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Factors affecting cancer survivors' employment and work ability

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Abstract

Purpose. Due to the improved prognosis of many forms of cancer, an increasing number of cancer survivors are both willing and able to return to work after their treatment. This has increased interest in studying work and cancer-related issues. The purpose of this paper is to give an overview of research on the impact of cancer on employment and work ability, on the effect of psychosocial factors on survivors' well-being, and to indicate research needs for the future. *Results.* Studies have shown that the majority of cancer survivors are able to continue working. There is, however, a group of cancer survivors who suffer from impaired health as a result of their illness, and this impairment sometimes leads to a decreased ability to work, or even disability. Employment and impaired work ability has most commonly been found to be associated with cancer type, type of treatment, health status, education and physical workload. The few studies that have focused on the effects of psychosocial factors in work life suggest that social support from occupational health services, and workplace accommodations for illness affect cancer survivors' return to work. *Conclusions.* More research is needed on the impact of social factors at work, which seem to play an important role in cancer survivors' ability to continue working.

Previous research on the employment of cancer survivors has indicated that cancer does not have a significant impact on survivors' employment and that cancer survivors are usually able to return to work [1–4]. However, although people with cancer are usually able to continue working, there are a group of cancer survivors who experience impairment in health as a result of their illness, and this impairment sometimes leads to a decrease in their ability to work [5–7], or even to disability [8].

Two review studies of research on cancer and work life have been published since 2000 [9,10]. The authors indicate the lack of research on the impact of cancer on work outcomes and conclude that more research should be conducted to assess the disease-related, work-related, and person-related factors that might have an effect on work life and return to work. Since those reviews were published, the interest in studying work and cancer has increased, and several articles have recently been published in this field. The studies have focused on examining the impact of cancer diagnosis on employment and defining the factors which might be associated with cancer survivors' employment and return to work.

The aim of the present study is to give an overview of the studies conducted in this field, to indicate the factors which have been most commonly reported as being associated with work ability and the employment of cancer survivors, and also to suggest research needs for the future.

Employment rate and work ability of cancer survivors

We reviewed 12 studies on cancer survivors' employment and work ability published in 2002–2007. The data samples consisted of people diagnosed with cancer from 6 months to 16 years ago. Most of the studies were population-based follow-up studies and seven of 12 included a reference group. In most of the studies comparing survivors with their referents, potential confounding factors, such as gender and age, were controlled (Table I).

Spelten et al. (2002) assessed the rate of return to work in ten studies during the years 1985–1999. The rate of return to work ranged from 30 to 93% [9]. More recent studies conducted since 2000 have shown slightly less variation in employment rates among people with cancer. The employment rate of

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Table I. Characteristics of studies on cancer survivors' employment published in 2002 – 2006.

Authors and publication year	Study design	Study population	Year(s) of diagnosis	Time of the follow-up	Controlled confounders
Bradley et al. 2005 USA [7]	population-based follow-up study	267 men with prostate cancer and 539 referents	2001–2002	12 months	age, marital status, education, number of children, income, job type
Bradley and Bednarek 2002, USA [3]	population-based follow-up study	253 people with lung, colorectal, breast, and prostate cancer	1992–1994	5–7 years	–
Bouknight et al. 2006 USA [16]	population-based follow-up study	416 women with breast cancer	2001–2002	18 months	–
Drolet et al. 2005 Canada [14]	population-based retrospective follow-up study	646 women with breast cancer and 890 referents	1996–1997	3 years	age, co-morbidity, living with a partner, income, job experience, job type, hours worked, belonging to a union, sampling time
Hewitt et al. 2003, USA [8]	population-based cross-sectional study	4 878 people with all cancer types and 90 737 people without history of cancer	1998–2000	–	sociodemographic characteristics and the presence of comorbid conditions
Langeveld et al. 2002 Netherlands [4]	hospital-based cross-sectional study	500 people with different types of childhood cancer (e.g. sarcomas, leukemia, brain tumour or Hodgkin's disease) and 1092 referents	1963–1992	–	–
Nagarajan et al. 2003 USA [13]	population based cohort study	694 people with childhood cancer (sarcomas)	1970–1986	16 (median year from the diagnosis)	Age at the questionnaire completion, time since diagnosis
Short et al. 2005 USA [5]	population based cohort study	1 433 people with 11 different cancer types	1997–1999	1–5 years	time since diagnosis
Spelten et al. 2003 Netherlands [15]	hospital based prospective cohort study	235 people with breast carcinoma, gastro-intestinal cancer, and cancer of the genitals, and haematology	no information available	6, 12 and 18 months	Time since diagnosis, age, gender
Taskila et al. 2007 Finland [12]	hospital based cross-sectional study	591 people with breast, testis, prostate cancer and lymphomas and 757 referents	1997–2001	1–6 years	Age, education, other diseases
Taskila-Åbrandt et al. 2004, Finland [2]	population based study	12 542 people with all cancer types and the equal number of referents	1992–1993	2–3 years	age, gender, calendar time
Yabroff et al. 2004 USA [6]	cross-sectional population based study	1 823 people with all cancer types (except melanomas) and 5 469 referents	no information available	–	age, gender, and educational level

the survivors in the reviewed studies ranged from 41 to 84% being slightly lower among the survivors than the referents (Table II). The results of different studies are not entirely comparable because of diversity in the cancer types examined. In addition, most of the studies have included patients with only one or a few different types of cancer, and the time since diagnosis has varied. In a large register-based study including all types of cancer, the employment rate of survivors was slightly lower (64%) two to three years after the diagnosis than the employment rate of their age- and gender-matched referents (73%) [2].

