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THE REHABILITATION PROCESS AFTER BREAST CANCER DIAGNOSIS

Factors of importance for return to work

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ABSTRACT

The most common female cancer in Western countries is breast cancer and women diagnosed with this disease are often under 65 years old. With increasing prevalence of survivors it is important to shed light on problems facing these women after diagnosis and treatment. The overall aim of this thesis was to study the rehabilitation process following a breast cancer diagnosis for women at working age by examining factors related to type of treatment, tumour stage, socio-demographic status, health status, working condition, life satisfaction, and coping skills, and their association with return to work.

In this thesis both quantitative and qualitative approaches are represented in three longitudinal cohort studies and a narrative interview study (16 enrolled women). The quantitative studies are based on two different sets of material of women treated for breast cancer (270 respective 102 enrolled women).

Study I investigated whether factors such as type of treatment, tumour stage, educational level, matrimonial status, and presence of under-age children were associated with long-term problems in returning to work in women with breast cancer treated with endocrine therapy. The use of adjuvant endocrine therapy was associated with a twofold increase in the odds ratio of not having returned to work, although the confidence interval of this ratio was wide and included unity. Tumour stage (pN1-4+) was negatively associated with work status, possibly because of its association with adjuvant chemotherapy and radiotherapy to the regional nodes. Socio-demographic factors were not significantly associated with return to work.

The aim of Study II was to identify factors contributing to a successful return to the labour market using the narratives of women treated for breast cancer. All the women strove to belong to the labour market, but the study also revealed how women's perceptions of the value of employment changed. The quality of social support received from employers and co-workers differed between women who returned to work and those still sick-listed one year after breast cancer treatment.

Study III investigated if treatment type, socio-demographic factors, health status, and work-related factors could predict return to work 10 months after surgery for early-stage breast cancer in women. Axillary node dissection, treatment with chemotherapy, and high demands at work were shown to play an important role in return to work for women with early-stage breast cancer. Socio-demographic factors were not significantly associated with return to work.

The aims of Study IV were to generate new knowledge about life satisfaction, coping and rehabilitative measures taken after early-stage breast cancer treatment and the association of these concepts with return to work. Global life satisfaction was higher among the working women at both assessments. The working women used more positive coping resources compared with the sick-listed women, especially if treated with chemotherapy. Few of the sick-listed women received rehabilitation.

The principal finding was that most of the studied women successfully returned to work after their active cancer treatments were completed. Type of treatment as well as work-related factors, life satisfaction and coping skills were associated with return to work.

LIST OF PUBLICATIONS

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LIST OF ABBREVIATIONS

95% CI	95% Confidence Interval
BCSs	Breast Cancer Survivors
CMF	Cyclophosphamide, Methotrexate and Fluorouracil
CRF	Cancer-Related Fatigue
DCIC	Ductal cancer in situ
GCQ	General Coping Questionnaire
OR	Odds Ratio
RTW	Return To Work
SPSS	The Statistical Package for Social Sciences
ZIPP	Zoladex in Premenopausal Breast Cancer Women

1 INTRODUCTION

This is a thesis about the rehabilitation process in women treated for breast cancer, with a special focus on return to work (RTW). The reason why I became interested in this process is that I thought that several of the women I met in my clinical work were being marginalized because they did not get statutory help in the rehabilitation process. Return to work is chosen as an indicator of progress in the rehabilitation process because RTW often means regaining normality [1].

The RTW process for women with breast cancer is still an unexplored area despite the fact that a large number of women in Western countries are diagnosed with breast cancer [2]. It is well known that a diagnosis of breast cancer normally results in great changes in a woman's life [3, 4] but nevertheless most of the women return to work shortly after the treatment is ended [5]. A large number of women work at least part-time even during ongoing active cancer treatment such as chemotherapy and radiotherapy [6, 7]. Only for a small group of women does RTW seem to be noticeably more problematic [5]. They go on long-term sick leave or may even be marginalized from the labour market for ever [8].

To be diagnosed with a serious illness results in an interruption of an individual's ongoing life. The illness creates obstacles and problems in the individual's daily life. In case of an acute illness it may influence the individual's life merely temporarily and consequently cause only a minor interruption [9]. However, if the disease is protracted or incurable, then the very foundation of an individual's existence will change – the illness or disease creates new and totally different conditions of life [9-11]. In general, the diagnosis of cancer causes greater distress than any other disease or illness [12]. In spite of the fact that more and more people survive their cancer disease, cancer is still considered to be potentially incurable on the whole – constituting a threat to the affected person's life [13]. This is equally valid for breast cancer, even if the prognosis for this disease is good nowadays [14].

To be diagnosed with cancer does not always have solely negative consequences [12]. Even if the cancer disease in itself involves both psychic and physical pain, the disease can also cause personal growth and transition [12, 15] and give someone's life new and positive dimensions [16-19]. A few years after a breast cancer diagnosis, the perceived trauma may result in post-traumatic growth (PTG) (i.e. positive changes or benefits resulting from a trauma) [20, 21].

Living with a cancer diagnosis affects life in many different ways. In an article aimed to shed more light on the relationship between quality of life and different aspects of the psychosocial experience for survivors of breast cancer Shapiro et al suggest that “the biomedical model of disease, though crucial, does not take into account all of the complex factors involved in cancer”. The authors suggest a broader, more integrative framework, which includes psychosocial factors [12].

In the Stockholm region a study in assessing physical, psychological and social consequences of endocrine treatment was designed in 1990, parallel with a clinical study of adjuvant endocrine treatment for premenopausal women surgically treated for breast cancer. The first two papers in this thesis are based on these studies. Paper I is based on questionnaires while Paper II is a qualitative interview study. When the women answered their questionnaires they often wrote small stories about how they experienced their own situation. These stories inspired me to complete the survey with a narrative study. The analysis of these narratives is the foundation for Paper II. The preliminary results from Study I created an interest in the medical and psychosocial factors that were not examined in Study I, regarding their influence on work capacity, and in how these factors will in fact influence work capacity when examined over time. The result of this interest was a study conducted in 2002, including women who had undergone surgery for breast cancer and who were treated at the Department of Oncology at the Karolinska University Hospital, Södersjukhuset, in Stockholm, Sweden. The results from this study are reported in Paper III and Paper IV.

There is no commonly accepted term for people treated for cancer. Traditionally, terms such as “cancer victim” and “cancer patient” were used to define people diagnosed with cancer; however, with improved survival rate these are no longer appropriate [11]. Hewitt et al recommend using the term “cancer survivor” for anyone with a cancer diagnosis who has survived primary treatment [22]. The label “cancer survivor” is now accepted to define a person newly diagnosed with cancer or a person who has survived even one day after diagnosis [11]. In this thesis, the term “cancer survivor” is used to characterize a person who is alive at current assessment.

1.1 EMPLOYMENT AND ITS IMPORTANCE FOR WELL-BEING

There exist several partly contradictory theories on how employment is important for our well-being. According to some researchers, for the majority of people, employment has no substantial value besides the role it plays in earning their living. You work because you have to. This theory is maintained by, among others, Radetzki [23]. The opposing theory is that employment is a fundamental source of personal identity and socio-psychological well-being. This standpoint was maintained by, among others, Jahoda. She developed the theory of “Ideal Mental Health”. This theory identifies five categories which are vital to feelings of well-being, viz. time structure, social contact, a collective effort or purpose, social identity or status, and regular activity. People who are not employed are deprived of all five, and this accounts for much of the lack of socio-psychological well-being reported among unemployed people [24].

When recovering from a cancer disease, employment has a special meaning. Return to work may be seen as a sign of regained well-being and of a reconnection with ordinary life [1, 25]. In a review article from 2000 Peteet reports that the importance of employment for cancer survivors has received relatively little attention; however, according to Peteet, the existing literature confirms that the loss of occupational identity can be a source of anxiety and depression also for cancer survivors, and continuing work or returning to the workplace allows many cancer survivors to maintain a sense of normalcy or control [26].

Priestly suggests that work disability is a social phenomenon formed by individuals and society – by individuals with regard to the disease’s biological consequences and personal attitudes and beliefs. The society’s role includes political, economic and structural factors as well as social and cultural values [27].

In the same way, work ability is a complex phenomenon composed of the individual’s physical, mental, and social resources as well as factors in the surrounding world. Work ability has also been shown to be associated with social and demographic factors, e.g. level of education, social support and social status. The situation on the labour market and employers’ willingness to employ a person with reduced work capacity are other factors of importance for the individual’s possibility to belong to the labour force [28, 29]. When assessing a person’s work ability it is important to consider “the unique individual’s beliefs and expectations of his/her effectiveness in relation to work, the individual’s knowledge about how to act in a worker role, and the individual’s perception of his/her work environment” [30]. It is complicated to objectively stipulate an individual’s work ability. Reviews have established that no instrument demonstrates validity and reliability in all areas of the complex phenomenon called “work ability” [30-32].

1.2 THE BREAST CANCER DISEASE AND ITS CONSEQUENCES

Breast cancer is a disease that starts in the cells of the breast. Both women and men can get breast cancer but male breast cancer is rare. The female breast consists of glands (lobules) and tubes (ducts), connective tissue, blood vessels, lymph vessels and fatty tissue. Mostly breast cancer starts in the tubes (ductal breast cancer) but cancer can also start in the lobules (lobular breast cancer) or in other tissues.

The lymph system is one of the ways in which breast cancer cells can spread to other organs in the body. The lymph system is composed inter alia of small bean-shaped lymph nodes connected by lymphatic vessels. The lymph system is a part of the immune system which is the body’s capability to repel infectious organisms and foreign cells. The first lymph node or group of nodes reached by metastasizing cancer cells from a malignant breast tumour is called “sentinel lymph node”.

A breast cancer in situ is a non-invasive cancer, which means that the cancer cells only exist in the ducts or lobules and have not spread into the breast stroma or to other organs in the body. A breast cancer is invasive (infiltrating) when the malignant cell has gone beyond the layer of cells where it started [33, 34].

Breast cancer is the most frequent form of cancer among women in Sweden [35] and causes more deaths in Swedish women than any other cancer except lung cancer. The number of women diagnosed with breast cancer for the first time was 7 059 in 2006. This constituted 29.4% of all diagnosed female cancers in Sweden that year. For a Swedish woman, the cumulative probability of developing breast cancer before 65 years of age is 6.4% [36].

Thanks to earlier diagnosis and available treatments, more and more women are being cured of their breast cancer. The 5-year and 10-year cumulative relative survival ratios (RSRs) for the period 2000–2002 was 87.0% respective 78.8% [37, 38].

In most cases the treatment of breast cancer begins with surgery. Either a part of the breast (sector resection) or the whole breast (mastectomy) is removed and the breast surgery is then completed with an axillary node dissection (the lymph nodes under the arm are removed) or a sentinel node dissection (the nodes most likely to contain cancer are removed). After the surgery the women are offered different types of adjuvant treatments (treatment to lower the risk of a relapse), e.g. chemotherapy, radiotherapy, endocrine treatment, and immunotherapy solely or in combination with other treatments. The women follow different therapies depending on clinical criteria, e.g. age, type of cancer, size, presence of metastases, hormone receptor status, type of surgery, and co-morbidity. In some cases, surgery is the only treatment type offered [39-41].

A breast cancer disease may cause temporary or permanent morbidity [4, 42]. Sequelae such as nausea, vomiting [43, 44] anxiety and depression [45], fatigue [46, 47], cognitive dysfunction [48, 49], post-traumatic stress symptoms (PTSS) [20, 50], arm problems, and chronic pain [51, 52] have been reported. A frequent consequence of chemotherapy, and of endocrine therapy for younger women, is premature menopause [53-55]. In comparison with natural menopause, vasomotor symptoms in premenopausal women are more frequent, severe, bothersome, and of longer duration [56]. The nature of all sequelae mentioned above varies over time and between individuals [11, 57].

Depression is the most frequent reported psychological problem following a cancer diagnosis, with anxiety being the second most frequent [12]. The prevalence varies widely between studies depending on factors such as time since diagnosis and time since completion of treatment (range 5–50%) [58] and measuring instrument used [59]. Furthermore, in some studies, survivors who received adjuvant chemotherapy have a higher frequency of both anxiety and depression [48] while in other studies no such side effects are seen [55]. In some studies, risk factors for anxiety and depression have been found to be related to the survivor's characteristics rather than to the stage of the disease or the received treatment, e.g. young age [60], poor social and family well-being [61], and previous psychiatric illness [12]. Also, presence of lymph oedema and other arm problems have in the literature been described as risk factors both for anxiety and for depression [58, 62].

Cancer-related fatigue (CRF) is one of the most common side effects of breast cancer diagnosis and its treatment [46]. It is a distressing side effect and can highly affect survivors' daily living [47]. Cancer-related fatigue is not an unambiguous concept. A definition of fatigue, proposed by Ream and Richardson [63] is that it is "a subjective, unpleasant symptom which incorporates total body feelings ranging from tiredness to exhaustion creating an unrelenting overall condition which interferes with individuals' ability to function to their normal capacity" [63]. The nature of the phenomenon is not yet fully explained, but CRF may be related to the disease process or its treatments such as surgery, chemotherapy, radiotherapy or immunotherapy [47]. Especially survivors

receiving chemotherapy or bone marrow transplantation experience CRF. de Nijs et al suggest that the prevalence of CRF in survivors receiving chemotherapy is 75–90%. The level of CRF increases during the treatment [46]. The prevalence for survivors receiving radiotherapy is 65%, according to de Nijs [46]. Servaes et al, by contrast, suggest that severe CRF affects almost 40% breast cancer survivors, and that severe fatigue is related to physical, psychological, social, cognitive and behavioural factors but not to former type of treatment [64]. In some survivors, fatigue lasts only a few days, while others report fatigue as persisting throughout the course of treatment and even as continuing after the treatment is completed [47]. Among survivors who have received radiotherapy, CRF usually is cumulative and may decrease after a period of weeks, but can persist for several years even after the end of the treatment [47].

