specify)
- 4. Retired because of illness
- 5. Quit, left for a different job
- 6. Quit, but not returning to school or training
- 7. Quit, to return to school or training
- 8. Quit, to retire

(repeat this question for jobs 2 and 3 if applicable)

16. For those currently employed at the 3-month follow-up:

How strongly do you intend to remain at work for at least the next 12 months?

0	1	2	3	4	5	6	7	8	9	10
No									Very strong	
intention									intention	

For those who are not currently working at the 6-month follow-up:

Do you plan to go back to work within the next 12 months?

0	1	2	3	4	5	6	7	8	9	10
No									Very strong	
intention									intention	

Thank-you very much for your cooperation.

Client Satisfaction Questionnaire
(Nguyen, Attkinson, & Stegner, 1983)

Please help us improve our program by answering some questions about the services you have received. We are interested in your honest opinions, whether they are positive or negative. Please answer all the questions.

1. How would you rate the quality of service you received?

4	3	2	1
excellent	good	fair	poor

2. Did you get the kind of service you wanted?

1	2	3	4
no, definitely not	no, not really	yes, generally	yes, definitely

3. To what extent has our program met your needs?

4	3	2	1
Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	none of my needs have been met

4. If a friend were in need of similar help, would you recommend our program to him or her?

1	2	3	4
no, definitely not	no, I don't think so	yes, I think so	yes, definitely

5. How satisfied are you with the amount of help you have received?

1	2	3	4
quite dissatis- fied	indifferent or mildly dis- satisfied	mostly satisfied	very satisfied

6. Have the services you received helped you to deal more effectively with your problems?

4	3	2	1
yes, they helped a great deal	yes, they helped somewhat	no, they really didn't help	no, they seemed to make things worse

7. In an overall, general sense, how satisfied are you with the service you received?

4	3	2	1
very satisfied	mostly satisfied	indifferent or dissatisfied	quite dissatisfied

8. If you were to seek help again, would you come back to our program?

1	2	3	4
no, definitely not	no, I don't think so	yes, I think so	yes, definitely

Minnesota Satisfaction Questionnaire - Short Form

Read each statement carefully. Circle the number that describes best how satisfied you are with your present job.

- 1 means that I am very satisfied with this aspect of my job.
2 means that I am satisfied with this aspect of my job.
3 means that I can't decide whether I am satisfied or not with this aspect of my job.
4 means that I am dissatisfied with this aspect of my job.
5 means that I am very dissatisfied with this aspect of my job.

- | | |
|---|-----------|
| 1. Being able to keep busy all the time. | 1 2 3 4 5 |
| 2. The chance to work alone on the job. | 1 2 3 4 5 |
| 3. The chance to do different things from time to time. | 1 2 3 4 5 |
| 4. The chance to be "somebody" in the community. | 1 2 3 4 5 |
| 5. The way my boss handles employees. | 1 2 3 4 5 |
| 6. The competence of my supervisors in making decisions. | 1 2 3 4 5 |
| 7. Being able to do things that don't go against my conscience. | 1 2 3 4 5 |
| 8. The way my job provides for steady employment. | 1 2 3 4 5 |
| 9. The chance to do things for other people. | 1 2 3 4 5 |
| 10. The chance to tell people what to do. | 1 2 3 4 5 |
| 11. The chance to do something that makes use of my abilities. | 1 2 3 4 5 |
| 12. The way company policies are put into practice. | 1 2 3 4 5 |
| 13. My pay and the amount of work I do. | 1 2 3 4 5 |
| 14. The chances for advancement on this job. | 1 2 3 4 5 |
| 15. The freedom to use my own judgement. | 1 2 3 4 5 |
| 16. The chance to try my own methods of doing the job. | 1 2 3 4 5 |
| 17. The working conditions. | 1 2 3 4 5 |
| 18. The way my co-workers get along with each other. | 1 2 3 4 5 |
| 19. The praise I get for doing a good job. | 1 2 3 4 5 |
| 20. The feeling of accomplishment I get from the job. | 1 2 3 4 5 |

Session number: _____

1. How confident are you that you will actually be able to achieve the personal goals you set this week to be completed by next week? (Please circle one.)

Not at all confident	a little confident	moderately confident	very confident			
1	2	3	4	5	6	7

2. How committed are you to achieving your personal goals you set this week for completion by next week?

Not at all committed	a little committed	moderately committed	very committed			
1	2	3	4	5	6	7

3. How important is it to you to be able to achieve the personal goals you set this week for next week?

Not at all important	a little important	moderately important	very important			
1	2	3	4	5	6	7

4. How much do you expect to gain by achieving your personal goals?

Nothing to be gained	a little to be gained	a moderate amount to be gained	quite a bit to be gained			
1	2	3	4	5	6	7

Questions About Your Session Number: _____

1. How clear were your goals during this session?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

2. How satisfied are you with the date set by your physician to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

3. How strongly do you intend to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

4. How capable do you feel about returning to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

5. How strongly do you value returning to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

6. How strongly do you expect to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

7. How strongly do you feel that your return to work depends on your decision to return to work?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

8. How much support did you get from the members of your Work Adjustment group today?

Not at all		a little		moderately		quite a bit
1	2	3	4	5	6	7

Appendix E

Detailed Literature Review of Factors Predicting RTW Among Cardiac Patients

The present section contains more detailed information upon which is based the introductory section of the present thesis. As in the introduction of the thesis, the factors predicting RTW are categorized as demographic, medical, social environmental and psychological. Studies are also categorized as retrospective and prospective.

Demographic Factors

A number of demographic factors have been associated with the RTW of cardiac patients. These include age, gender, education level, type of occupation, pre-operative work status and duration of unemployment, and income.