It has recently been indicated that cancer survivors are more likely to report being in poor health than people without cancer or people with other chronic conditions [6,8,11]. According to a Nordic questionnaire study, 26% of the Finnish survivors who remain in work life reported that their physical capacity was impaired due to cancer, and 19% claimed the same of their mental work ability [12]. These percentages are in line with the results presented in the other studies. For example, in five studies published since 2000 [5–8,11], the amount of those reporting work-related impairment due to cancer varied from 21% [6] to 31% [5].

Disease-related and sociodemographic factors

In the studies published since 2000, the number of factors associated with return to work of cancer survivors has become more diverse, and more evidence has been gained especially regarding the importance of sociodemographic and disease-related factors. Table II shows the results of the reviewed studies on the association of disease-related, sociodemographic or work-related factors with cancer survivors' employment and work ability. The study findings suggest that those who are older, have a lower level of education, and work in blue-collar jobs are less likely to be employed [2,4,5,7,13,14]. Similarly, workload, especially heavy lifting, is a

Table II. Summary of the results of studies on cancer survivors' employment and factors affecting employment and work ability.

		Factors affecting employment and work ability		
Authors and publication year	Employment of cancer patients vs. referents (%)	disease-related factors	sociodemographic factors	work-related factors
Bradley et al. 2005 [7]	81 vs. 86	treatment, stage of disease	age, education, occupation	physical workload, heavy lifting, stooping, keeping up with others, learning new things
Bradley and Bednarek 2002 [3]	67	cancer type	age, ethnical background, education	heavy lifting, keep pace with others
Bouknight et al. 2006 [16]	83	health status, stage of the disease	age, race, education	heavy lifting, employer accommodation for the illness, perceived discrimination at work
Drolet et al. 2005 [14]	80 vs. 85	recurrence of disease	age, union membership, income	–
Hewitt et al. 2003 [8]	–	cancer type, other diseases	age, education	–
Langeveld et al. 2002 [4]	53 vs. 75	–	–	–
Nagarajan et al. 2003 [13]	83	–	education, gender, having health insurance, marital status	–
Short et al. 2005 [5]	84	cancer type, stage, other diseases, recurrence of the disease	age, gender	–
Spelten et al. 2003 [15]	64	cancer type, treatment, fatigue, depression, physical complaints	age	physical workload
Taskila et al. 2007 [12]	–	treatment, other diseases	age, education	social climate at work, commitment to work organization, social support from work place
Taskila-Åbrandt et al. 2004 [2]	64 vs. 73	cancer type	education, occupation	–
Yabroff et al. 2004 [6]	41 vs. 46	cancer type, health status, other diseases, stage of the disease, time since diagnosis	–	–

common physical work-related factor associated with return to work of cancer survivors [3,15,16]. It is more likely that less educated people work in more physically demanding jobs. Because cancer reduces a person's physical capacity [8], it is expected that cancer patients with a lower education might be more likely to terminate their work career than people with a higher education.

Cancer type, however, has the strongest association with employment of cancer survivors [2,3,5,6,8,15]. Cancer of the nervous system, leukemia and lung cancer were most commonly found to be associated with lower employment and work ability [2,5,6,8]. The recurrence rate of the cancer of the nervous system is high [17] and the side effects of the treatment and complications may be the major reason for the low probability of being employed among those people. Moreover, low likelihood of being employed among people with lung cancer can naturally be explained by the low life expectancy among those people: the relative five-year life expectancy is 10% among men and 13% among women [18]. Reviewed studies indicate that recurrence [5,14] and stage of the disease [5–7,16] affect survivors' employment and work ability. Having other chronic diseases has also proved to be related to return to work and impaired work ability [5,6,8,12]. The reviewed studies suggest also an association between the type of treatment and return to work and decreased work ability of cancer survivors [7,12,15].

In earlier studies it has been found that the prevalence of treatment-related symptoms, such as fatigue, cognitive impairment and treatment-induced menopause is higher among people treated with chemotherapy than among people with other treatments [19–21]. The impact of side effects of the cancer treatment on return to work was examined only in one of the reviewed studies. It was found that fatigue level independently predicts how soon a person with cancer is able to return to work [15]. Quality of life has been suggested to be significantly poorer among those cancer patients who suffer from treatment-related symptoms [20,21]. Therefore, it is likely that treatment-related symptoms have impact on employment and work ability of cancer survivors.

Psychosocial work-related factors

Even though psychosocial factors, such as discrimination and social support, have been one of the main research targets in psycho-oncology, very few recent studies have taken into account the importance of psychosocial factors on the work-related issues of cancer patients.