In recent years, symptoms such as difficulties with memory, concentration and language have been mentioned as frequent among breast cancer survivors. The true incidence, functional significance and causes of these symptoms are unclear [48]. Fan et al suggest that cognitive dysfunction is an adverse effect of chemotherapy [65]. In the literature the frequency of cognitive dysfunction in survivors treated with chemotherapy because of breast cancer is estimated to be between 17% and 39% [66]. In a small prospective study of breast cancer 33% of the survivors exhibited cognitive dysfunction before the start of chemotherapy, compared with 61% about 3 weeks after the treatment was completed [67]. At a follow-up 1 year later, 50% demonstrated improvement [67]. A review of other factors besides chemotherapy that might cause cognitive impairment includes the impact of surgery and anaesthesia, hormonal therapy, menopause, anxiety, depression, fatigue, supportive care medication, genetic predisposition, co-morbidity, medical conditions, or possibly paraneoplastic phenomenon [68].

Examples of sequela following axillary lymph node dissection and adjuvant axillary radiotherapy are lymph oedema and other arm complications. The variance in reported incidence in different studies is probably due to different ways in defining lymph oedema and arm complications [52, 69]. In a study including breast cancer survivors diagnosed in 1997 and 1998, lymph oedema was present in 13% and a restriction in shoulder function in 24% of the survivors, while 93% of the survivors had an impaired sensation in the axillary region. The study suggested that lymph oedema and restriction in shoulder function are common in survivors both after adjuvant axillary radiotherapy and following axillary lymph node dissection [70]. Survivors who develop lymph oedema have more difficulty performing their jobs and leisure activities than survivors who are not affected by lymph oedema [71-73]. In recent years a number of survivors have been treated with sentinel node dissection instead of axillary lymph node dissection, which earlier was the only offered method of surgery. Survivors who have undergone a sentinel node dissection have less upper limb morbidity compared with survivors who have had a customary axillary lymph node dissection [74, 75].

1.3 IMPORTANT CONCEPTS FOR THE RESEARCH AREA

1.3.1 Job strain

In the 1970s Karasek originally developed the “Job strain concept and model” [76]. The model was further developed together with Theorell [77]. The Karasek demand/control/strain concept is the most widely used in prospective epidemiological studies [78]. The model consists of two components, job demands and job control. “Job demands” refers to the worker’s experience of psychological demands such as mental workload, organizational constraints on task completion, and conflicting demands. “Job control” relates to the freedom permitted to the worker to decide how to meet demands and thereby take control over his or her own work situation. Job strain is characterized by lack of balance between demands and control [76, 77]. A model of the effect of different combinations of high demands and low control has been developed by Schnall et al [79]. The combination of high job demands and low job control will lead to increased risk of morbidity such as hypertension and cardiovascular disease [79]. The model has also been used to examine the impact of job strain on RTW after e.g. carpal tunnel release surgery [80] and to predict the future onset of disabling low back pain [81]. Johnsson and Hall completed the model with a third dimension, social support, which may have a protective role against the negative effects of high job strain [82]. In a Swedish study it is reported that there exist gender differences in perceived work stress. Women’s health was determined by the interaction between conditions at work and household duties; men’s health, on the other hand, was more affected by long working hours [83].

1.3.2 Social support

Sarason et al define social support as an interactional process [84]. The impact of social support is “based on interactions among three variables: (1) motivations and expectations of providers and recipients, (2) the nature of the relationships in which the supportive exchanges occur, and (3) the type of situation at which the supportive behaviours are directed” [85]. Several studies have demonstrated that social support acts as a moderating factor in the development of psychosocial morbidity and quality of life following breast cancer disease [12, 86-88]. A supportive working climate is facilitative for RTW. Social support, particularly from the employer but also from workmates, is of significance for a successful RTW [7, 89-91].

1.3.3 Life satisfaction

Quality of life, life satisfaction and well-being are concepts that are interchangeably used to describe different aspects of satisfaction in cancer survivors [92, 93]. Quality of life and life satisfaction have increasingly been a theme in early-stage breast cancer research [12] and several instruments have been developed to measure the survivors’ quality of life [94]. The principal findings are that no significant long-term differences in quality of life are found between early-stage breast cancer survivors free from relapse and the general population [95, 96]. Studies evaluating and comparing quality of life during and after different types of treatment have demonstrated that treatment with chemotherapy, especially high-dose chemotherapy, has a negative impact on quality of life [97, 98] and so has treatment with axillary node dissection [99]. Particular problems affecting quality of life in younger survivors are premature

menopause leading to loss of fertility, and sudden onset of vasomotor symptoms [60, 100].

1.3.4 Coping

The management of emotional distress following a breast cancer diagnosis may well be analysed within coping research [100]. Coping has been defined by Lazarus and Folkman in “Stress, Appraisal and Coping” page 141 as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of a person” [101]. Two general coping strategies have been distinguished: problem-solving and emotion-focused strategies. Problem-solving strategies are efforts to do something active to reduce stressful circumstances, and emotion-focused coping strategies denote efforts to regulate the emotional consequences of a stressful event. To combat stressful events, people use both types of strategies to varying extent depending upon both their personal style and the type of stressful event [102]. In the research on coping, focus has been put on negative outcomes in the stress process. More recent research has demonstrated that especially the use of positive coping strategies makes it easier to adjust to a stressful event [103]. Articles concerning breast cancer survivors’ coping strategies are numerous but few of these have addressed how the use of coping modes affects RTW [100].

1.4 THE SWEDISH SOCIAL INSURANCE SYSTEM AS A CONTEXTUAL ASPECT FOR THIS THESIS

Social insurance aims to provide financial security at various stages of life, e.g. in illness, disability, parenthood and old age. In the mid-19th century, people left the countryside for employment in factories and Sweden began to be urbanized. When the primitive economy decreased and people became more dependent on wages, financial vulnerability with regard to inability to work increased. Demands for a social insurance system grew in pace with more and more people becoming financially vulnerable in connection with illness and old age. At the end of the 19th century local sick benefit and funeral societies were established to help their members in an emergency. As late as 1955 the national health insurance system with income-related sickness benefit and subsidized health care was established. Throughout the later part of the 20th century, reforms were gradually introduced and many improvements were made [104-106]. Today everyone who lives or works in Sweden is covered by the social insurance system [107]. The health insurance compensates for the major part of the loss of income in case of inability to work. Most employees have an additional insurance which often covers an additional 10% of the loss of income [108].

At the time of Studies I and II the benefit level for sick pay in the Swedish disability insurance system was 75% of wages, which was 5% lower than at the time of Studies III and IV. The social insurance office could not replace sick pay with a permanent disability pension, for which the benefit level is lower, until the individual had been absent from work because of illness for >1 year. If the individual was expected to be able to return to his or her ordinary job some time in the future, sick pay could in practice be paid for an unlimited period [109]. During the latter part of this investigation’s study period it was a pronounced goal in Sweden to improve the

possibilities of RTW by requesting the doctor to prescribe part-time sick leave rather than full-time sick leave [110]. Furthermore, the government has actively been working for a shortening of the time period necessary for sickness absence [110] which in 2008 resulted in an alteration of an Act introducing rigorous rules for both sickness certification and early retirement pension [111].

In the early 1990s the number of people on sick leave in Sweden was relatively low. However, the sick leave rate noticeably increased in 1997 and the increase continued into 2002 [112]. After that and during the whole of this study period the sick leave rate decreased while there was an increase in the number of people who received a disability pension. Therefore the number of people at working age who were absent because of illness was almost the same. The same pattern applied to the sick leave rate among people diagnosed with cancer, and breast cancer survivors were no exception. The sick leave rate was high from an international perspective and regional differences were noticeable [113].

When the present studies were conducted, the law assigned principal responsibility for observing and investigating the need for occupational rehabilitation, ensuring that action is taken, and financing the rehabilitation programme to Swedish employers. The need for and possibility of rehabilitation had to be investigated as soon as the employee had been absent from work because of illness for 4 weeks [114, 115]. The social insurance office had a role as an initiator, as well as being the responsible co-ordinator in the process of rehabilitation [114]. This was meant to ensure that the employers fulfilled their obligations.

The observance of the laws was insufficient. A report from the Ministry of Health and Social Affairs stated in 2006 that only four out of ten long-term sick-listed persons had been contacted by the social insurance office within 1 year of starting sick leave in order to discuss the possibilities of RTW, despite the fact that nine out of ten employers had not fulfilled their obligations [116]. The same year the social insurance institution conducted a survey in order to study administrative procedures in the rehabilitation process. The results indicated that employers do not fulfil their duty. The case study revealed a failure to carry out a rehabilitation investigation in over half the cases and two out of ten investigations were also substantially delayed [117].

1.5 EXISTING RESEARCH ON CANCER AND RETURN TO WORK

The RTW process most probably differs between countries since both work disability and work ability have political, economic and structural aspects [27-29] and so has the insurance cover due to sickness absence [118]. Studies concerning RTW and cancer have been sparse and mostly conducted in the USA and Canada. In a review from 2002, Spelten established that there were only 14 studies published in 1985–1999 addressing the RTW issue [119]. The reviewed articles showed that the average RTW rate was 62% (range 30–93%). Factors negatively associated with RTW were a non-supportive work environment, manual labour, and having head and neck cancer. However, socio-demographic characteristics were not associated with RTW. For increasing age, associations were mixed.

In 2004 Steiner et al reviewed English-language studies on the subject published in 1966–2003, and pointed out the lack of research addressing problems concerning RTW after a cancer diagnosis and the considerable methodological weaknesses in several of the reviewed studies [120]. The authors established that only 18 studies were sufficiently interesting to meet their criteria for further evaluation. These studies were published between 1999 and 2003 and were mainly population-based studies in cancer survivors of working age. The RTW rate was approximately two-thirds of each study sample. Multiple hindering or facilitating factors were identified but because of methodological problems and contradictory results the conclusions were difficult to summarize [120].

In recent years, the interest in studying how a cancer diagnosis affects work ability has increased. In a review from 2007 Taskila and Lindbohm state that since the Steiner et al review, several studies have been performed concerning cancer and work issues [121]. Taskila and Lindbohm reviewed twelve studies, published between 2002 and 2007, on cancer survivors' employment and work ability. The authors state that the majority of cancer survivors were able to continue working after their treatments were completed. The employment rate in the reviewed studies ranges from 41% to 84% depending on factors such as impaired work ability associated with cancer type, type of treatment, health status, and education and physical demands. In the few studies focusing on work-related psychosocial factors it was evident that social support from occupational health services and workplace accommodations because of the cancer disease are associated with RTW [121]. Seven of the twelve reviewed studies were performed in the USA.

Since the beginning of 2007 several studies concerning cancer survivors and factors associated with RTW/work ability have been published. A postal survey from North West England in the UK reports that about 80% of the participating cancer survivors in north-western England returned to work. The RTW pattern differed between male and female survivors. Men were less likely than women to take sick leave but men were more likely to take longer periods of absence when they did [122]. A longitudinal study from the USA indicates that the greatest reduction in cancer survivors' employment and weekly hours worked was observed 6 months following the diagnosis [123]. A study from Great Britain shows that opportunities to work flexibly, disclosure to colleagues, difficulties managing fatigue, and paid time off to attend all medical appointments were associated with continuing to work during treatment. Managing fatigue, managing the stress of cancer, managing physical changes associated with cancer, having received advice from the doctor about work and RTW, and meeting with the employer were facilitating factors for RTW [7]. Among the survivors in a Finnish study, 26% reported that their physical work ability had deteriorated because of cancer, while 19% stated that their mental work ability had deteriorated. The survivors who had other diseases or had had chemotherapy most often reported impaired work ability, while survivors with a strong commitment to their work organization, or a good social climate at work, reported impairment less frequently [91]. A prospective study from the Netherlands reports that the RTW rate in a population of cancer survivors differed between different cancer types. Survivors treated with chemotherapy showed the lowest work ability scores. Work ability at 6 months strongly predicted RTW at 18 months.

Self-assessed work ability is an important factor in the RTW process [124]. In a Norwegian study, 17% of the survivors had made work-related changes because of cancer. This group consisted mainly of women and was characterized by poorer physical and mental quality of life and poorer mental work ability because of cancer [125]. A recent community-based survey from the USA reports that out of 100 survivors, 92 returned to work within 2 years following diagnosis, but 57% of these reduced their work by more than 4 hours/week, and 56% noted a change in some aspect of their occupational role. Physical symptoms, particularly lack of energy or nausea/vomiting, and psychological symptoms, particularly feeling bored or useless or feeling depressed, were significantly associated with a reduction in work hours or a change in occupational role [126].

Published studies have shown that cancer type has the strongest association with RTW [121]. Most breast cancer survivors normally successfully return to work after completed treatments. A longitudinal cohort study from the USA indicated that the long-term RTW rate for survivors diagnosed with cancer was >80% after 18 months [90]. The survivors' working rate on the long-term after diagnosis differed slightly from that of controls [127-130]. Several studies have addressed the specific problems breast cancer survivors encounter when continuing working during treatment or when returning to work after completed treatment. Canadian studies state that older age, low income, and union membership were hindrances for RTW [129, 130]. No associations between RTW and other demographic characteristics such as educational level or living with a partner or children were found [129]. Self-employment facilitated the RTW [130] and no discrimination against cancer survivors was found [2]. A study from the USA established that poor health, advanced tumour stage, heavy lifting at work, and perceived discrimination by the employer because of a cancer diagnosis were impediments to RTW at 12 months after breast cancer diagnosis; older age, Afro-American race and poor health were impediments to RTW at 18 months. Fair health and employer accommodation facilitated RTW [90]. In another study from the USA, advanced cancer stage and Afro-American race have also been demonstrated to be negatively associated with RTW [128].