Age

Retrospective studies. Retrospective studies consistently report a negative correlation between age and rate of RTW (Boudrez, & Comhaire, 1994; Johnson, Kayser, Pedraza, & Shore, 1982; Langosch, Brodner, & Borcharding, 1983; Levy, Bellorini, Cordani, et al., 1987, Love, 1980; Lundbom, Myhre, Ystgaard, et al., 1992). Johnson et al. (1982) assessed the association of age with RTW at 15.5 months following cardiac treatment. They reported that patients over the age of 60 returned to work at a significantly lower rate than younger patients. Love (1980) found similar tendencies in patients 2 to 10 years after treatment. Langosch et al. (1983) showed that, at 3.8 years after cardiac treatment, patients under the age of 40 returned to work at higher rates than patients nearing retirement age, despite their similarity in severity of cardiac complications. Similarly, Lundbom et al. (1992) found a negative correlation between age and rate of RTW in patients whose ages ranged from 36 to 69.4 years. Levy, Bellorini, Cordani, et al. (1987) also showed that patients between the ages of 48 and 52 showed higher tendencies to resume employment up to 5 years following MI, compared to older patients. Boudrez &

Comhaire (1994) assessed the relation of age with RTW in patients below the age of 60. Results continued to show a negative correlation between age and rate of RTW.

Prospective studies. Prospective studies (Angermann & Deschler, 1992; Engblom, Hamalainen, Ronnema, et al., 1994; Freidl, Egger, and Schratter, 1993; Mark, Lam, Lee, et al., 1992; Saito, Fuseno, Honda, Haze, and Hiramori, 1983; Stanton, Jenkins, Denlinger, Savageau, Weintraub, and Goldstein, 1983) support the findings from retrospective studies. Angermann & Deschler (1992) reported higher rates of RTW in CABG patients aged between 50 and 54 at a 2-year follow-up, compared to patients whose ages ranged from 60 to 64, regardless of cardiac fitness. They found that older patients received more pensions than younger patients. Similarly, Stanton et al. (1983) reported that RTW rate at 6 months following cardiac surgery was negatively correlated with age at the time of their surgery. Engblom et al. (1994) also reported age differences in RTW rates, showing that patients below that age of 55 returned to work at a significantly higher rate than older patients. Mark et al. (1992) found that younger age was the second most significant predictor of RTW at 1-year follow-up in 872 patients who had been initially referred for cardiac catheterization. For patients who were treated for MI, Friedl et al. (1993) found that "young and middle-aged" patients returned to work more frequently than patients who were closer to retirement age. Similar findings were shown in a study of 470 men 4 1/2 years after their first MI (Shapiro, Weinblatt, and Frank, 1972). Finally, Saito et al. (1983) assessed RTW 1 year after completion of an exercise-based 3-month rehabilitation program. In both studies, patients over the age of 60 returned to work at significantly lower rates than younger patients.

Gender

Retrospective studies. In a survey of 496 members of Mended Hearts, Inc. (70 of whom were female), Zyzanski, Rouse, Stanton, and Jenkins (1982) found that the RTW rate of male patients significantly surpassed the female patients' RTW rate. However, in comparison to the male patients in

the study, the female patients also reported less hours at work prior to treatment. In addition, women reported more limitations due to the severity of their cardiac dysfunction and lower education levels. Broadhead, Kaplan, James, Wagner, Schoenback, Grimson, et al., (1983) produced similar findings. In their study, female patients reported greater reassurance of financial security by working spouses than male patients, regardless of family income. Further, female patients admitted receiving greater support for their distress than male patients, and greater encouragement not to return to work. In a study of 1602 patients 10 to 56 months after their first cardiac event, Almeida, Bradford, Wenger, King, and Hurst (1983) found that 41% of 160 female patients returned to work, as opposed to 69% of 1442 male patients.

Prospective studies. Chirikos & Nickel (1984) correlated demographic and social characteristics of male and female cardiac patients prior to their hospital discharge with work-status 2 years later. Female patients returned to work at lower rates than the male patients. However, female patients were, on the average, older than male patients. In addition, spousal contribution affected the RTW and non-RTW of female, but not male patients. Male patients reported that their RTW was affected more by economic factors than by family support, whereas the opposite was true for female patients.

Other, more recent studies found gender to be an important predictive factor of RTW. In a study by Gohlke, Gohlke, Samek, et al. (1992), being male was the second most important predictive factor of RTW 6 months following aortic or mitral valve replacement surgery. Stanton et al. (1983) evaluated the RTW status of 129 male and 36 female patients who underwent cardiac surgery. A larger proportion of men than women was employed 1 year prior to surgery, predicting a higher RTW rate at 6 months follow-up. However, because the number of female patients who returned to work following surgery was too small to achieve statistical significance, their preoperative work status was unable to predict their post-operative work status. Lastly, Schuster, Wright, and Tomich (1995) compared the immediate

outcomes of in-hospital and home-based rehabilitation programs between male and female patients who had undergone CABG. No differences in rate of RTW were found between the two groups.

Race

Prospective study. Only one study has assessed the predictive influence of race on RTW (Mark et al., 1992). This study was based on an analysis of the relation of medical, functional, psychological, economic and job-related variables with RTW at one-year follow-up in patients who received surgical or medical treatment for CHD. Results from a logistic regression analysis indicated that black race was the third most predictive factor of failure to return to work, preceded by low functional status and age.

Education

Retrospective studies. Fitzgerald, McGowan, Kutner, and Wenger (1982) assessed work-related adjustment among cardiac patients who had undergone vocational rehabilitation. They found no differences in work status among patients whose education levels differed. In contrast, Almeida et al. (1983) found the RTW rates of patients to progressively increase with level of education. Among patients who returned to work, 78% were college-educated, 65% were technical school-educated, 62% were high school-educated and 40% were elementary school-educated. Paris, Woodbury, Thompson, et al. (1993) conducted a stepwise discriminant analysis of factors which differentiated between patients who returned to work after heart transplantation, and patients who did not return to work. Following reports of inability to work, health insurance and longer length of time after transplantation, education of more than 12 years was the fourth strongest discriminating variable.

Prospective studies. Boulay, David, and Bourassa (1982) found that patients whose number of years of education surpassed 7 years returned to work at higher rates 5 years following rehabilitation, compared to patients with lower education levels. Myrtek (1987) found similar differences between college-educated patients and those with lower levels of education 1 year following rehabilitation.