Spelten et al. (2002) concluded in their review of studies published between the years 1985–1999, that discrimination at work was not significantly related to return to work and did not seem to be any more relevant a problem among cancer survivors than in a control group of persons who did not have cancer [9]. Conversely, Bouknight et al. (2006) reported that women with breast cancer who perceived employer discrimination because of their disease were less likely to return to work than women without such experiences. The number of women who reported such problems, however, was small (7%) [16].

The importance of practical support from work place and health care providers has been reported in some studies on cancer and work. According to a Finnish study about social support from work place and occupational health services, practical support was most needed from the supervisors in the form of taking illness into consideration when planning and managing the work tasks of a cancer patient. From occupational health personnel support was especially needed by evaluating the working conditions in the light of the cancer patient's ability to cope at work [22]. The results of a Dutch study indicated that a physician's performance in occupational rehabilitation in meaning of interventions in relations to work and also, continuity of care in the meaning of seeing the same physician, were both related to return to work of cancer survivors [23]. The results of a recently published intervention study suggests that possibility to have consultation by an occupational physician as regards of return to work-issues was found helpful among employed cancer survivors [24].

Bouknight et al. reported that not only cancer-related variables but also workplace accommodations for illness and treatment were positively associated with return to work [16]. Furthermore, the results from a recently published study about the factors affecting the work ability of cancer survivors showed that survivors who had a strong commitment to the work organization, or enjoyed a good social climate at work less frequently reported impairment in work ability [12]. All in all, the studies suggest that support from the occupational health services, workplace accommodations for illness and treatment, and occupational rehabilitation may play an important role in survivors' decisions as to whether to continue or to quit working.

Conclusions

Nowadays most cancer survivors are able to continue working after their treatment. There is, however, a group of cancer survivors who do not return

to work due to their illness. They are either unemployed, stay at home, or retire early more often than people without cancer [1,3–6]. On the other hand, it has been claimed that cancer survivors are more motivated, or compelled to remain at work to maintain their health insurance coverage [3]. It has also been suggested that returning to work after a disabling illness is related less to the actual illness than to having alternative resources for financial support [25]. Thus the employment status of individuals after cancer diagnosis may vary from one country to another, depending on the financial support that a state offers for people with a chronic illness.

Interestingly, even though cancer survivors often report impairments in their work ability, other essential differences in work-related issues, such as hours of work and wages, have rarely been reported between cancer survivors and those who have not suffered from cancer. It has actually been noted that cancer has little impact on people who remain in work life [1,11,12,26]. However, these studies have usually included only those cancer survivors who continue working. This usually means people with good prognosis. Moreover, majority of the studies have concentrated on people with the most common cancer types, such as breast cancer and prostate cancer. In the future, more attention should be paid to other types of cancer and survivors who have quit working as a result of their illness.

Treatment-related symptoms, such as pain and fatigue, have been found to be associated with, e.g., survivors' cognitional functioning, level of depression, and quality of life [20,21]. Only few studies, however, have examined the impact of treatment-related symptoms on the return to work of cancer survivors. More research is needed on the long-term effects of treatment and its symptoms on survivors' continuance in work life.

Some studies have described potential social problems cancer survivors may experience in work life. These problems include discrimination experiences as a result of cancer, such as unwanted changes in working tasks and the impossibility of changing jobs due to fear of losing insurance coverage. These problems might have a negative effect on cancer survivors' quality of life and productivity [27,28]. Because of the qualitative nature of these studies, the data sizes have been small, containing only some dozens of subjects: thus, even though some work-related problems have been identified in these studies, no prevalence of these problems has been established.

As it was noted before, not much information is available about the importance of social factors at work on either cancer survivors' work ability or the survivors' continuance in work life. Recent research suggests that social support from the work community and occupational health care, and the willingness of the employer to accommodate the cancer survivors' illness and treatment needs are important aspects of survivors' return to work. However, only one intervention study designed to enhance return to work has been published in the field so far. More research is needed on interventions that facilitate returning to work and maintaining employment of cancer survivors.

The amount of cancer survivors reporting impairment of work ability due to cancer varied in the reviewed studies from about 20 to 30%. In the future, it would important to identify those survivors who have the highest risk of impaired work ability and are therefore more likely to leave work life early. By identifying these people, it would be possible to plan a more systematic 'return to work' support scheme for them. These services could play an important role in management of cancer survivors' return to work, through early assessment and intervention, e.g. by arranging rehabilitation.

Several methodological limitations were noted in the reviews of earlier studies on cancer survivors' employment [9,10]. In the more recent studies some of these weaknesses have been avoided. Many of the recent studies have been population-based follow-up studies, a group of cancer free referents has usually been included making it possible to separate cancer-specific effects from those resulting from other factors and potential confounders have been controlled for in most studies. A weakness of the studies is that no common standardized measures have been used in the assessment of work ability or other work-related problems.

More research is needed on the importance of social factors at work and treatment-related factors in cancer survivors' experiences of impaired work ability and the impact of those factors on survivors' ability to continue working.

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