A study from the Netherlands reports that mean duration of absence with early-stage breast cancer was 11.4 ± 5.5 months; 35% of survivors were absent for >1 year. The duration of absence depended on the type of treatment and was significantly longer in survivors who underwent chemotherapy. Survivors started working about 4 months after the end of therapy irrespective of the type of treatment [5].

A review of articles published between 2000 and 2008 concerning factors associated with RTW for survivors treated for breast cancer is given in Table 1. The chosen period is of relevance, since breast cancer treatments have undergone great changes recently. Today a number of new treatments including sentinel node dissection [131] have the potential to facilitate RTW, while others such as Herceptin® [132] high-dose chemotherapy [133] may hinder RTW, at least in the short run.

Table 1. Cohort studies on RTW among breast cancer survivors (BCSs), study and sample characteristics, rate of RTW, hindrances and facilitating factors for RTW.

No	Sample size	Country Author (year)	Mean time since diagnosis	RTW measures and rates	Hindrances for RTW	Facilitating factors for RTW
1	416	The USA Bouknight (2006)	12 months		Poor health, advanced tumour stage, heavy lifting, cancer discrimination	Fair health, work accommodation
2	496	The USA Bradley (2005)	6 months	BCSs RTW rate 80%	Old age, race (black), poor health	Fair health, work accommodation
3	150	The USA Bradley (2002)	On average 7,5 years	BCSs work rate less than control: 7%	Advanced tumour stage, Afro-American	(BCSs in the labour force worked more)
4	646	Canada Drolet (2005)	3 years	BCSs work rate less than control: 10%	Old age, low income, union membership	
5	646	Canada Drolet (2005)	3 years	Not working: BCSs 21% - Control 15 %	Union membership (chemotherapy)	Self-employed
6	646	Canada Maunsell (2004)	3 years	Not working: BCSs 21% - Control 15 %		(No cancer discrimination at work)
7	72	The Netherlands Balak (2008)		BCSs absence 11.4±5.5 months	Chemotherapy Multi model treatment	

1. Bouknight RR, Bradley CJ, et al. Correlates of return to work for breast cancer survivors. *J Clin Oncol* 2006;**24**(3):345-53.
2. Bradley CJ, Neumark D, et al. Short-term effects of breast cancer on labor market attachment: results from a longitudinal study. *J Health Econ* 2005;**24**(1):137-60.
3. Bradley CJ, Bednarek HL, et al. Breast cancer and women's labor supply. *Health Serv Res* 2002;**37**(5):1309-28.
4. Drolet M, Maunsell E, et al. Not working 3 years after breast cancer: predictors in a population-based study. *J Clin Oncol* 2005;**23**(33):8305-12.
5. Drolet M, Maunsell E, Mondor M, et al. Work absence after breast cancer: a population-based study. *Cmaj* 2005;**173**(7):765-71.
6. Maunsell E, Drolet M, et al. Work situation after breast cancer: results from a population-based study. *J Natl Cancer Inst* 2004;**96**(24):1813-22.
7. Balak F, Roelen CA, et al. Return to Work After Early-stage Breast Cancer: A Cohort Study into the Effects of Treatment and Cancer-related Symptoms. *J Occup Rehabil* 2008;**18**(3):267-72.

2 AIMS

The overall aim of this thesis was to study the rehabilitation process following a breast cancer diagnosis for women at working age by examining factors related to type of treatment, tumour stage, socio-demographic status, health status, working condition, life satisfaction, and coping skills, and their association with RTW. The aim was reached through the four studies listed below:

2.1 STUDY I – FACTORS ASSOCIATED WITH RETURN TO WORK AFTER BREAST CANCER TREATMENT

The specific aim of this study was to investigate whether factors such as type of treatment, tumour stage, educational level, matrimonial status and presence of under-age children were associated with long-term problems in returning to work in women with breast cancer treated with endocrine therapy.

2.2 STUDY II – FACTORS INFLUENCING RETURN TO WORK: A NARRATIVE STUDY OF WOMEN TREATED FOR BREAST CANCER

The specific aim of this study was to identify factors contributing to a successful return to the labour market using the narratives of women treated for breast cancer. The following questions were addressed: What are the thoughts and attitudes of women treated for breast cancer regarding their RTW? Is there a difference in the thoughts, attitudes and experiences of women who successfully return to work and those who remain on long-term sick leave? What role do personal experiences of contacts with the workplace play?

2.3 STUDY III – PREDICTORS OF RETURN TO WORK TEN MONTHS AFTER PRIMARY BREAST CANCER SURGERY

The specific aim of this study was to identify how treatment type, socio-demographic factors, health status, and work-related factors influenced RTW 10 months after surgery for early-stage breast cancer in women.

2.4 STUDY IV – LIFE AND WORK CHANGES THE FIRST YEAR AFTER BREAST CANCER DIAGNOSIS

The specific aims of this exploratory study were to generate new knowledge about life satisfaction, coping and rehabilitative measures taken after early-stage breast cancer treatment and the association of these concepts with RTW.

3 PARTICIPANTS AND METHODS

The thesis is built around four studies based on two different sets of material concerning women treated for breast cancer. Studies I and II are based on a prospective, randomized multi-centre trial of different types of adjuvant endocrine therapy in premenopausal women with invasive breast cancer, which was conducted in the Stockholm area. Studies III and IV are based on a prospective longitudinal cohort study conducted at the Department of Oncology at Södersjukhuset in the Stockholm area concerning treatment, socio-demographic status, health status, and work-related and psychological factors associated with RTW in early-stage breast cancer survivors. All the participants in the studies were female and free from distant metastases.

An overview of the studies included in the thesis is presented in Table 2.

Table 2. Overview of the studies in this thesis.

	Study I	Study II	Study III	Study IV
Design	Longitudinal cohort study	Narrative interview study	Longitudinal cohort study	Longitudinal cohort study
Follow-up/cut-off time	36 months	12 months	8 months	8 months
Number of women	270	16	102	102
Age range (at inclusion), yrs	29–54	44–58 ¹	35–63	35–63

¹ At the time of the interviews.

3.1 STUDIES OF THE CONSEQUENCES OF ADJUVANT ENDOCRINE THERAPY IN PREMENOPAUSAL WOMEN - PARTICIPANTS, DATA COLLECTION AND ANALYSES (STUDIES I AND II)

From 1990 to 1996 a prospective, multi-centre, randomized trial of different types of adjuvant endocrine therapy was conducted in premenopausal women with invasive breast cancer (named the “Zoladex in Premenopausal Breast Cancer Women (ZIPP)” trial). Four European breast cancer trial groups were involved in the study, the Cancer Research Campaign Breast Cancer Trials Group in the UK, the Stockholm Breast Cancer Study Group and the South-East Sweden Breast Cancer Group, both in Sweden, and the Gruppo Interdisciplinare Valutazione Interventi in Oncologia, in Italy. A study population of 927 women were included in the Stockholm Breast Cancer Study Group. In the trial the women about 4 weeks after primary surgery were randomly allocated to four treatment groups, tamoxifen, tamoxifen plus goserelin (Zoladex®), goserelin alone, or an endocrine-untreated control group. The duration of all endocrine treatments was 2 years, including six courses of adjuvant chemotherapy (cyclophosphamide, methotrexate and fluorouracil (CMF)) for women with axillary nodal involvement. Women with conservative breast surgery received radiotherapy of the breast

parenchyma (50 Gy/5 weeks). Women with four or more positive axillary lymph nodes were offered radiotherapy to the chest wall and regional lymph nodes (46 Gy/4.5 weeks) [134, 135].

Inclusion criteria for the trial: Inclusion criteria were histologically verified invasive breast cancer, premenopausal status (last menstruation <6 months previously), primary surgery consisting of a modified radical mastectomy or sector resection plus axillary dissection, node-positive axillary nodes or node-negative disease provided the histopathological tumour size was ≥ 10 mm, and no clinical evidence of distant metastases.

Exclusion criteria for the trial: Women were excluded if they had inoperable breast cancer, prior radiotherapy, prior neo-adjuvant chemotherapy and/or prior endocrine therapy, and current endocrine therapy.

Women with conservative breast surgery received radiotherapy of the breast parenchyma (50 Gy/5 weeks). Women with four or more positive axillary lymph nodes were offered radiotherapy to the chest wall and regional lymph nodes (46 Gy/4.5 weeks) [134, 135].

Figure 1 on next page describes the enrolment in Studies I and II.

3.1.1 Study I

Between 1990 and 1994, women in five hospitals in the Stockholm area who agreed to participate in the randomized clinical trial were asked to also participate in a study assessing physical, psychological and social consequences of endocrine treatment (referred to here as “The psychosocial study”) [134]. A total of 293 of the eligible trial women participated in the psychosocial study. Reasons for non-participation were administrative problems (n=27), language difficulties (n=20) and concurrent disease (n=7). Only 21 women (7% of the 314 women invited) declined to participate. Another 23 women were not included in Study I because they were not active in the labour market at baseline, which gave a cohort of 270 relapse-free women. Associations between treatment factors (endocrine therapy, chemotherapy, radiotherapy, and RTW) were assessed, as well as associations between age, educational level, matrimonial status, and presence of under-age children, and RTW. The women were also asked to indicate why they had not returned to work by checking one or more of the following statements.

- I am not able to work to the same extent as previously because of the working environment and/or nature of the work.
- I am physically exhausted and my body has physically deteriorated after the illness and its treatment.
- It is mentally stressful to work as much as previously.
- Since my illness I do not regard work as so important for my sense of well-being.

Return to work in Study I is defined as working at least 75% of the self-reported pre-diagnosis employment rate. In the psychosocial study the employment rate was

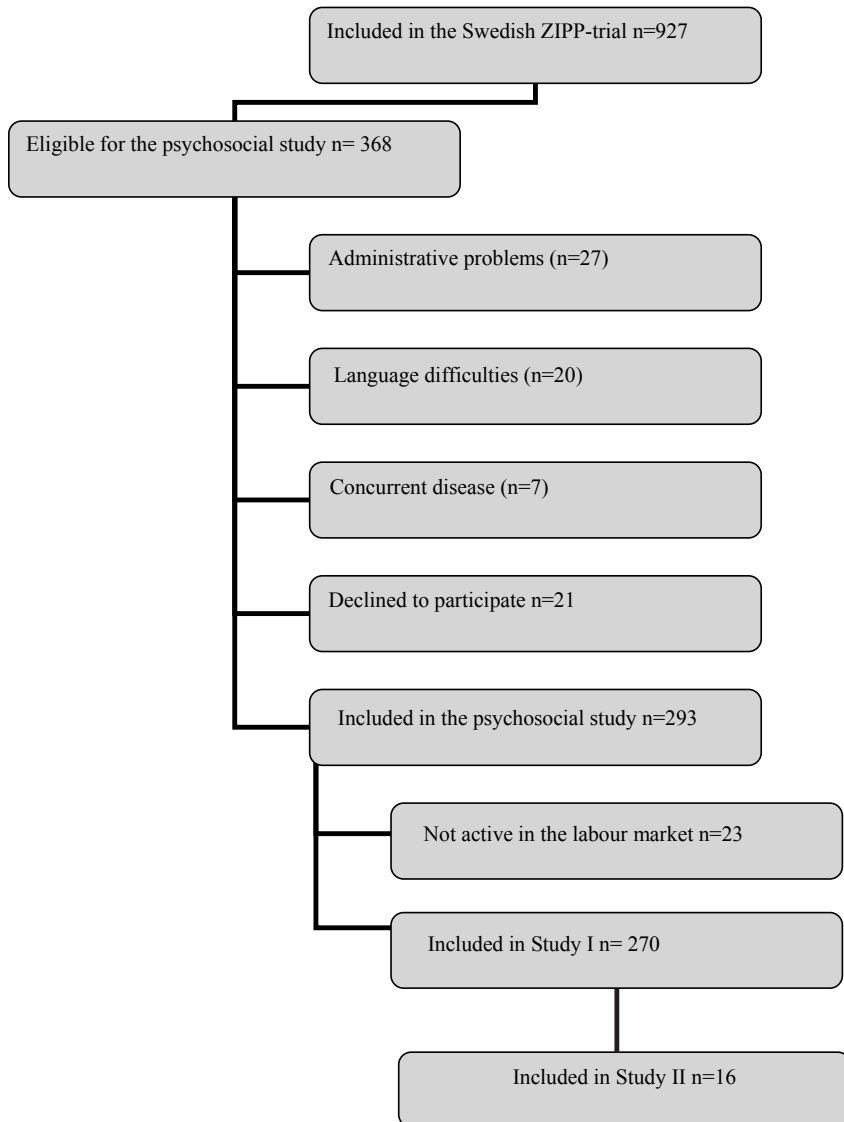


Figure 1. Enrolment of breast cancer survivors in Study I and Study II.

measured as weekly hours worked. Several of the women had schedules that varied over time and it was impossible at every assessment to establish whether the women were working exactly as much as before the diagnosis. The figure of 75% of the self-reported employment rate pre-diagnosis was chosen since at that rate you have no right to be on sick leave [109].