However, this study only included patients in white-collar occupations. Stanton et al. (1983) found education level to account for a significant amount of variance in predicting the RTW of 228 patients 6 months following cardiac surgery. Patients at higher levels of education also reported to be more satisfied with their jobs than patients at lower education levels. Mark et al. (1992) found higher education level to be the fourth most powerful predictor of RTW at a 1-year follow-up in patients who underwent either PTCA or CABG. The variables that accounted for a greater variance than education in predicting non-RTW included lower initial functional status, older age, non-white race, and the presence of congestive heart failure. Education-level below 12 years was also the second most powerful predictor of non-RTW 6 months following PTCA in a study by Fitzgerald, Becker, Celentano et al. (1989).

Type of Occupation and Social Class

Retrospective studies. Results of a study conducted 15.5 months after patients had undergone CABG showed that self-employed patients and those employed in skilled, managerial or professional occupations returned to work at higher rates than patients employed in manual or unskilled occupations (Love, 1980). In addition, Love (1980) found that out of all of the patients who worked prior to CABG, those who returned to work following treatment were most likely to be self-employed. In addition, patients who worked prior to treatment but failed to return to work were more likely to be employed in blue-collar occupations. Lundbom et al. (1992) also found that patients occupying positions of higher status were more likely to return to work by a 2.3-year post-CABG follow-up, compared to patients occupying manual-labour occupations. Almeida et al. (1983) reported that a larger number of patients at professional and executive positions returned to work at 10 to 56 months following their first cardiac event than skilled and semi-skilled workers, military workers, self-employed workers and clerical workers. However, occupational level also correlated significantly with level of education. In another study, Misra et al. (1985) did not find differences in the RTW rates of patients in different occupational

groups. Out of 100 patients assessed 1 to 2 years after CABS, Rosenfeldt, Lambert, Burrows, and Stirling (1983) also did not find differences in rates of RTW between occupational groups. These patients were classified in the following categories: 36 manual workers, 48 clerical, managerial and professional workers, 8 farmers, and 8 housewives. In a study by Gerhardt (1992), patients' occupations and socio-economic status facilitated, but did not necessarily determine, patients' choices between retirement and RTW post-CABG.

Prospective studies. Stanton et al. (1983) found that occupational level predicted RTW 6 months following treatment only when occupations were classified according to level of physical exertion. Similarly, Boulay et al. (1983) reported lower physical activity at work to be second to duration of preoperative unemployment as a predictor of RTW among patients who had undergone a 5-week exercise-based rehabilitation program. In a study by Fioretti et al. (1988), exercise tolerance was the only predictor of RTW at a 4-year follow-up of cardiac rehabilitation. However, among patients who resumed employment, a significantly larger number of patients in white-collar occupations returned to work, compared to patients in blue-collar occupations. Similarly, Shapiro et al. (1972) found that white collar workers returned to work at higher rates than blue-collar workers 3 months and 1 year following their first MIs. However, the difference was not due to physical activity among patients in the blue-collar occupations. Similar findings resulted in a study by Fitzgerald et al. (1989), who assessed the 6-month RTW- outcome of PTCA. In a study by Saito et al. (1983), 1 year after completing a rehabilitation program, self-employed patients resumed employment at a lower rate than manual labourers. Similarly, low job classification was the eighth out of eight factors predicting RTW 1 year following CABG in a study by Mark et al. (1992). Goeminne, Faes, Poelemans, et al. (1989) evaluated the 4- and 6-year outcomes of CABG and medical treatment on RTW. The study revealed that the patients who were most likely to return to work were self-employed, followed by patients who worked in

professional occupations, and blue-collar workers. Returning to job requiring heavy manual work was found to be associated with a significant reduction in RTW and an increase in retirement rates 16 months following PTCA (Gehring, Koenig, Rana, and Mathes, 1988). Social class, as defined by occupational status, was found not to be correlated to RTW in male survivors of unstable angina or MI up to 1 year following treatment (Conroy, Cahill, Mulcahy, et al. (1986). However, patients at lower social classes took significantly longer to return to work. Similarly, Bryant & Mayou (1988) reported that patients in a higher social class showed a higher rate of RTW at 3-months and 1-year following CABG.

Pre-Operative Work Status and Duration of Unemployment

Retrospective studies. In a study of 1602 cardiac patients 10 to 56 months after their first cardiac event, Almeida et al. (1983) found that preoperative status was second to absence of chest pain as the strongest positive predictor of return to work. Love (1980) assessed the employment status of 95 patients who underwent CABS at a mean of 15.5 months after treatment. Findings showed that patients who reported working prior to surgery returned to work at higher rates than those who reported not working prior to surgery. Rosenfeldt et al. (1983) showed that, of 39 patients interviewed 1 to 2 years after CABS, fewer patients who remained out of work for more than 9 months prior to surgery returned to work post-operatively, compared to patients whose duration of pre-operative disability did not surpass 9 months. Similarly, Engblom et al. (1994) reported that more patients who were absent from work for less than 3 months prior to CABG resumed employment, compared to patients who remained out of work for more than 3 months. Lundbom et al. (1992) also showed that the period of sick leave and the preoperative waiting time were significantly shorter for CABG patients who returned to work by a 2.3-year follow-up, compared to patients who were awarded a disability pension. Similarly, shorter length of disability before heart transplantation was the sixth out of six factors which differentiated patients who returned from patients who did not return to work in a study by Paris et al. (1993). A survey of 1217

cardiac patients 6 months after CABS showed that a longer duration of pre-operative unemployment was the most powerful predictor of their non-RTW (Boulay et al., 1982). Lastly, Fitzgerald et al. (1982) found that patients who returned to work 6 months after participating in a vocational rehabilitation program were unemployed for shorter periods of time prior to hospitalization compared to patients who did not return to work.