Statistical analyses

In Study I an unconditional logistic regression to determine whether the work status of women still alive and free from relapse 24 months after starting the treatment was associated with the type of endocrine treatment used. The same procedure was used to analyse the impact of tumour stage, chemotherapy and radiotherapy, age, educational level, matrimonial status and presence of under-age children on work status. Results are presented as odds ratios (ORs) supplemented with 95% confidence intervals (CIs).

Covariance for all included factors has been tested but the result has only been controlled for age and treatment factors because remaining factors did not influence the results.

3.1.2 Study II

Study II has a qualitative retrospective design. A purposeful sampling of women participating in “The psychosocial study” described above was performed. Sixteen relapse-free women were recruited, comprising four women from each endocrine treatment group. Of these, eight women had returned to the labour market and eight were still partly or fully sick-listed at their 12-month follow-up appointment. This sampling was performed in order to detect possible differences in RTW experiences, not only between working and sick-listed women, but also after different endocrine treatments.

An introductory letter was sent to the women, informing them about the study and inviting them to participate. A few days later, they were contacted by telephone and asked to spend about an hour in an individual interview about their personal experiences of their illness and their RTW. All communications with the women emphasized that participation in the interview study was entirely voluntary and that they could decline to participate without any negative impact on their treatment in the future. All 16 women agreed to take part in the study.

A narrative method developed by Mishler [136] was used to conduct the interviews. Illness narratives are variants of biographical writing or biographical research [137]. The starting point for this methodology is to ask the interviewee to transform important occurrences in their life story into narratives. The narrator takes the interviewer back to the past and recapitulates what has happened [138]. In this study I focused on narratives about considerations and circumstances concerning RTW, and about relationships with somebody at work during this transition period.

The interviews were opened with the request “Please tell me about your experiences of returning to work after your breast cancer diagnosis and about contacts with your

workplace.” Where necessary this request was followed by further requests for clarification, such as “Tell me a little more about ...”. The interviews lasted 40–60 minutes.

All interviews were tape-recorded and transcribed verbatim. The research group analysed the data following the first four steps described by Creswell (1998): (1) identifying an objective set of experiences in the subject’s life; (2) discovering stories and epiphanies; (3) isolating narrative segment and categories within the interview story; (4) isolating major patterns and meanings within the narrative segments. Step 5 (reconstructing the biography) was not used as the patterns were already assessed as providing important knowledge for the field of health care.

3.2 STUDIES CONCERNING FACTORS ASSOCIATED WITH RETURN TO WORK – PARTICIPANTS, DATA COLLECTION AND ANALYSES (STUDIES III AND IV)

Figure 2 describes the enrolments in the studies III and IV. Included were women who had undergone surgery for early-stage breast cancer and who were treated at the Department of Oncology at the Karolinska University Hospital, Södersjukhuset, in Stockholm, Sweden. The women were consecutively enrolled and asked to participate in the study about 6 weeks after surgery.

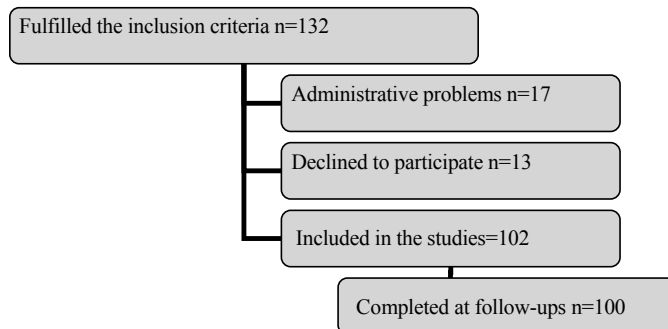


Figure 2. Enrolment of breast cancer survivors in Studies III and IV.

Inclusion criteria: All women aged 18–64 years with a new and histologically verified invasive breast cancer or ductal cancer in situ (DCIS) were included if they had undergone primary surgery, had no clinical evidence of distant metastases, lived in the Stockholm area, were able to understand and read Swedish, and reported having worked at least part-time before the diagnosis of breast cancer.

Exclusion criteria: The exclusion criteria were inoperable breast cancer, prior irradiation, prior neo-adjuvant chemotherapy, and prior endocrine therapy. Women who had been on sick leave for more than 6 months prior to the breast cancer diagnosis, and women suffering from another serious disease were likewise excluded.

The recruitment period lasted 13 months in total (November 2002 to January 2003, plus November 2003 to August 2004). The first 3 months were planned as a pilot study, but since no changes were made in the study design, the women recruited during these months were also included in these studies.

The inclusion criteria were met by 132 women, 13 of whom declined participation. A further 17 were not invited to participate, because of administrative problems, and so the final cohort consisted of 102 women. One hundred of these women answered the follow-up questionnaires on both follow-up occasions. Of these, 33 were treated with chemotherapy. The number of women for whom data were available for analysis varied between 93 and 100, depending on the measurement under consideration.

Questionnaires

Two comprehensive questionnaires were compiled, one to be used at inclusion 6 weeks post-surgery, and the other to be used at follow-up 6 and 10 months after surgery. As far as possible, validated and frequently used instruments were used. The questionnaire used at inclusion covered demographic characteristics and self-rated health, using questions from Statistics Sweden [139, 140], sense of coherence (SOC 3) [141], life satisfaction (LiSat-11) [142], socio-economic status as defined by the classification system used by Statistics Sweden [139], job strain (according to Theorell and Karasek) [77], and social support at the workplace (according to Johnson and Hall) [82]. The questionnaire also included two items to measure previous sickness absence. This was measured by the number of days of self-reported sick leave in the previous 12 months. The response options were: 0, 1–7, 8–30, 31–90, and >90 days. Furthermore, in an open-ended question the respondents were asked to report the disease that had caused sickness absence. Both questionnaires covered life satisfaction (LiSat-11). Moreover, the follow-up questionnaire covered sick leave data, coping (using the General Coping Questionnaire (GCQ)) [143] and experiences of the rehabilitation process (contact from the workplace and contact from the social insurance office about RTW, respectively).

From the medical files, treatment characteristics were obtained and classified regarding surgery, radiotherapy, chemotherapy, and endocrine therapy.

The RTW rate was measured in these studies by one item in the follow-up questionnaire and defined by the answers “working to the same extent as before the breast cancer”, “I am 25% sick-listed”, “I am 50% sick-listed”, “I am 75% sick-listed”, or “I am sick-listed full-time”. Study III examined the ability to work to the same extent as before the breast cancer while Study IV focused on the ability to do full-time or part-time work.

Statistical analyses

The variable “previous sickness absence” was constructed as a 3-point scale. Previous sickness absence was set as 0–30 days, >30 days due to the breast cancer diagnosis, or >30 days due to other diagnoses.

In Study III a chi-square test was used to examine the statistical significance of the associations between RTW and individual and family background, living and working conditions, financial situation, previous sickness absence, self-rated health, sense of coherence, life satisfaction, and type of treatment. The level of significance was set at $p < 0.05$.

Logistic regression including calculations of ORs and 95% CIs was used to examine the impact of the following factors on the likelihood of RTW after 10 months: age, country of birth, previous sickness absence, self-rated health, life satisfaction (satisfaction with life as a whole and with work), job demands, and type of treatment after diagnosis. An adjusted model included only variables from the baseline questionnaire, which had statistically significant associations with RTW at follow-up. The respective reference groups comprised those subjects aged 35–50 years who had had ≤ 30 days of sick leave in the previous 12 months, who had good self-rated health, who were satisfied with their life and working life, and whose treatment had not included axillary dissection, chemotherapy, or radiotherapy to the breast/chest wall and regional nodes.

In Study IV, percentages and median values are presented for descriptions (characteristics, life satisfaction, coping). Comparisons between treatment groups and between RTW groups regarding coping were performed using the Mann-Whitney U-test. The Pearson chi-square test, or Fisher’s exact test, was used to calculate the differences in life satisfaction between working and sick-listed women. All the tests were two-tailed, with a significance level of $p < 0.05$. The statistical computer program SPSS 15.0 (SPSS Inc., Chicago, IL, USA) was used for all tests.

4 RESULTS

4.1 STUDIES OF CONSEQUENCES OF ADJUVANT ENDOCRINE THERAPY IN PREMENOPAUSAL WOMEN (STUDIES I AND II)

4.1.1 Study I

At 12 months after baseline 52 of the survivors (21%) were not working at least 75% of the self-reported pre-diagnosis employment rate. At 24 months the number of relapse-free survivors was 222, and 35 of these (16%) had still not returned to work. The number of relapse-free survivors at 36 months was 204. Twenty-nine of these (14%) had not returned to work. The reasons for not returning to work after 24 months differed; mostly they were still sick-listed. Some of the survivors had retired early, had lost their jobs, had begun to study or had chosen not to work but rather, to spend more time with their children.

Use of adjuvant endocrine therapy was associated with a twofold increase in the OR of not having returned to work after 2 years, although the CI for this ratio was wide and included unity. Treatment with chemotherapy/nodal status was negatively associated with RTW. No associations between adjuvant radiotherapy and RTW were found.

Neither matrimonial status nor presence of under-age children was associated with work status. There was a numerical, though not statistically significant difference in frequency of having returned to work in favour of survivors with more than 9 years' schooling.

The survivors were asked to indicate why they had not returned to work. The most frequent answer (72%) among 35 survivors who were still on sick leave after 24 months was that they were not able to work to the same extent as previously because of the working environment and/or the nature of the work. The second most common reason (60%) was physical exhaustion and deterioration after the illness and its treatment. The third reason (49%) was that the survivors felt it to be mentally stressful to work as much as before. Finally (37%), survivors did no longer regard work as so important for their well-being.

4.1.2 Study II

Both groups, i.e. the working survivors (n=8), the survivors still sick-listed 12 months after inclusion (n=8), were homogenous by age, all being 44–58 years old. Six survivors in each group were living with a partner. Neither did the employment characteristics differ substantially between the two groups.

Since the interviews with some survivors were carried out up to 4 years after they were diagnosed some changes in the work situation had taken place. All survivors in the working group were still working at the time of the interviews. Of the survivors in the sick-listed group three were now working, and five were not.

The aspect in which the narratives of the sick-listed survivors differed most from the working survivors' narratives was the strong emphasis the former group put on the struggle, first in order to recover, and later to keep their place in the labour market.

Two themes were found to be important elements of all narratives, viz. (1) personal feelings about belonging to the labour market; and (2) the importance of receiving social support from the workplace.

Belonging to the labour market

Principal attitudes towards the labour market and their consequences are given in Table 3.

Table 3. Attitudes towards the labour market and their manifestations.

1. A great salutogenic impact of belonging to the labour market – a sign of returning to life

Manifestations:

A strong wish to return to work as soon as possible

2. A turning point where the importance of work changed; work losing some of its meaning

Manifestations:

Worked fewer hours or exerted themselves less when working

Worked, but only because they had to for economic reasons

In the narratives of the working group, there were plenty of examples of the value of having a job. For some survivors, RTW meant normality, something which when looking back they did not seem to have given much thought to. For others, work had lost some of its meaning but still they could not afford not to work. For one woman, a hairdresser, work was an opportunity to be alert and creative

In the narratives of the women who returned to work late, there were also examples of the value of having a job. A catering assistant may represent this group. During the chemotherapy she doubted whether she would ever be able to work again. On recovering and going back to work, she felt she had achieved a victory.

For survivors who strongly wanted to return to work, but could not manage for different reasons, the fight continued. A bank clerk may represent this group. She was firmly determined to return to work. She could not be persuaded to change her mind, although her position had been made redundant because of internal reorganization, with her company having made extensive staff reductions. Her manager asked her to leave employment and accept a terminal, lump sum payment. She was, however, determined to return to her workplace.

Also in the sick-listed group of survivors, a changed attitude towards work was reported. An illustration of this is a social worker, who had been treated with chemotherapy and endocrine therapy. She related how when diagnosed, she had felt that this was her death sentence. She then thought she would never be able to return to work. When she realized that she had a chance to regain her working capacity, she was at first firmly determined to return to work. However, she gradually came to realize that there were certain advantages to being sick-listed and she adopted a reflective attitude about how to fill her usually active role, but at the end her wish to return to work was stronger.

Even survivors who received temporary disability pension expressed their wish to remain in the labour market, at their previous workplace or in a new job, but also saw the advantage of retiring early. At the same time, however, they were afraid of not being “attractive” in the eyes of a potential employer because of their age.

The importance of social support within the work arena

Social support received from surrounding persons during the period when returning to work was in focus was a dominant theme in the narratives. The amount and quality of social support received differed between the groups. Survivors who had returned to work within 1 year had experienced, and were still receiving, strong support from their employers and co-workers. Examples of this are listed in Table 4.

Table 4. Examples of received support from employers or colleagues.

Support from employers

Timetabling, making it easier to carry out the treatment

Measures to ease the workload

Encouraging telephone call followed by work adjustment to suit the women’s health status

Employed substitutes in order to make it easier for the women to return to work

Support from colleagues

Supportive contact during all the time the survivor was reporting sick

Support from co-workers who had also been treated for breast cancer

There was only one statement from a woman in this group about problems related to her employer’s attitude. Her employer still asked for the same job performance, though the woman’s working capacity had declined.

The only negative aspect about co-workers mentioned in the narratives of this group was that one woman was told by a colleague about people who had died of cancer. Also, a self-employed hairdresser had met combined supportive and negative attitudes from her customers. When she had just been diagnosed, they were more amiable than before, but later, many of them left for another hairdresser.