Prospective studies. Boulay et al. (1983) assessed the outcomes of a 5-week exercise-based rehabilitation program. They found length of preoperative unemployment to be the strongest predictor of failure to return to work. Misra et al. (1985) showed that, 6 to 23 months after CABG, patients who did not work or who worked with restriction prior to surgery returned to work less frequently than patients who worked without restriction. Schiller & Baker (1976) evaluated a 6-month rehabilitation program consisting of monthly exercise testing and interviews with a social worker, a physician and an employment officer as required. Patients who were employed prior to hospital admission returned to work at higher rates than patients who were not employed. In addition, patients with more stable patterns of employment prior to their MIs resumed employment at higher rates than those with unstable employment patterns. Gohlke et al. (1992) found that higher preoperative employment status was associated with a higher rate of RTW 6 months following aortic or mitral valve replacement. A study by Eriksson (1988) also indicated that, at 7.5 months following CABG, patients post-operative status was negatively correlated with duration of unemployment prior to surgery. Gehring et al. (1988) also found that duration of preoperative absence from work was positively correlated with the likelihood of retiring 16 months following PTCA. Similar results were obtained by Bryant & Mayou (1988) at 3 months and 1 year following CABG. In a follow-up survey of 318 patients before and 6 months after CABG (Jenkins, Stanton, Savageau, Denlinger, and Klein, 1983), patients who were employed preoperatively showed a higher RTW rate than patients who were not employed preoperatively. Results from a 6-month

rehabilitation outcome study (Boulay et al., 1982) showed that, even though patients who had undergone rehabilitation returned to work at higher rates than those who did not undergo rehabilitation, longer duration of unemployment continued to account for the greatest amount of variance in predicting their failure to return to work. Engblom et al. (1994) also showed that absence from work for more than 3 months before CABG was the fourth most powerful predictor of RTW at a 1-year follow-up. Studies conducted by Misra et al. (1985) and Flynn, Cupper, Caver, Dafoe, McHardy, Hotz, et al. (1989) found similar tendencies 3 months following coronary artery surgery and 6 and 12 months after hospital discharge. Finally, at a 6-month follow-up following cardiac rehabilitation for CABG (Sieber, Rothlin, and Senning, 1986), RTW rates were significantly negatively correlated with duration of unemployment. This factor was the third most powerful predictor of RTW, following NYHA classification post-surgery and exercise capacity in the bicycle stress test.

Income and Financial Support

Retrospective studies. Almeida et al. (1983) found no difference between the financial status of patients who returned to work 10 to 56 months following their first cardiac event and those who did not return to work. However, among patients who did not return to work, 80% reported that their income was lower than before their surgery. Only 15% of patients who returned to work reported a reduction in their income. Charles, Wayne, Oberman, Reed, Haynie, Kouchoukos, et al. (1982) did not find differences in family income among patients 3 months and 1 year after they received either surgical or medical treatment for coronary artery disease, even though surgical patients returned to work less frequently than medical patients. In addition, surgical patients reported greater increases in family income following treatment than medical patients. None of these changes appeared to be associated with work status. In a study by Aldershville, Boesgaard, Kirchoff, et al. (1993), duration of financial support from a disability pension before a heart transplant was found to be positively correlated with RTW at a 6-

month follow-up.

Prospective studies. In a 12-month follow-up study of 105 cardiac patients who had undergone a 5-year home rehabilitation program, Myrtek (1987) found that patient earnings and family income correlated positively with patient's rate of RTW. Similarly, Boulay et al. (1983) found that a yearly income below \$20,000 was associated with lower rates of RTW 3 years following treatment. Stanton et al. (1983) also showed that patients with a family income above \$30,000 returned to work more frequently at 6 months following cardiac treatment than patients with family incomes below \$10,000. However, in a study comparing the outcomes of surgical and medical treatment at a 3-year follow-up (Russell, Wayne, Kronenfeld, Charles, Oberman, Kouchoukos, et al., 1980), findings indicated that nonwork income was the best predictor of non-RTW among 96 patients. Fewer patients with a higher family income returned to work, compared to patients with a lower family income. Horlick, Cameron, Firor, et al. (1984) assessed the outcome of an educational and discussion group intervention in patients who had a MI. Their results did not show differences in rates of RTW between patients who participated in the group, and patients who had not participated. However, more participants than non-participants were receiving compensation.

Medical Factors

A number of medical factors have been used to define the work-related limitations of cardiac patients. These include functional capacity and functional limitations, post-treatment symptoms of angina, number and severity of cardiac events and type of cardiac treatment.

Functional Capacity¹ / Functional Limitations / Exercise Tolerance

¹ Functional capacity is estimated by measuring the average oxygen consumption level of an individual at rest (Brammel, 1981; Haskell, Brachfeld, Bruce, Davis, Dennis, Fox, et al., 1989). The metabolic equivalent (MET) of this measure is taken during steady-state exercise executed on a treadmill or cycle ergometer. It is often used to estimate an individual's level of energy expenditure and the demands of specific activities (American College of Sports Medicine, 1986; Brammel, 1981). METs are also frequently used to estimate whether cardiac patients'

Retrospective studies. Two studies (Love, 1980; Johnson et al., 1982) showed that cardiac patients frequently reported physical limitation as a common reason for not returning to work following treatment. Johnson et al. (1982) found that, at a 1-year follow-up, only 55% of patients who underwent cardiac revascularization stated that they were able to complete work-related tasks without limitations. In addition, they found that patients who failed to return to work most frequently reported that they were "physically not able" (p. 198). However, the findings from a study conducted 6 months and 2 years after patients had completed a 3-month rehabilitation exercise program did not reveal a relation between the RTW of cardiac patients and their functional capacity (Hertanu et al., 1986). Saito et al. (1983) found that the two most cited reasons for not returning to work 1 year following rehabilitation were physical disability due to dyspnea or angina (39%) and retirement due to advanced age (30%). Schiller & Baker (1972) also found a positive correlation between reports of physical limitations and failure to RTW at 6 months post-MI.

Prospective studies. In a controlled outcome evaluation of a short-term rehabilitation program (Young, Kortke, McCall, and Blume, 1982), patients who underwent rehabilitation returned to work at higher rates compared to controls. However, no group differences in functional capacity, as measured by METs, were found. Similarly, cardiac efficiency was neither correlated with RTW, nor with pensioning rate, in patients who had undergone rehabilitation following CABG (Angermann & Deschler, 1992). On the other hand, in an assessment of psychosocial experiences of cardiac patients, Cazabon (1991) found that functional capacity, as measured by kilocalories (average energy expenditure while moving through a given distance), correlated with the number of work modifications that patients were required to make as a result of their disability. Functional status was also the second most powerful 6-month and 1-year predictor of RTW in patients who had undergone CABG in Engblom et al. (1994), and the most powerful functional capacity is adequate for a return to work.

predictor of departure from work at 1-year follow-up in patients who had undergone CABG or PTCA (Mark et al., 1992). Exercise tolerance was third most important predictor of RTW 6 months post-operatively in patients who had undergone valve replacement (Gohlke et al., 1992). However, pre-operative employment status and gender accounted for a greater amount of variance in predicting RTW in these patients. Exercise tolerance at discharge from a physical rehabilitation program was the only significant predictor of RTW at a 4-year follow-up in a study by Fioretti, Baardman, Deckers, et al., 1988. Post-operative exercise tolerance was also the second predictor of RTW at a 16-month follow-up of either CABG or PTCA (Gehring et al., 1988).

Post-Treatment Symptoms of Angina and Other Complications

Retrospective studies. Two studies (Misra et al., 1985; Zyzansky, Stanton, Jenkins, and Klein, 1981) revealed negative correlations between reports of post-operative symptoms of angina and RTW at follow-up periods ranging from 6 months to 8 years. Zyzansky et al. (1981) also found that patients who experienced symptoms of angina were more likely than patients without symptoms to experience negative affect, fear of returning to work and interpersonal difficulties. Duration of preoperative angina was also negatively correlated with work status 32 months following CABG a study by Lundbom et al. (1992). Almeida et al. (1983) found reports of absence of chest pain to be the strongest predictor of return to work in 1602 patients 10 to 56 months after their first cardiac event. A study (Gehring, Koenig, Rana, and Mathes, 1988) assessing the differences between patients who had returned to work 16 months following cardiac treatment (CABG or PTCA) and patients who had retired also showed that patients who had resumed employment experienced more freedom from symptoms. In contrast, Danchin, David, Robert, and Bourassa (1982) found no differences in RTW rates between surgical and medical patients in a treatment outcome evaluation. However, surgical patients reported fewer symptoms of angina than medical patients.

Prospective studies. Stanton et al. (1985) found severity of symptoms of angina prior to cardiac surgery to predict failure to return to work 6 months following surgery in 228 patients. Young et al. (1982) showed that at 3 months post-hospital discharge, patients who underwent rehabilitation reported significantly less symptoms of angina and higher RTW rates compared to controls. This effect disappeared at a 1-year follow-up. In a treatment outcome study, Holmes et al. (1983) found that patients who underwent PCTA did not return to work at significantly higher rates than patients who underwent CABG at 10.8 months following treatment. However, symptoms of angina occurred more frequently in patients who were treated with CABS than in patients who were treated with PCTA.

Number and Severity of Cardiac Events

Retrospective studies. In a study by Johnson et al. (1982), severity of left-ventricular function and of MIs was found to correlate with failure to RTW. Love (1980) also found that patients who did not work prior to CABS and who failed to return to work following treatment reported a greater number of pre-operative MIs, more abnormal LVF and more left ventricular aneurism. Number of preoperative MIs also predicted non-RTW in a study by Lundbom et al. (1992). These authors reported that patients who had a MI prior to undergoing a CABG were more likely to be working at a 32-month follow-up, compared to patients who had not had a MI. However, Kauderer-Hubel & Buchwalsky (1986) assessed the psychosocial functioning of patients who had experienced a MI up to 4 years prior to the study. Their findings showed no correlation between RTW and the severity of cardiac symptoms over the follow-up period. Langosch et al. (1983) found that, even though patients under the age of 40 suffered from equally or more severe cardiac dysfunctions than older patients, they reported to return to work at a higher rate 3.8 years following their first hospitalization. Similarly, Almeida et al. (1983) found no correlation between the number of diseased coronary arteries 10 to 56 months following a first cardiac event and RTW rate.

Prospective studies. Shapiro et al. (1972) found that patients with more severe MIs returned to work at lower rates than patients with less severe MIs over a 2-year period. Similarly, Holmes et al. (1983) showed that patients who were successfully treated with percutaneous transluminal coronary angioplasty (PCTA) returned to work at higher rates than those who were not treated successfully. Degree of success of PCTA was found to correlate negatively with the severity of cardiac dysfunction. In an assessment of a 5-week rehabilitation program, Boulay et al. (1983) found that degree of severity of angina and duration of symptoms over 1 year were negatively correlated with RTW rates. Mark et al. (1992) also showed that presence of congestive heart failure was the fourth most powerful predictor (following low functional status, age and black race) of departure from work 1 year following CABG or PTCA. Fitzgerald et al. (1989) also found that experience with a MI within a month prior to PTCA was an important predictor of failure to resume employment up to 6 months following treatment. However, Bettinardi, Giannuzzi, Zotti, et al. (1995) found that post-CABG complications did not correlate with RTW 6 months later. Misra et al. (1985) also showed that degree of LVF and severity of coronary artery disease did not contribute to the variance predicting post-CABS RTW 6 to 23 months following surgery. Similarly, Stanton et al. (1985) found no correlations between severity of MI and duration of illness prior to cardiac surgery and patients' RTW 6 months following surgery.

Type of Cardiac Treatment

Retrospective studies. In a randomized study of 166 patients who received either medical or surgical treatment (Charles et al., 1982), a smaller percentage of surgical patients returned to work 1 year following hospital treatment compared to medical patients. On the other hand, Fitzgerald et al. (1982) found that a majority of surgical patients had returned to work 6 months after participating in a vocational rehabilitation program.

Prospective studies. Holmes et al. (1983) compared the RTW rates of patients who had

undergone PCTA and of those who had undergone CABS at a mean of 10.8 months following treatment. RTW rates were found not to differ between the two groups. Similarly, Danchin et al. (1982) did not find differences in the RTW rate of patients who received medical or surgical treatment. Hemenway, Sherman, Mudge, Flatley, Lindsey, and Golman (1985) also showed that even though a larger number of medical patients returned to work than surgical patients 1 year after hospital treatment for angina, this effect disappeared when pre-treatment job status, gender and severity of cardiac function were controlled. Mark et al. (1994) compared speed of RTW and work status at 1-year follow-up in patients who had undergone PTCA, CABG, and medical treatment. Patients who had undergone PTCA were found to resume employment at a significantly shorter time than patients who had either undergone CABG or medical treatment. However, at 1-year follow-up, no differences in work status were found between the three groups. In a study by McGee, Graham, Crowe, and Horgan (1993), patients who underwent both PTCA and CABG showed similar increases in RTW rates up to a 18-month follow-up. A higher number of patients who underwent PTCA experienced symptoms of angina. However, among patients who no longer experienced symptoms of angina, patients who had undergone PTCA showed greater RTW rates. Among the factors that were found to be correlated with subsequent RTW, primary success of the procedure was the most highly correlated. On the contrary, in a study by Russell et al. (1980), patients who received medical treatment for unstable angina returned to work at higher rates compared to patients who received surgical treatment.