In the narratives of the women who returned to work late, one woman told about success in her fight for a place in the labour market. This woman had been sick-listed for more than 12 months when she found out that her employer had not initiated any rehabilitation activity, although the Swedish law urges employers to do so. When her vocational rehabilitation was over, he asked her to sign a paper saying that she was giving up her permanent job for a redundancy payment. Against all odds, and with help from the social insurance office, as well as a great deal of personal obstinacy, she still managed to return to work.

All the survivors on sick leave described how their employers were opposed to their attempts to return to work. Several of these survivors had even experienced hostile acts, like being asked to quit the employment.

4.2 STUDIES CONCERNING FACTORS ASSOCIATED WITH RETURN TO WORK (STUDIES III AND IV)

The LiSat-11 questionnaire was used to examine whether the participating survivors' life satisfaction was comparable to that in a reference Swedish population of the same sex and age [142]. The result is presented in Figure 3. The survivors in the Studies III and IV had lower life satisfaction in all aspects other than vocational situation, financial situation, and contact with friends.

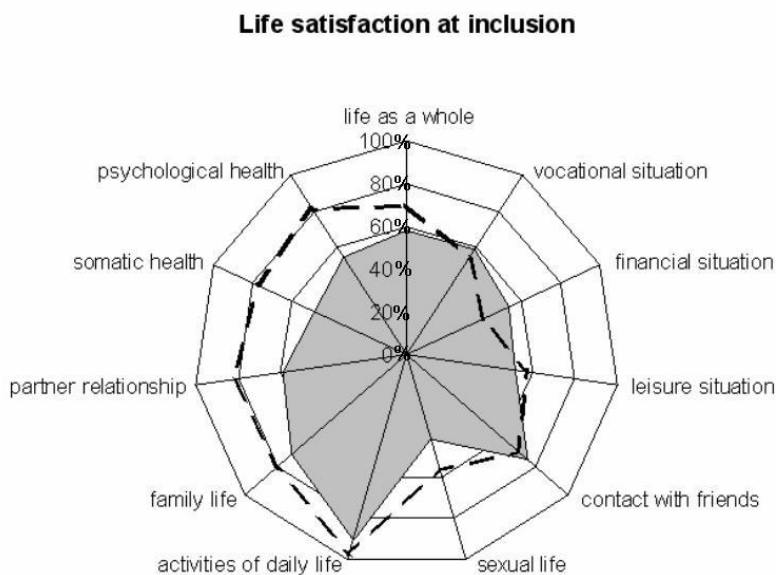


Figure 3. Life satisfaction at inclusion among 100 women who had undergone breast cancer surgery (grey area) compared with a representative national Swedish sample of women aged 18–64 years (dashed line). (Scale grade: satisfied – very satisfied.)

At 6 months post-surgery 66% (n=63) of the survivors in the cohort were working at least part-time (52% were working their pre-diagnosis hours and 14% were sick-listed part-time). At 10 months the corresponding percentage was 83% (n=80) (with 59% working their pre-diagnosis hours and 24% sick-listed part-time) (Figure 4). Of the survivors not treated with chemotherapy, 84% (n=54) were working at least part-time, as compared with 28% (n=9) of the survivors treated with chemotherapy. At 10 months the corresponding percentages were 91% (n=61) and 63% (n=19), respectively.

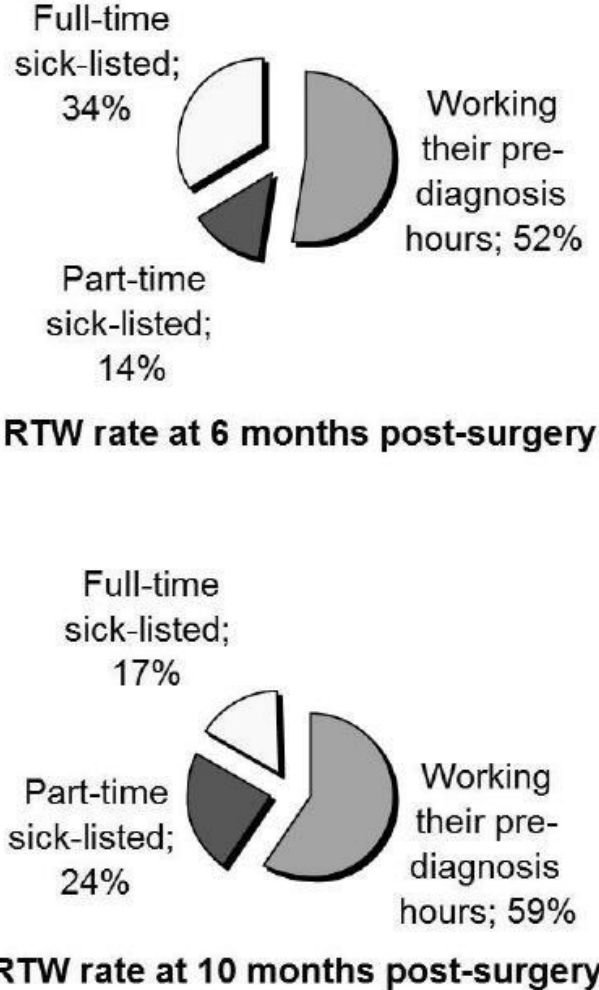


Figure 4. RTW rate at 6 and 10 months post-surgery (n=100).

4.2.1 Study III

Return to work in this study was defined by the answer “working to the same extent as before the breast cancer”.

At the follow-up 98 of the survivors included answered the questionnaire. In the univariate analyses, the baseline factors associated with a higher likelihood of RTW at 10 months post-surgery were no axillary dissection, no radiotherapy to the breast/chest wall and regional nodes, and no chemotherapy, as well as <30 days of sick leave during the previous 12 months, very good or good self-rated health status, high satisfaction with life as a whole and with the vocational situation, low demand in the work situation, and having been born in Sweden. However, the fact that survivors born in Sweden had a higher likelihood of RTW is an association that needs to be interpreted with caution, since few survivors in Study III were born outside Sweden. Age, educational level, marital status, living with under-age children, manual work, and a full-time job before the diagnosis were not associated with RTW.

The only factors independently predicting RTW in the multivariate analyses were no chemotherapy, no axillary dissection, and low demands at work

4.2.2 Study IV

In this study RTW was defined by the answers “working to the same extent as before the breast cancer” or “25–75% sick-listed”.

At 6 months post-surgery, 98 of the survivors included answered the questionnaire; at 10 months 97 answered it. At both assessments the survivors had lower life satisfaction compared with the reference population [142] in all respects except their financial situation. Assessments at 6 months and at 10 months were similar, except for the fact that the satisfaction with somatic health had improved at 10 months.

At 6 months post-surgery, working survivors had a significantly higher life satisfaction with life as a whole, and the vocational situation, somatic health and psychological health compared with the survivors who were sick-listed full-time. At 10 months post-surgery the differences between the working survivors and the sick-listed survivors were even wider than at 6 months post-surgery as regards both life as a whole, and somatic health.

At 6 months post-surgery, working survivors not treated with chemotherapy had more self-confidence and were less fatalistic in their coping than survivors still sick-listed full-time. For survivors treated with chemotherapy, no significant differences in coping strategies between working and being sick-listed were found. At 10 months post-surgery, working survivors not treated with chemotherapy showed more minimization and less fatalism, protest and intrusion. Among survivors treated with chemotherapy, cognitive reevaluation was the only coping strategy that differed between working and still sick-listed survivors

At 10 months post-surgery, nine out of 17 survivors sick-listed full-time had not been contacted by their workplace. Ten of these 17 had not been contacted by the social insurance office for discussions concerning how to return to work.

5 DISCUSSION

The studies in this thesis focus on one aspect of the rehabilitation process for survivors treated for breast cancer, namely their RTW and the problems they faced on their way back to work. The principal finding is that most of the studied survivors successfully returned to work after the active cancer treatments were completed. This is in accordance with previous studies which have shown that the ability of survivors treated for breast cancer to continue their employment after treatments appears to be optimistic [2, 5, 90, 127-130]. Other principal findings are that type of treatment as well as work-related factors, life satisfaction and coping skills are associated with RTW. The results also show that 10 months post-surgery only a few of the survivors had been contacted by their workplace and by the social insurance office for discussions concerning how to return to work.

5.1 SICK LEAVE RATE, TREATMENT-RELATED FACTORS AND RETURN TO WORK

It is indeed a complex task to compare the sick leave rate between different countries since the social insurance systems differ between countries. Nevertheless our results from Study I are in line with studies from the Netherlands, the USA and Canada. In one study, from the Metropolitan Detroit Cancer Surveillance System, 82% of the survivors who had completed the study 18 months after breast cancer diagnosis were working [90] in comparison with the 79% of survivors in Study I who had returned to work 12 months after baseline. In a population-based cohort study from Canada 79% of the survivors diagnosed with breast cancer were working 3 years after diagnosis [129] compared with 86% of the survivors in Study I.

The survivors participating in the studies in this thesis seem to have been sick-listed somewhat longer than the survivors in the referred studies from the USA. Especially noticeable are the differences in the median missed days from work because of chemotherapy. A study from the USA reports that the median days that survivors treated for breast cancer were sick-listed were 22 days in case of surgery and 40 days in case of both surgery and chemotherapy [6]. A study from the Netherlands states that survivors diagnosed with early-stage cancer on average were absent for 11.4 months because of the cancer. The absence was principally determined by the type of treatment, and was longest in survivors who received chemotherapy [5].

The Canadian study shows that survivors not treated with chemotherapy were on average sick-listed for 5.4 months while survivors treated with chemotherapy were sick-listed an average of 9.5 months [130]. The results of the Dutch and Canadian studies are comparable to the results from Studies III and IV showing that at 10 months post-surgery 59% of the survivors had returned to full-time work. At the same point in time 83% of the survivors were working at least 25% of their baseline employment rate but only 63% of the survivors treated with chemotherapy were working at the same rate.

There may be several reasons for the differences in short-term sick leave rate between different countries, especially the USA, and Sweden. For example, in Sweden you can be on part-time sick leave while in the USA you often have to reduce your working hours without financial compensation. One study from the USA published in 2005 reports that survivors with breast cancer who remained working, worked fewer hours than survivors in the control group [128]. Another explanation may be that Swedish, Dutch and Canadian physicians compared with their colleagues in the USA have a different attitude towards certifying sickness during the chemotherapy treatment.

Study I reveals that treatment with chemotherapy is one of the most important hindrances to RTW also 2 years after treatment. The results from the few articles that have addressed problems caused by chemotherapy are contradictory. A Finnish study published in 2007 states that the female survivors (95% with breast cancer) had impaired work ability at the assessment 2–6 years after diagnosis [121]. By contrast, in the earlier mentioned study from the USA published in 2006, no significant differences in sick leave rate were reported to exist between those treated and those not treated with chemotherapy neither at 12 months nor at 18 months after diagnosis [90].

Study 1 establishes that nodal status was negatively associated with RTW, possibly because of its association with adjuvant chemotherapy and radiotherapy to the regional nodes. In this material there was 100% correlation between axillary nodal involvement and treatment with CMF (Cyclophosphamide, Methotrexate and Fluorouracil) owing to the design of the study.

The treatments received were probably not the only reason why the nodal status was significantly associated with work status. The knowledge of the greater risk of relapse because of axillary nodal involvement may have had a psychological impact that affected RTW [144]. However, it was not possible to detect such an association with the design used in this study.

Survivors in Study I with fewer than four positive axillary lymph nodes, received radiotherapy only to the breast parenchyma. These survivors seemed to have had a better chance of returning to work within 2 years of baseline. Factors behind this finding may include lower frequency of treatment with chemotherapy [134, 135] smaller tumours [145], and fewer arm problems [70, 146].

Study III shows that those who had no axillary lymph node surgery or who were treated with sentinel node dissection had a higher probability of RTW within 10 months when compared with survivors treated with axillary lymph node dissection. Axillary lymph node surgery causes higher frequency of upper limb morbidity compared with sentinel node dissection [131]. The method of surgery has also elsewhere been shown to have consequences for return to normal activity, including regular employment [74]. Noticeable is that Study III was performed at a time when sentinel node dissection was still unusual, and therefore, it was not possible to distinguish between sentinel node dissection and no axillary node dissection, owing to low patient numbers.

In Study III adjuvant endocrine therapy was not associated with RTW. However, in Study I the finding was that adjuvant endocrine therapy was associated with a twofold

increase in the OR of not having returned to work after 2 years. As the sample size was small in both studies an association cannot be excluded.

If endocrine treatments influence work ability, this may be interpreted as a consequence of findings in studies of the consequences of adjuvant endocrine therapy in premenopausal women. Observed side effects that may be of importance for sick leave were vasomotor symptoms, problems with memory and concentration, mixed physical symptoms and muscle weakness [134]. Hot flash is suggested to have a negative impact on mood, affect, daily activities, and overall quality of life [56]. Differences between Studies I and III, if any exist, may be a result of changes in sickness certification. The noticeable increase in sick leave rates in 1997 [112] and the subsequent debate may have influenced physicians' attitudes towards sickness certification for symptoms such as those following endocrine treatment.

5.2 SOCIO-DEMOGRAPHIC FACTORS AND RETURN TO WORK

Neither in Study I nor in Study III did socio-demographic factors such as age, educational level, living with under-age children, and marital status predict RTW. In a review published in 2002 concerning factors associated with RTW it was shown that no socio-demographic characteristics were associated with RTW, except for increasing age, where associations were mixed. In a review of studies published in 2002–2007 Taskila and Lindbohm established that low educational level was shown to be negatively associated with RTW for cancer survivors [91].