Social Environmental Factors

Social environmental factors that have predicted RTW have included: job modification, physician's advice, social support, family beliefs about CHD and RTW, employer's and company's attitudes toward disabled workers, duration of disability, and type of rehabilitation program.

Job Modification

Retrospective studies. In an assessment of patients 3 months after being treated with CABG, O'Connor (1983) found that, among the 12 patients (out of 30) who returned to work, 11 patients reported reducing their hours at work. Almeida et al. (1983) found that, 10 to 56 months after their first cardiac event, 30% of 1602 patients who returned to work required some job modification, despite the fact that 58% of patients returned to jobs requiring minimal or no physical exertion. Results from a survey of 2229 patients by Johnson et al. (1982) showed that from 30% to 45% of patients reported working with limitations.

Prospective studies. Myrtek (1987) reported a decrease in the number of hours that cardiac patients worked at RTW following cardiac rehabilitation. Saito et al. (1983) also found that among patients who returned to work 1 year after rehabilitation, 28% reduced their work load to less than half of the previous level. Shapiro et al. (1972) showed that 4 1/2 years after their first MI, a larger number of patients who returned to work to blue-collar occupations changed their jobs than those who returned to white-collar occupations. Lastly, Stanton et al. (1983) found that even though 31% of patients who returned to work 6 months following cardiac treatment reported decreases in physical exertion on the job and 24% reported less pressure, 44% of patients worked more than 40 hours per week. Physical exertion was reported to increase for 7% of patients and pressure to increase for 13% of patients.

Employer's and Company's Attitude Toward Workers with Disabilities

Retrospective studies. A survey by Hester, Planek, and Decelles (1988) indicates that up to 50% of employers do not encourage workers with disabilities to return to their jobs. In addition, up to 60% of companies do not accommodate impaired workers even though they encourage them to return to work. Almeida et al. (1983) found patients' reports of union and employers' responses to their disability did not significantly correlate with their RTW rate. In a survey by Johnson et al. (1982) of 2229 cardiac patients, company policy was not reported to predict RTW.

Prospective studies. A study by Flynn et al. (1989) showed that patients' perceptions of whether their employers would permit them to return to work predicted RTW at 6 and 12 months after hospital discharge. Most patients reported that they would return to their old employer. Stanton et al. (1983) found that 6 months following cardiac surgery, 70% to 80% of patients reported no changes in the quality of their relationships with their employers and co-workers, 12% to 15% of patients reported improvements, and only one to three percent reported deteriorations. In a study by Davidson (1979), patients' perception of the willingness of their employers to allow their RTW and the availability of their previous job predicted their RTW.

Physician's Advice

Retrospective studies. A survey conducted by Almeida et al. (1983) indicates that the most common reason provided by 542 cardiac patients for failing to RTW was physician's advice. Of the 318 patients in this study who reported being advised by their physicians not to return to work, only one did not comply and returned to work. Johnson et al. (1982) reported similar accounts from patients who underwent cardiac surgery 2 to 10 years prior to their study. However, their findings indicate that "need to relax" accounted for a greater percentage of patients' responses than physician's advice.

Prospective studies. Flynn et al. (1989) found physician's advice to be second to time off work prior to hospitalization as the most powerful predictor of the RTW of cardiac patients 6 and 12 months after hospital discharge. Similarly, Myrtek (1987) showed that physician's ratings of patients' physical fitness explained 22% of the variance accounted by a number of factors predicting RTW in patients who underwent cardiac rehabilitation. However, physician's advice to return to work accounted for only 2% of this variance. Myrtek (1987) found that the physician's advice to return to work was correlated with the patient's age, level of education and dissatisfaction with social environmental factors. Pilote, Thomas, Dennis, et al. (1992) assessed the outcomes of an intervention whereby cardiologists were

instructed to produce a letter with recommendations for the timing of RTW of patients who suffered from uncomplicated myocardial infarction. Results showed that among patients who were not suffering from myocardial ischemia, RTW rates were higher for patients who had undergone the intervention. No differences in RTW rates were found between intervention and usual-care patients who experienced myocardial ischemia.

Family Beliefs About CHD and RTW

Retrospective studies. In a study by Bray (1977), patients reported that family attitudes influenced their work-related decisions. The findings indicated that overprotective family attitudes were associated with lower RTW rates than less protective attitudes. Wiklund et al. (1984) also found that retrospective reports of family overprotectiveness during convalescence were correlated with emotional instability, health preoccupation, self-reported chest pain and failure to return to work 1 year following MI.

Prospective studies. Jenkins et al. (1983) showed that up to 36% of patients reported being overprotected by family members 6 months after CABS. In addition, they found a larger number of these patients to fail to return to work than of those who did not report being overprotected by their families. Jenkins et al. (1983) also showed that family encouragement to return to work correlated with patients' RTW rate. Similarly, in a study by Russell et al., (1980), even though family overprotectiveness was associated with failure to return to work, family members who were informed of the beneficial effects of patients' RTW reported more positive expectations of patients' ability to RTW. These latter findings correlated with patients' RTW at a 12-month post-hospital discharge follow-up.

Social Support

Retrospective study: Boudrez et al. (1994) reported that more patients who returned to work 3 years following MI claimed that they received support from friends to resume employment, as opposed

to patients who had not resumed employment.

Rehabilitation

Retrospective studies. Hertanu et al. (1986) evaluated the outcomes of a 3-month rehabilitation program involving supervised exercise, weekly stress reduction sessions, dietary counselling and educational information. They found that seven (58%) of the patients who were unemployed prior to rehabilitation were employed after participating in the program. No comparison group was included in the study for the assessment of RTW.

Prospective studies. Young et al. (1982) assessed outcomes of a 1-day rehabilitation program involving education concerning cardiac risks, dietary education, graded physical activity, instruction in progressive self-monitored exercise, and when appropriate, contact with a vocational rehabilitation counsellor, 3 months and 1 year after participation in the program. In comparison to patients who did not receive the intervention, those who underwent the rehabilitation protocol returned to work at higher rates 3-months following treatment. However, at 1-year follow-up, there were no group differences in the number of patients who had returned to work. Myrtek (1987) evaluated the outcomes of a 5-year home-monitoring rehabilitation program 12 months after its completion. Seventy-eight percent of patients were found to return to work. No non-treatment control group was assessed. Boulay et al. (1982) evaluated the RTW rates of patients who had undergone a 5-week exercise rehabilitation program and weekly social work counselling. They did not find differences in the RTW rates between these patients and controls at a 1-year follow-up. Oldridge, Guyatt, Jones, Crowe, Singer, Feeny, McKelvie, et al. (1991) assessed the outcomes of an 8-week rehabilitation program involving exercise conditioning and behavioural counselling for patients manifesting symptoms of anxiety and depression. They found that patients who underwent the rehabilitation program did not return to work at higher rates than patients who received conventional hospital care 6 months and 1 year after discharge from the program.

Holmback, Sawe and Fagher (1994) assessed the RTW-outcome of a 6-week exercise training program. They found no differences in RTW rates between patients who participated and those who did not participate in the training program at 6 months following rehabilitation. Danchin & Goepfert (1988) assessed the outcome of exercise training on RTW following MI in male patients below the age of 60. Work resumption was not significantly different between patients who participated and patients who did not participate at 6-month follow-up. However, Picard, Dennis, Schwartz, Ahn, Kraemer, Berger, et al. (1989) evaluated the outcomes of a rehabilitation program for patients with uncomplicated MIs involving exercise testing, assessment of cardiac functioning and work history, and education about health, exercise, diet, smoking and psychosocial issues, for 6 months after its completion. Patients who participated in rehabilitation returned to work an average of 24 days earlier than patients who received standard care. Engblom et al. (1994) also found that, at 6 and 12-month follow-ups, patients who participated in a cardiac rehabilitation program following CABG resumed employment at higher rates than patients who did not participate in the rehabilitation program. Patients younger than age 55 returned at higher rates than older patients.. Hedback & Perk (1987) assessed the outcomes of a rehabilitation programme involving physical training, provision of information on smoking and diet, and psychological support for patients and their families. They reported a higher RTW rate at 3-month and 1-year follow-ups in patients who had participated in the rehabilitation programme, compared to patients who did not participate. This effect was most pronounced in subjects aged below 55 years. In a study by Sieber et al. (1986), patients who had undergone a physical rehabilitation program were compared with patients who had not undergone the program. The results of the study showed that a greater number of patients who did not undergo rehabilitation were considered to be unfit to work at a 6-month follow-up. In patients who were not working pre-operatively, those who participated in the rehabilitation programme returned to work at a higher rate than patients who did not participate. Hertzeanu, Shemesh, Aron, Aron, Peleg,

Rosenthal, Motro, & Kellermann, (1993) assessed the 6-year and 10-year outcomes of underarm and calisthenic rehabilitation programme. Subjects who had undergone rehabilitation reported greater job satisfaction and returned to work at higher rates than controls. Geominne et al. (1989) evaluated the 4-year and 6-year outcomes of a cardiac rehabilitation program consisting of ECG monitoring, three-times-a week exercise, and multi disciplinary support. Their findings showed that successful RTW was affected by the interaction of participation in cardiac rehabilitation with type of occupation, age, and type of cardiac treatment. Dennis, Goins, and DeBusk (1989) evaluated the effect of an occupational evaluation on subsequent RTW in patients recovering from a MI and who were aged below 46 years. The intervention consisted of a symptom-limited treadmill test performed approximately 3-weeks post-MI, as well as a formal recommendation from the treating physician regarding RTW. Results showed that patients who had received the occupational evaluation recommendations resumed employment 24 days earlier than patients who had received the usual care.

Psychological Factors

Psychological factors predicting RTW have included work-related expectations, depression and anxiety, health-related appraisals, Type A personality, self-efficacy and behavioural intentions played an important role in predicting intention to return to work. Findings relating these factors with RTW are described below.

Depression and Anxiety

Retrospective studies. Schiller & Baker (1976) assessed medical, work-related and psychological variables prior to and immediately after a 6-month rehabilitation program involving exercise testing, interaction with a social worker, and advice from a physician and an employment officer if required. Self-reports of depression and anxiety at termination of the program correlated positively with failure to return to work. Zyzanski et al. (1982) found that, up to 5 years after cardiac treatment,

patients who did not return to work reported more symptoms of depression than patients who returned to work. Further, patients under the age of 65 who were forced to retire reported more severe symptoms of depression than those who retired voluntarily.

Prospective studies. Stern, Pascale, and Ackerman (1977) found that patients who reported symptoms of depression and anxiety immediately after a MI showed higher failure-to-RTW rates 6 months later compared to patients who did not report such symptoms. In a supportive study, Maeland & Havik (1987) found a negative correlation between reports of depression and anxiety during hospitalization and RTW 6 months later, independently of demographic, work-related and medical factors. Flynn et al. (1989) also found that depression and anxiety predicted RTW at 6 and 12 months follow-up. Schiller & Baker (1976) found that depression and anxiety during rehabilitation predicted non-RTW at a 6-month follow-up. Abbott & Berry (1991) also showed that patients who reported high levels of depression immediately following an MI were less likely to have resumed employment after one year, compared to patients who did not report high levels of depression. Bettinardi et al. (1995) found that pre-operative fears and social anxiety were the strongest predictors of failure to resume employment 6 months following CABG. Strauss, Paulsen, Strenge, et al. (1992) compared the 21-month and 27-month outcomes of CABG between patients who reported high and low levels of anxiety, depression and life satisfaction pre-operatively. Their results showed that significantly fewer patients who reported more severe symptoms of depression and anxiety prior to surgery had resumed employment by follow-up, compared to patients who reported less severe symptoms. Mark et al. (1992) also showed that reports of depression and anxiety immediately following treatment predicted RTW at a 1-year follow-up. Eriksson (1988) showed that, at a 7.5-month follow-up, patients who had undergone CABG and who reported high levels of distress preoperatively were less likely to resume employment, compared to patients who reported lower levels of distress. In contrast, Oldridge et al. (1991) did not

find differences in rates of RTW among patients with symptoms of anxiety and depression who participated in a 8-week exercise conditioning and behavioural counselling program, and those who received standard hospital care.