5.3 WORK-RELATED FACTORS AND RETURN TO WORK

In Study I the survivors were asked to indicate why they had not returned to work. Altogether 43% of the survivors who were not working gave an affirmative reply to the statement “since my illness, I do not regard work as so important for my sense of well-being”. In the narratives in Study II some survivors talked about a changed attitude towards work after the cancer diagnosis but some of them added that they nevertheless worked because they had to. Changes in attitude have been reported in previous studies [147]. Such an altered attitude may be indicative of changes in outlook and priorities as a whole [18]. A study from the USA states that in spite of changed attitudes towards work, continuing employment is often necessary for financial reasons [8]. On the other hand, for some survivors in Study II, RTW was an indication of their ability to conquer the disease and maintain a normal life. Similar results have been shown for cancer survivors in previous studies [25, 26]. Of importance seems to be having an occupational identity and not necessarily actually be working.

Altogether 57% of the survivors in Study I stated that one reason why they had not returned to work was that “... it is mentally stressful for me to work as much as previously”. In Study III, job strain, according to Karasek's model, was examined and one variable, high job demands, proved to be negatively associated with RTW. Job strain and psychological distress are predictors of sickness absence [148, 149]. The Karasek model has only recently been applied to breast cancer survivors [150] and in

that study no differences in job strain were observed between cancer survivors and the general population.

In Study II, the importance of social support from the employer and co-workers for RTW was clearly demonstrated. Lack of support was particularly noticeable among the survivors who were on extended sick leave. They had to struggle on their own to regain their previous work ability and this made it difficult for them to succeed. Study IV shows that only a few of the sick-listed survivors had been contacted by the workplace or by the social insurance office for discussions concerning how to return to work. In Study I the most frequent answer among the survivors who were still on sick leave after 24 months was that they were not able to work at the same rate as previously because of the work environment and/or the nature of the work.

Research showing the importance of social support at the workplace for cancer survivors returning to work is to this date scarce [89, 119]. The importance of social support from the workplace in relation to sickness absence in general and particularly from the superior is, however, well documented [151].

The potential impact of workplace adjustments for RTW has been highlighted in recent studies [7, 90]. Advice from a physician and “RTW meetings” with the employer have been mentioned as important to successful RTW [7]. A Finnish study reports that for RTW to be successful, cancer survivors need both emotional and practical support from their working environment. Support is needed both from the workplace and from the company health service [89]. These factors were investigated only qualitatively in Study II.

A report from the Ministry of Health and Social Affairs in Sweden states that in 2004 only four out of ten persons sick-listed long-term had been contacted by the social insurance office within 1 year of sick leave in order to discuss the possibilities of RTW [116]. Our results show that this is valid also for sick leave because of early-stage breast cancer. This is remarkable since, according to Swedish legislation during the studied period, the employer had to take work-related rehabilitation measures already after a few weeks of sickness absence [110].

5.4 PSYCHOSOCIAL FACTORS AND RETURN TO WORK

Study IV showed that the examined psychological factor life satisfaction is of importance for the ability to return to work. This result is in accordance with a study from the USA where the number of days of sick leave after a breast cancer diagnosis was related to physical well-being, social/family well-being, emotional well-being and functional well-being [100]. Working survivors in Study IV used more positive coping compared with survivors who were still sick-listed, especially survivors not treated with chemotherapy. In a study from Great Britain correlations were found between RTW and managing the changes associated with cancer [7]. Differences in life satisfaction as well as coping between survivors who had returned to work and survivors not working seemed to increase during the first year after surgery. However, neither these two referenced studies nor the results of Study IV can answer the question whether there are

survivors with high life satisfaction and appropriate coping strategies who easily return to work or whether RTW promotes life satisfaction as well as coping.

5.5 METHODOLOGICAL CONSIDERATIONS

In this thesis both quantitative and qualitative approaches are represented in three longitudinal cohort studies and a narrative interview study. Through this design it has been possible to illustrate the problems concerning RTW in a comprehensive way. The fact that the longitudinal studies were performed in two different cohorts representing different periods increases the possibility to illustrate the RTW process in several different ways. Furthermore, different cut-off times were chosen to make it possible to follow the survivors under treatments as well as when all active cancer treatments had been completed and most of the side effects of radiotherapy and medical therapies had subsided. RTW rate is as discussed above for many reasons difficult to compare across different countries and systems. In this thesis, different definitions of RTW are used according to the research questions for each study, which must be considered when interpreting the results.

An advantage to using the three quantitative studies is that they are based on consecutive clinical populations. Study I includes almost all eligible survivors diagnosed with early-stage breast cancer in Stockholm, while Studies III and IV include all the survivors from the southern part of Stockholm during the study periods. Furthermore, the medical study from which the patients in Study I were selected was randomized. Another advantage lies in the design of the quantitative studies, namely the prospective longitudinal approach.

Other advantages are that both the external and the internal drop-out rates were low. The authenticity of the medical characteristics was guaranteed by collecting them from the medical files. In Study I almost solely questions from medical files and unambiguous questions related to age, occupation, sick leave, and living arrangements were used. In Studies III and IV the questionnaires were based on well-known and validated instruments.

The questions concerning socio-demographic conditions were collected from surveys from Statistics Sweden [139, 140]. To measure job strain the Karasek concept [76] was used, the most widely used job strain questionnaire in prospective epidemiological studies [78]. The Fugl-Meyer questionnaire Li-Sat 11 is a generic self-report checklist which has been used in order to measure life satisfaction in a representative national sample of both men and women [142]. It has also been used to investigate life satisfaction in men diagnosed with cancer [152]. Its test-retest reliability, specificity and sensitivity have been found to be acceptable [153, 154]. Coping strategies were assessed by using a Swedish questionnaire, the GCQ [143]. The GCQ was originally developed to measure cognitive, emotional and action-oriented coping efforts in connection with somatic illness. A test of the psychometric properties in the instrument is under progress; earlier versions of this questionnaire have been tested in two different studies [155, 156].

A limitation of all the quantitative studies is the small sample size and the fortunate fact that the number of survivors who had not returned to work was small. The study may therefore have failed to detect a possible association between the studied factors and the ability to return to work [157].

Another limitation is that only Swedish-speaking survivors were included, meaning that our results may not be representative of survivors with early-stage breast cancer who do not understand Swedish. The LiSat-11 questionnaire made it possible to compare the participants with a Swedish reference population [142]. The survivors in Studies III and IV had lower life satisfaction in all areas other than vocational situation, financial situation, and contact with friends. The greater vocational and financial satisfaction may be explained by the fact that survivors with no employment as well as non-Swedish-speaking survivors were not included in this study.

Yet another limitation of the quantitative studies is that essential issues may not have been examined, for example CRF, cognitive dysfunction and more detailed questions concerning steps taken by the physicians, nurses, employers and social insurance office to facilitate the RTW process. The data from the questionnaires were self-reported, and therefore subject to the patients' own interpretation.

Finally I acknowledge the limited generalizability of the findings in Study II since the methodology used, narrative analysis, warrants caution with regard to the manner in which the findings are used and interpreted.

6 CONCLUSIONS AND CLINICAL IMPLICATIONS

6.1 CONCLUSIONS

- The form of received treatment was of importance in the RTW process. Treatment with chemotherapy and axillary node dissection were an important hindrance to RTW. Adjuvant endocrine therapy was associated with a twofold increase in the OR of not having returned to work after 2 years.
- Nodal status (pN1-4+) was negatively associated with RTW, possibly because of its association with adjuvant chemotherapy and radiotherapy to the regional nodes.
- Some work-related factors played an important role in the RTW process. Support from the workplace was of great importance for a successful RTW. A high-demand job was an important hindrance to RTW. The working environment and/or the nature of the work also affected RTW.
- In some survivors the breast cancer diagnosis caused a changed attitude towards work.
- Chemotherapy affects both coping skills and RTW, and both life satisfaction and coping skills seem to be associated with RTW.
- The rehabilitation measures taken by Swedish employers and the social insurance office need improvement.
- No association between socio-demographic factors, such as age, matrimonial status, presence of under-age children, and educational level, and RTW was found.

6.2 ACADEMIC AND CLINICAL IMPLICATIONS

Studies evaluating the problems faced by breast cancer survivors when they return to work are scarce [121], and since evidence for the negative consequences of long-term sick leave is emerging further research concerning this issue is necessary. Even though sickness absence has extensive consequences for society, as well as for the employer and the sick-listed person, research on sickness absence and RTW following a breast cancer diagnosis is limited [158]. This field of research is undeveloped in terms of both theory and methodology, and most of the knowledge that has been generated is still at a general level. In studies of sickness absence, little attention has been paid to the role of the disease legitimizing the absence, even though treatment and often rehabilitation need to be selectively tailored to the specific diagnosis [158].

To acquire a basis for health-promoting measures among survivors with breast cancer, larger studies need to be performed with a sample size that would allow a more reliable

analysis of the factors related to RTW. There is a need for studies highlighting the psychological sequelae, for example CRF and cognitive dysfunction, and providing more detailed questions concerning work-related factors and steps taken by the physicians, nurses, employers and the social insurance office to facilitate the RTW process. Also, other factors mentioned in the literature but not studied here include attitudes towards RTW among different stakeholders (the survivors themselves, health and social care staff, and employers), changes in the work situation following sickness absence due to breast cancer, and how the absence itself affects RTW. There is also a need for longitudinal cohort studies concerning the consequences for RTW of both new treatments and different job tasks. Until just recently studies concerning RTW were principally developed in North America, which is why studies from Europe are needed to give a more complex picture of the RTW process.

A biomedical model of the cancer disease does not take into account all of the complex factors involved in breast cancer. With increased understanding of the bio-psycho-social factors related to RTW after a breast cancer diagnosis, it will be possible to identify and support survivors who are at risk of being marginalized from the labour market. This can help to ensure that interventions are designed that not only help breast cancer survivors to overcome physical problems, but also increase the ease with which they adjust to their return to the workplace.

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8 REFERENCES

1. Kennedy F, Haslam C, Munir F, Pryce J. Returning to work following cancer: a qualitative exploratory study into the experience of returning to work following cancer. *Eur J Cancer Care (Engl)* 2007; 16(1): 17-25.
2. Maunsell E, Drolet M, Brisson J, Brisson C, Masse B, Deschenes L. Work situation after breast cancer: results from a population-based study. *J Natl Cancer Inst* 2004; 96(24): 1813-22.
3. Ganz PA, Kwan L, Stanton AL, Krupnick JL, Rowland JH, Meyerowitz BE, et al. Quality of life at the end of primary treatment of breast cancer: first results from the moving beyond cancer randomized trial. *J Natl Cancer Inst* 2004; 96(5): 376-87.
4. Kim HJ, Barsevick AM, Tulman L, McDermott PA. Treatment-Related Symptom Clusters in Breast Cancer: A Secondary Analysis. *J Pain Symptom Manage* 2008.
5. Balak F, Roelen CA, Koopmans PC, Ten Berge EE, Groothoff JW. Return to Work After Early-stage Breast Cancer: A Cohort Study into the Effects of Treatment and Cancer-related Symptoms. *J Occup Rehabil* 2008; 18(3): 267-72.
6. Bradley CJ, Oberst K, Schenk M. Absenteeism from work: the experience of employed breast and prostate cancer patients in the months following diagnosis. *Psychooncology* 2006; 15(8): 739-47.
7. Pryce J, Munir F, Haslam C. Cancer survivorship and work: symptoms, supervisor response, co-worker disclosure and work adjustment. *J Occup Rehabil* 2007; 17(1): 83-92.
8. Bradley CJ, Bednarek HL, Neumark D. Breast cancer survival, work, and earnings. *J Health Econ* 2002; 21(5): 757-79.
9. Hydén L. Illness and narrative. *Sociology of Health & Illness* 1997; 19: 48 - 69.
10. Whittemore R, Dixon J. Chronic illness: the process of integration. *J Clin Nurs* 2008; 17(7B): 177-87.
11. Deimling GT, Bowman KF, Wagner LJ. Cancer survivorship and identity among long-term survivors. *Cancer Invest* 2007; 25(8): 758-65.
12. Shapiro SL, Lopez AM, Schwartz GE, Bootzin R, Figueredo AJ, Braden CJ, et al. Quality of life and breast cancer: relationship to psychosocial variables. *J Clin Psychol* 2001; 57(4): 501-19.
13. Saegrov S, Halding AG. What is it like living with the diagnosis of cancer? *Eur J Cancer Care (Engl)* 2004; 13(2): 145-53.
14. Schmid-Buchi S, Dassen T, Halfens RJ. [Experiencing the disease of breast cancer and getting life under control again]. *Pflege* 2005; 18(6): 345-52.
15. Andrykowski M, Brady M, Hunt J. Positive psychosocial adjustment in potential bone marrow transplant recipients: Cancer as a psychosocial transition. *Psycho-Oncology* 1993; 2: 261-76.