Health-Related Appraisals

Retrospective studies. A study by Danchin et al. (1983) reported that patients who judged their health as very good 5 years following coronary surgery were more likely to have resumed employment than other patients. Almeida et al. (1983) also found that patients who reported having evaluated themselves as disabled prior to cardiac surgery were less likely to have returned to work 10 to 56 months following their cardiac event, compared to patients who did not rate themselves as disabled. However, these patients also experienced a higher number of preoperative MIs. On the other hand, Charles et al. (1982) found that, even though patients who underwent CABG returned to work at lower rates and required a larger number of disability days than patients who received medical therapy, they more frequently reported themselves to be in good or excellent health.

Prospective studies. Hiatt, Peglar, and Borgen (1984) followed patients who were hospitalized for MI, angina or serious cardiac arrhythmia during a 1 year period. They found that perception of health from the period prior to hospitalization to 1 year after treatment predicted RTW at the 1-year follow-up, regardless of cardiac status. Positive perception of health was also found to correlate with pre-operative employment. Similarly, Byrne (1982) showed that patients who expressed high levels of somatic concern, sick role acceptance, recognition of serious life stressors soon after MI were less likely to RTW 2 years later than patients who did not engage in such illness behaviour. In a study by Maeland & Havik (1987), RTW 6 months after MI was associated with health-related appraisals during recovery only when the latter was related to cardiac lifestyle knowledge. However, lifestyle knowledge no longer predicted RTW when education level was controlled. Riegel (1993) reported the relation between cardiac

invalidism and a number psychosocial factors 1 and 4 months following acute myocardial infarction. Positive health perception at one month discharge predicted RTW at the 4-month follow-up. Results from a stepwise multivariate regression analysis of demographic, social, economic and psychological factors, Smith & O'Rourke (1988) found that perception of health status was the fourth most significant predictor of RTW 1 year following a first MI. Mark et al. (1992) also showed that health concerns were predictive of RTW 1 year following cardiac treatment.

Work-Related Expectations

Retrospective studies. Boudrez et al. (1994) evaluated the responses of patients who had an MI before the age of 60. Three-year follow-ups indicated that patients who attributed greater importance to their jobs returned to work at a higher rate, compared to patients who gave less importance to their jobs.

Prospective studies. In the study by Maeland & Havik (1987), expectation of reduced work-capacity accounted for the largest amount of variance in predicting the RTW of cardiac patients. Croog & Levine (1977) found that patients' positive future expectations during their hospital stay predicted their RTW 3 months later. Patients who predicted work problems during convalescence also reported significantly more difficulties 1 year later. Stanton et al. (1983) found that patients' work-related expectations of the outcome of cardiac surgery was the best predictor of RTW 6 months following hospital discharge. Lastly, Stanton et al. (1983) also found that, out of all preoperatively employed patients who did not return to work 6 months following cardiac surgery, 43% reported that their work had been less satisfying than they expected.

Type A Coronary - Prone Behaviour Pattern

Prospective studies. Kornfeld, Heller, Frank, Wilson, and Malm (1985) assessed the rates of RTW in 100 patients who underwent CABG up to 4 and 1-half years following hospital discharge. Pre-operative and post-operative Type A behaviour pattern was correlated with earlier and higher rates of

RTW. Similarly, Davidson (1983) found that individuals who manifested Type A behaviours following MI were more likely to be at work at a 6-month follow-up.

Self-Efficacy and Behavioural Intentions

Retrospective studies. A study by Bashliev (1988) reported the job-related attitudes of patients who had experienced MI. Seventy-one percent of patients had a high level of education and were returning to professional occupations. Those patients who reported an intention to return to work said that they liked their job and felt isolated without it. Patients who did not report an intention to resume employment claimed that they could not cope with their work obligations.

Prospective studies. Flynn et al. (1989) found that, among a number of demographic, medical, occupational and psychological factors, self-efficacy and behavioural intentions contributed the largest amount of variance in predicting the work status, speed of RTW and duration of the RTW of cardiac patients 6 and 12 months following hospital discharge. Similarly, Maeland and Havik (1987) showed that patient treatment outcome expectancies and confidence about RTW contributed more variance to predicting patients' work status 6 months following a rehabilitation program than other psychological factors. Thirdly, Stanton et al. (1983) revealed that one of the strongest predictors of post-operative work status was the answer to the question "Do you feel that you will be able to go back to work after your surgery?", (p. 909), which had been asked pre-operatively. Engblom et al. (1994) also found that among five factors predicting RTW following CABG, patients' judgements of their working capacity at 6-month follow-up was the most powerful predictor of RTW at 1-year follow-up. Followed by functional class, desire to work was the third most powerful predictor. Willingness to resume employment preoperatively was the second most important predictor of RTW in patients who had undergone CABG in a study by Eriksson (1988). Self-efficacy was the most powerful predictor of RTW one month following PTCA and the fourth most powerful predictor at a 6-month follow-up in a study by

Fitzgerald et al. (1989). At 6-month follow-up, MI within one month of PTCA, education, and type of occupation preceded self-efficacy in ability to predict RTW.

Attributions of Cause of CHD

Prospective studies. Abbott & Berry (1991) found that more patients who attributed their MI to occupational stressors and who had a high internal locus of control had returned to work as early as 2 months following their MI, compared to other patients. Contrarily, Gutmann, Knapp, Pollock, et al. (1982) found that perceived job stress as a cause of the CHD was a significant predictor of failure to return to work at a 1-year follow-up.