16. Schulz U, Mohamed NE. Turning the tide: benefit finding after cancer surgery. *Soc Sci Med* 2004; 59(3): 653-62.
17. Taylor EJ. Transformation of tragedy among women surviving breast cancer. *Oncol Nurs Forum* 2000; 27(5): 781-8.
18. Bower JE, Meyerowitz BE, Desmond KA, Bernards CA, Rowland JH, Ganz PA. Perceptions of positive meaning and vulnerability following breast cancer: predictors and outcomes among long-term breast cancer survivors. *Ann Behav Med* 2005; 29(3): 236-45.
19. Lee V, Cohen SR, Edgar L, Laizner AM, Gagnon AJ. Meaning-making and psychological adjustment to cancer: development of an intervention and pilot results. *Oncol Nurs Forum* 2006; 33(2): 291-302.
20. Morrill EF, Brewer NT, O'Neill SC, Lillie SE, Dees EC, Carey LA, et al. The interaction of post-traumatic growth and post-traumatic stress symptoms in predicting depressive symptoms and quality of life. *Psychooncology* 2008.
21. Cordova MJ, Cunningham LL, Carlson CR, Andrykowski MA. Posttraumatic growth following breast cancer: a controlled comparison study. *Health Psychol* 2001; 20(3): 176-85.
22. Hewitt M, Greenfield S, Strovall EE. *From Cancer Patient to Cancer Survivor. Lost in Transition*. Washington, DC: The National Academies Press; 2005.
23. Radetzki M. *Klarspråk om arbetslöshet*. Stockholm: SNS Förlag; 1996.
24. Jahoda M. *Employment and Unemployment. A Social-Psychological Analysis*. Cambridge: Cambridge University Press; 1982.
25. Ferrell BR, Grant MM, Funk B, Otis-Green S, Garcia N. Quality of life in breast cancer survivors as identified by focus groups. *Psychooncology* 1997; 6(1): 13-23.
26. Peteet JR. Cancer and the meaning of work. *Gen Hosp Psychiatry* 2000; 22(3): 200-5.
27. Priestley M. Constructions and creations: idealism, materialism and disability theory. *Disability and society* 1998; 13: 75-94.
28. Ilmarinen J, Tuomi K, Klockars M. Changes in the work ability of active employees over an 11-year period. *Scand J Work Environ Health* 1997; 23 Suppl 1: 49-57.
29. Reiso H, Nygard JF, Brage S, Gulbrandsen P, Tellnes G. Work ability assessed by patients and their GPs in new episodes of sickness certification. *Fam Pract* 2000; 17(2): 139-44.
30. Ekbladh E, Haglund L, Thorell LH. The worker role interview--preliminary data on the predictive validity of return to work of clients after an insurance medicine investigation. *J Occup Rehabil* 2004; 14(2): 131-41.
31. Innes E, Straker L. Reliability of work-related assessments. *Work* 1999; 13(2): 107-24.

32. Innes E, Straker L. Validity of work-related assessments. *Work* 1999; 13(2): 125-52.
33. Bergh J, Brandberg Y, Ernberg I, Frisell J, Hall P, Fürst CJ. *Bröstcancer*. Stockholm: Karolinska Institutet University Press; 2007.
34. Jönsson P-E. *Bröstcancer*. Södertälje: AstraZeneca; 2004.
35. Talbäck M, Stenbeck M, Rosén M, Barlow L, Glimelius B. Cancer Survival in Sweden 1960-1998. *Acta Oncologica* 2003; 42: 637 - 59.
36. Socialstyrelsen. *Cancer Incidence in Sweden 2006*. Stockholm: Socialstyrelsen; 2007.
37. Talbäck M. *Cancer patient survival in Sweden 1980-2002*. Stockholm: Centre for Epidemiology. National Board of Health and Welfare.; 2004.
38. Talback M, Rosen M, Stenbeck M, Dickman PW. Cancer patient survival in Sweden at the beginning of the third millennium--predictions using period analysis. *Cancer Causes Control* 2004; 15(9): 967-76.
39. Socialstyrelsen. *Nationella riktlinjer för bröstcancersjukvård*. Stockholm: Socialstyrelsen; 2007.
40. Socialstyrelsen. *Populärversion av Nationella riktlinjer för bröstcancer*. Stockholm: Socialstyrelsen; 2007.
41. Moulder S, Hortobagyi GN. Advances in the treatment of breast cancer. *Clin Pharmacol Ther* 2008; 83(1): 26-36.
42. Hewitt M, Rowland JH, Yancik R. Cancer survivors in the United States: age, health, and disability. *J Gerontol A Biol Sci Med Sci* 2003; 58(1): 82-91.
43. Decker GM, DeMeyer ES, Kisko DL. Measuring the maintenance of daily life activities using the functional living index-emesis (FLIE) in patients receiving moderately emetogenic chemotherapy. *J Support Oncol* 2006; 4(1): 35-41, 52.
44. Yoon J, Malin JL, Tao ML, Tisnado DM, Adams JL, Timmer MJ, et al. Symptoms after breast cancer treatment: are they influenced by patient characteristics? *Breast Cancer Res Treat* 2008; 108(2): 153-65.
45. Kissane DW, Grabsch B, Love A, Clarke DM, Bloch S, Smith GC. Psychiatric disorder in women with early stage and advanced breast cancer: a comparative analysis. *Aust N Z J Psychiatry* 2004; 38(5): 320-6.
46. de Nijs EJ, Ros W, Grijpdonck MH. Nursing intervention for fatigue during the treatment for cancer. *Cancer Nurs* 2008; 31(3): 191-206; quiz 07-8.
47. Portenoy RK, Itri LM. Cancer-related fatigue: guidelines for evaluation and management. *Oncologist* 1999; 4(1): 1-10.
48. Burstein HJ. Cognitive side-effects of adjuvant treatments. *Breast* 2007; 16 Suppl 2: S166-8.
49. Ahles TA, Saykin AJ. Breast cancer chemotherapy-related cognitive dysfunction. *Clin Breast Cancer* 2002; 3 Suppl 3: S84-90.

50. Shelby RA, Golden-Kreutz DM, Andersen BL. PTSD diagnoses, subsyndromal symptoms, and comorbidities contribute to impairments for breast cancer survivors. *J Trauma Stress* 2008; 21(2): 165-72.
51. Peuckmann V, Ekholm O, Rasmussen NK, Groenvold M, Christiansen P, Moller S, et al. Chronic pain and other sequelae in long-term breast cancer survivors: Nationwide survey in Denmark. *Eur J Pain* 2008.
52. Rietman JS, Dijkstra PU, Hoekstra HJ, Eisma WH, Szabo BG, Groothoff JW, et al. Late morbidity after treatment of breast cancer in relation to daily activities and quality of life: a systematic review. *Eur J Surg Oncol* 2003; 29(3): 229-38.
53. Knobf MT. The influence of endocrine effects of adjuvant therapy on quality of life outcomes in younger breast cancer survivors. *Oncologist* 2006; 11(2): 96-110.
54. Loprinzi CL, Barton DL, Rhodes D. Management of hot flashes in breast-cancer survivors. *Lancet Oncol* 2001; 2(4): 199-204.
55. Nystedt M, Berglund G, Bolund C, Fornander T, Rutqvist LE. Side effects of adjuvant endocrine treatment in premenopausal breast cancer patients: a prospective randomized study. *J Clin Oncol* 2003; 21(9): 1836-44.
56. Carpenter JS, Johnson D, Wagner L, Andrykowski M. Hot flashes and related outcomes in breast cancer survivors and matched comparison women. *Oncol Nurs Forum* 2002; 29(3): E16-25.
57. Holli K, Hakama M. Biological, physical, mental and social dimensions of breast cancer: information based on routine case notes. *Eur J Cancer* 1993; 29A(15): 2152-5.
58. Kornblith AB, Ligibel J. Psychosocial and sexual functioning of survivors of breast cancer. *Semin Oncol* 2003; 30(6): 799-813.
59. Love AW, Kissane DW, Bloch S, Clarke D. Diagnostic efficiency of the Hospital Anxiety and Depression Scale in women with early stage breast cancer. *Aust N Z J Psychiatry* 2002; 36(2): 246-50.
60. Baucom DH, Porter LS, Kirby JS, Gremore TM, Keefe FJ. Psychosocial issues confronting young women with breast cancer. *Breast Dis* 2005; 23: 103-13.
61. Ell K, Sanchez K, Vourlekis B, Lee PJ, Dwight-Johnson M, Lagomasino I, et al. Depression, correlates of depression, and receipt of depression care among low-income women with breast or gynecologic cancer. *J Clin Oncol* 2005; 23(13): 3052-60.
62. Tobin MB, Lacey HJ, Meyer L, Mortimer PS. The psychological morbidity of breast cancer-related arm swelling. Psychological morbidity of lymphoedema. *Cancer* 1993; 72(11): 3248-52.
63. Ream E, Richardson A. Fatigue: a concept analysis. *Int J Nurs Stud* 1996; 33(5): 519-29.
64. Servaes P, Verhagen S, Bleijenberg G. Determinants of chronic fatigue in disease-free breast cancer patients: a cross-sectional study. *Ann Oncol* 2002; 13(4): 589-98.
65. Fan HG, Houede-Tchen N, Yi QL, Chemerynsky I, Downie FP, Sabate K, et al. Fatigue, menopausal symptoms, and cognitive function in women after adjuvant

- chemotherapy for breast cancer: 1- and 2-year follow-up of a prospective controlled study. *J Clin Oncol* 2005; 23(31): 8025-32.
66. Rugo HS, Ahles T. The impact of adjuvant therapy for breast cancer on cognitive function: current evidence and directions for research. *Semin Oncol* 2003; 30(6): 749-62.
67. Wefel JS, Lenzi R, Theriault RL, Davis RN, Meyers CA. The cognitive sequelae of standard-dose adjuvant chemotherapy in women with breast carcinoma: results of a prospective, randomized, longitudinal trial. *Cancer* 2004; 100(11): 2292-9.
68. Hurria A, Somlo G, Ahles T. Renaming "chemobrain". *Cancer Invest* 2007; 25(6): 373-7.
69. Loudon L, Petrek J. Lymphedema in women treated for breast cancer. *Cancer Pract* 2000; 8(2): 65-71.
70. Nagel PH, Bruggink ED, Wobbes T, Strobbe LJ. Arm morbidity after complete axillary lymph node dissection for breast cancer. *Acta Chir Belg* 2003; 103(2): 212-6.
71. Carter BJ. Women's experiences of lymphedema. *Oncol Nurs Forum* 1997; 24(5): 875-82.
72. Ververs JM, Roumen RM, Vingerhoets AJ, Vreugdenhil G, Coebergh JW, Crommelin MA, et al. Risk, severity and predictors of physical and psychological morbidity after axillary lymph node dissection for breast cancer. *Eur J Cancer* 2001; 37(8): 991-9.
73. Collins LG, Nash R, Round T, Newman B. Perceptions of upper-body problems during recovery from breast cancer treatment. *Support Care Cancer* 2004; 12(2): 106-13.
74. Burak WE, Hollenbeck ST, Zervos EE, Hock KL, Kemp LC, Young DC. Sentinel lymph node biopsy results in less postoperative morbidity compared with axillary lymph node dissection for breast cancer. *Am J Surg* 2002; 183(1): 23-7.
75. Husted Madsen A, Haugaard K, Soerensen J, Bokmand S, Friis E, Holtveg H, et al. Arm morbidity following sentinel lymph node biopsy or axillary lymph node dissection: a study from the Danish Breast Cancer Cooperative Group. *Breast* 2008; 17(2): 138-47.
76. Karasek R, Theorell T. *Healthy Work*. New York: Basic Books; 1990.
77. Theorell T, Karasek RA. Current issues relating to psychosocial job strain and cardiovascular disease research. *J Occup Health Psychol* 1996; 1(1): 9-26.
78. de Smet P, Sans S, Dramaix M, Boulenguez C, de Backer G, Ferrario M, et al. Gender and regional differences in perceived job stress across Europe. *Eur J Public Health* 2005; 15(5): 536-45.
79. Schnall PL, Landsbergis PA, Baker D. Job strain and cardiovascular disease. *Annu Rev Public Health* 1994; 15: 381-411.
80. Gimeno D, Amick BC, 3rd, Habeck RV, Ossmann J, Katz JN. The role of job strain on return to work after carpal tunnel surgery. *Occup Environ Med* 2005; 62(11): 778-85.

81. Ghaffari M, Alipour A, Farshad AA, Jensen I, Josephson M, Vingard E. Effect of psychosocial factors on low back pain in industrial workers. *Occup Med (Lond)* 2008; 58(5): 341-7.
82. Johnson JV, Hall EM. Job strain, work place social support, and cardiovascular disease: a cross-sectional study of a random sample of the Swedish working population. *Am J Public Health* 1988; 78(10): 1336-42.
83. Krantz G, Berntsson L, Lundberg U. Total workload, work stress and perceived symptoms in Swedish male and female white-collar employees. *Eur J Public Health* 2005; 15(2): 209-14.
84. Sarason B, Sarason I, Pierce G. *Social support : an interactional view*. New York: J. Wiley & Sons; 1990.
85. Sarason I, Pierce G, Sarason B. Social Support and Interactional Processes: A Triadic Hypothesis. *Journal of Social and Personal Relationships* 1990; 7:4: 495-506.
86. Bloom JR, Stewart SL, Johnston M, Banks P, Fobair P. Sources of support and the physical and mental well-being of young women with breast cancer. *Soc Sci Med* 2001; 53(11): 1513-24.
87. Lee HL, Ku NP, Dow WJ, Pai L. Factors related to quality of life in breast cancer patients receiving chemotherapy. *J Nurs Res* 2001; 9(3): 57-68.
88. Gray RE, Goel V, Fitch MI, Franssen E, Labrecque M. Supportive care provided by physicians and nurses to women with breast cancer. Results from a population-based survey. *Support Care Cancer* 2002; 10(8): 647-52.
89. Taskila T, Lindbohm ML, Martikainen R, Lehto US, Hakanen J, Hietanen P. Cancer survivors' received and needed social support from their work place and the occupational health services. *Support Care Cancer* 2006; 14(5): 427-35.
90. Bouknight RR, Bradley CJ, Luo Z. Correlates of return to work for breast cancer survivors. *J Clin Oncol* 2006; 24(3): 345-53.
91. Taskila T, Martikainen R, Hietanen P, Lindbohm ML. Comparative study of work ability between cancer survivors and their referents. *Eur J Cancer* 2007; 43(5): 914-20.
92. Ferrans CE. Development of a quality of life index for patients with cancer. *Oncol Nurs Forum* 1990; 17(3 Suppl): 15-9; discussion 20-1.
93. Sheppard C. Breast cancer follow-up: literature review and discussion. *Eur J Oncol Nurs* 2007; 11(4): 340-7.
94. Coster S, Fallowfield LJ. The impact of endocrine therapy on patients with breast cancer: a review of the literature. *Breast* 2002; 11(1): 1-12.
95. Groenvold M, Fayers PM, Sprangers MA, Bjorner JB, Klee MC, Aaronson NK, et al. Anxiety and depression in breast cancer patients at low risk of recurrence compared with the general population: a valid comparison? *J Clin Epidemiol* 1999; 52(6): 523-30.

96. Ganz PA, Desmond KA, Leedham B, Rowland JH, Meyerowitz BE, Belin TR. Quality of life in long-term, disease-free survivors of breast cancer: a follow-up study. *J Natl Cancer Inst* 2002; 94(1): 39-49.
97. Brandberg Y, Michelson H, Nilsson B, Bolund C, Erikstein B, Hietanen P, et al. Quality of life in women with breast cancer during the first year after random assignment to adjuvant treatment with marrow-supported high-dose chemotherapy with cyclophosphamide, thiotepa, and carboplatin or tailored therapy with Fluorouracil, epirubicin, and cyclophosphamide: Scandinavian Breast Group Study 9401. *J Clin Oncol* 2003; 21(19): 3659-64.
98. Ahles TA, Saykin AJ, Furstenberg CT, Cole B, Mott LA, Titus-Ernstoff L, et al. Quality of life of long-term survivors of breast cancer and lymphoma treated with standard-dose chemotherapy or local therapy. *J Clin Oncol* 2005; 23(19): 4399-405.
99. Mandelblatt JS, Edge SB, Meropol NJ, Senie R, Tsangaris T, Grey L, et al. Predictors of long-term outcomes in older breast cancer survivors: perceptions versus patterns of care. *J Clin Oncol* 2003; 21(5): 855-63.
100. Avis NE, Crawford S, Manuel J. Quality of life among younger women with breast cancer. *J Clin Oncol* 2005; 23(15): 3322-30.
101. Lazarus R, Folkman S. *Stress, Appraisal and Coping*. New York: Springer Publishing Company; 1984.
102. Folkman S, Lazarus RS. An analysis of coping in a middle-aged community sample. *J Health Soc Behav* 1980; 21(3): 219-39.
103. Folkman S, Moskowitz JT. Positive affect and the other side of coping. *Am Psychol* 2000; 55(6): 647-54.
104. Edebalk P. *Välfärdsstaten träder fram - Svensk socialförsäkring 1884-1955*. Lund: A-Z förlag; 1996.
105. Lundberg U, Amark K. Social rights and social security: the Swedish welfare state, 1900-2000. *Scand J Hist* 2001; 26(3): 157-76.
106. Åmark K. *Hundra år av välfärdspolitik. Välfärdsstatens framväxt i Norge och Sverige*. Umeå: Boréa förlag; 2005.
107. Socialdepartementet. *Socialförsäkringslag SFS-nummer 1999:799*. Stockholm: Socialdepartementet; 1999.
108. Johnsson A. *Cancersjukas ekonomiska levnadsvillkor i Sverige 1997*. Stockholm: Cancerfonden; 1997.
109. SFS. *Lag (1962:381) om allmän försäkring*. Stockholm: Sveriges Riksdag; 1962.
110. Socialdepartementet. *Sjukfrånvaro och sjukskrivning fakta och förslag. SOU 2000:121*. Stockholm: Socialdepartementet; 2000.
111. Socialdepartementet. *Proposition 2007/08:136 En reformerad sjukskrivningsprocess för ökad återgång i arbete*. Stockholm: Socialdepartementet; 2008.

112. Wilén A, Nordin A. Sjukfrånvaro och ohälsa i Sverige – en belysning utifrån SCB:s statistik: Statistiska Centralbyrån; 2004.
113. Socialstyrelsen. Sjukskrivning efter hjärtinfarkt eller bröstcancer - finns regionala skillnader. Stockholm: Socialstyrelsen, 2003.
114. Socialdepartementet. Rehabilitering till arbete en reform med individen i centrum
SOU 2000:78. Stockholm; Socialdepartementet; 2000.
115. SFS. Arbetsmiljölagen (1977:1160). Stockholm: Sveriges Riksdag; 1977.
116. Socialdepartementet. Statens offentliga utredningar. Socialförsäkringsutredningen. Samtal om socialförsäkring nr 10: Rehabilitering - ett långt lidandes historia. Stockholm: Socialdepartementet; 2006.
117. Khaledi B. RFV Analyser 2005:17. Rehabiliteringsutredning - plan för återgång i arbete. Stockholm: Försäkringskassan; 2005.
118. Näslund S. Välfärd under Polstjärnan. Nordbornas väg till tryggheten”. Stockholm: Hjalmarsson & Högberg; 2005.
119. Spelten ER, Sprangers MA, Verbeek JH. Factors reported to influence the return to work of cancer survivors: a literature review. *Psychooncology* 2002; 11(2): 124-31.
120. Steiner JF, Cavender TA, Main DS, Bradley CJ. Assessing the impact of cancer on work outcomes: what are the research needs? *Cancer* 2004; 101(8): 1703-11.
121. Taskila T, Lindbohm ML. Factors affecting cancer survivors' employment and work ability. *Acta Oncol* 2007; 46(4): 446-51.
122. Amir Z, Moran T, Walsh L, Iddenden R, Luker K. Return to paid work after cancer: a British experience. *J Cancer Surviv* 2007; 1(2): 129-36.
123. Bradley CJ, Neumark D, Luo Z, Schenk M. Employment and cancer: findings from a longitudinal study of breast and prostate cancer survivors. *Cancer Invest* 2007; 25(1): 47-54.
124. de Boer AG, Verbeek JH, Spelten ER, Uitterhoeve AL, Ansink AC, de Reijke TM, et al. Work ability and return-to-work in cancer patients. *Br J Cancer* 2008; 98(8): 1342-7.
125. Gudbergsson SB, Fossa SD, Dahl AA. A study of work changes due to cancer in tumor-free primary-treated cancer patients. A NOCWO study. *Support Care Cancer* 2008.
126. Steiner JF, Cavender TA, Nowels CT, Beaty BL, Bradley CJ, Fairclough DL, et al. The impact of physical and psychosocial factors on work characteristics after cancer. *Psychooncology* 2008; 17(2): 138-47.
127. Bradley CJ, Bednarek HL, Neumark D. Breast cancer and women's labor supply. *Health Serv Res* 2002; 37(5): 1309-28.

128. Bradley CJ, Neumark D, Bednarek HL, Schenk M. Short-term effects of breast cancer on labor market attachment: results from a longitudinal study. *J Health Econ* 2005; 24(1): 137-60.
129. Drolet M, Maunsell E, Brisson J, Brisson C, Masse B, Deschenes L. Not working 3 years after breast cancer: predictors in a population-based study. *J Clin Oncol* 2005; 23(33): 8305-12.
130. Drolet M, Maunsell E, Mondor M, Brisson C, Brisson J, Masse B, et al. Work absence after breast cancer diagnosis: a population-based study. *Cmaj* 2005; 173(7): 765-71.
131. Rietman JS, Dijkstra PU, Geertzen JH, Baas P, de Vries J, Dolsma WV, et al. Treatment-related upper limb morbidity 1 year after sentinel lymph node biopsy or axillary lymph node dissection for stage I or II breast cancer. *Ann Surg Oncol* 2004; 11(11): 1018-24.
132. Popat S, Smith IE. Therapy Insight: anthracyclines and trastuzumab--the optimal management of cardiotoxic side effects. *Nat Clin Pract Oncol* 2008; 5(6): 324-35.
133. Buijs C, Rodenhuis S, Seynaeve CM, van Hoesel QG, van der Wall E, Smit WJ, et al. Prospective study of long-term impact of adjuvant high-dose and conventional-dose chemotherapy on health-related quality of life. *J Clin Oncol* 2007; 25(34): 5403-9.
134. Nystedt M, Berglund G, Bolund C, Brandberg Y, Fornander T, Rutqvist LE. Randomized trial of adjuvant tamoxifen and/or goserelin in premenopausal breast cancer--self-rated physiological effects and symptoms. *Acta Oncol* 2000; 39(8): 959-68.
135. Berglund G, Nystedt M, Bolund C, Sjoden PO, Rutqvist LE. Effect of endocrine treatment on sexuality in premenopausal breast cancer patients: a prospective randomized study. *J Clin Oncol* 2001; 19(11): 2788-96.
136. Mishler E. *Research Interviewing - Context and Narrative*. Cambridge: Harvard University Press; 1986.
137. Creswell J. *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Ca, USA: Thousand Oaks; 1998.
138. Riessman C. Narrative Approaches to Trauma. In: Riessman C, editor. *Qualitative Studies in Social Work Research*. Ca, USA: Thousand Oaks; 1994. p. 67 - 71.
139. Statistiska Centralbyrån. *Folk och bostadsräkningen 1985*. Stockholm: Statistiska Centralbyrån.
140. Statistiska Centralbyrån. *Undersökning av levnadsförhållanden (ULF) 2001*. Stockholm: Statistiska Centralbyrån.
141. Lundberg O. Childhood conditions, sense of coherence, social class and adult ill health: exploring their theoretical and empirical relations. *Soc Sci Med* 1997; 44(6): 821-31.

142. Fugl-Meyer AR, Melin R, Fugl-Meyer KS. Life satisfaction in 18- to 64-year-old Swedes: in relation to gender, age, partner and immigrant status. *J Rehabil Med* 2002; 34(5): 239-46.
143. Persson LO, Ryden A. Themes of effective coping in physical disability: an interview study of 26 persons who have learnt to live with their disability. *Scand J Caring Sci* 2006; 20(3): 355-63.
144. Browall M, Ahlberg K, Karlsson P, Danielson E, Persson LO, Gaston-Johansson F. Health-related quality of life during adjuvant treatment for breast cancer among postmenopausal women. *Eur J Oncol Nurs* 2008; 12(3): 180-9.
145. Van Lancker M, Goor C, Sacre R, Lamote J, Van Belle S, De Coene N, et al. Patterns of axillary lymph node metastasis in breast cancer. *Am J Clin Oncol* 1995; 18(3): 267-72.
146. Segerstrom K, Bjerle P, Graffman S, Nystrom A. Factors that influence the incidence of brachial oedema after treatment of breast cancer. *Scand J Plast Reconstr Surg Hand Surg* 1992; 26(2): 223-7.
147. Stewart DE, Cheung AM, Duff S, Wong F, McQuestion M, Cheng T, et al. Long-term breast cancer survivors: confidentiality, disclosure, effects on work and insurance. *Psychooncology* 2001; 10(3): 259-63.
148. Grossi G, Soares JJ, Angesleva J, Perski A. Psychosocial correlates of long-term sick-leave among patients with musculoskeletal pain. *Pain* 1999; 80(3): 607-19.
149. Virtanen M, Vahtera J, Pentti J, Honkonen T, Elovainio M, Kivimaki M. Job strain and psychologic distress influence on sickness absence among Finnish employees. *Am J Prev Med* 2007; 33(3): 182-7.
150. Gudbergsson SB, Fossa SD, Ganz PA, Zebrack BJ, Dahl AA. The associations between living conditions, demography, and the 'impact of cancer' scale in tumor-free cancer survivors: a NOCWO study. *Support Care Cancer* 2007; 15(11): 1309-18.
151. Janssen N, van den Heuvel WP, Beurskens AJ, Nijhuis FJ, Schroer CA, van Eijk JT. The Demand-Control-Support model as a predictor of return to work. *Int J Rehabil Res* 2003; 26(1): 1-9.
152. Vickers MA, Jr., Lamontagne DP, Guru KA, Satyanarayana RK, Vickers KE, Menon M. Autologous tunica vaginalis and subcapsular orchiectomy: a hormonal therapy for prostate cancer. *J Androl* 2004; 25(3): 375-81.
153. Bränholm I-B, Eklund M, KS F-M, AR F-M. On work and life satisfaction. *J Rehab Sci* 1991; 4: 29-34.
154. Gil A, Martinez E, Oyaguez I, Palacios G, Rejas J. Erectile dysfunction in a primary care setting: results of an observational, no-control-group, prospective study with sildenafil under routine conditions of use. *Int J Impot Res* 2001; 13(6): 338-47.
155. Ryden A, Karlsson J, Persson LO, Sjoström L, Taft C, Sullivan M. Obesity-related coping and distress and relationship to treatment preference. *Br J Clin Psychol* 2001; 40(Pt 2): 177-88.

156. Elfstrom ML, Ryden A, Kreuter M, Persson LO, Sullivan M. Linkages between coping and psychological outcome in the spinal cord lesioned: development of SCL-related measures. *Spinal Cord* 2002; 40(1): 23-9.
157. Bland M. *An introduction to medical statistics*. Third edition ed. New York: Oxford University Press; 2000.
158. Alexanderson K, Norlund A. Sickness absence - causes, consequences, and physicians' sickness certification practice. A systematic literature review by the Swedish Council on Technology Assessment in Health Care. *Scandinavian Journal of Public Health* 2004; 32 (Supplement 63): 1-263.