FACTORS REPORTED TO INFLUENCE THE RETURN TO WORK OF CANCER SURVIVORS: A LITERATURE REVIEW

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SUMMARY

An overview is provided of research into the return to work of cancer survivors, examining both the rate of return to work and factors impacting this return. A series of literature searches was conducted on MEDLINE and PSYCLIT databases for the years 1985–1999. Studies had to focus on the patient's perspective and had to include either the percentage of return to work or factors associated with return to work. Case studies and studies of cancer as an occupational disease were excluded. The search identified 14 studies. The mean rate of return to work was 62% (range 30–93%). The following factors were negatively associated with return to work: a non-supportive work environment, manual labour, and having head and neck cancer. Sociodemographic characteristics were not associated with return to work. For increasing age, associations were mixed. The increased survival rate of cancer patients warrants attention to the problems survivors may encounter upon their return to work. More systematic research is needed to establish more clearly the relative importance of factors associated with return to work of cancer survivors, which, in turn, would contribute to an increase in the labour-participation of cancer survivors. Copyright © 2002 John Wiley & Sons, Ltd.

INTRODUCTION

Improvements in the treatment of cancer patients and early detection of cancer have resulted in an increasing number of cancer survivors (Coebergh and van der Heijden 1991). Attention for the societal reintegration of cancer survivors has increased accordingly. A large proportion of the younger and middle-aged survivors will be part of the work force at the time of diagnosis. For this group, return to work, is an important aspect of societal reintegration.

There has been a steady flow of research on the occupational rehabilitation of cancer patients, mainly conducted in North America (e.g. Bloom *et al.*, 1988; Bond, 1977; Clark and Landis, 1989; Feldman, 1978; Maunsell *et al.*, 1999). These studies have focussed on the patient's perspective and have signalled that cancer survivors report problems upon their return to work. The main difficulties were health and life insurance problems and a lack of understanding from co-workers. Sometimes these problems led to survivors leaving the work force (Barofsky, 1989; Feldman, 1978).

Being able to return to work and to stay at work is in the interest of both society at large and the individual. From a societal point of view, it is important to reduce avoidable work incapacity; economic loss is involved in unnecessary work cessation. From an individual's point of view, not being able to return to work following an illness, frequently results in financial loss, social isolation and reduction of self-esteem (Barofsky, 1989; Hakkaart-van Roijen, 1998). Conversely, returning to work can improve the quality of life of many cancer patients. Physicians as well as occupational health service providers may contribute to a successful return to work, and can thus enhance the quality of life of cancer patients (Maunsell *et al.*, 1999).

In order to know how many patients and which patients need help, information is required on the

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percentage of patients for whom return to work is relevant, as well as on factors associated with return to work. The aim of this review is to provide an overview of research into the occupational rehabilitation of cancer patients, conducted over the last 15 years. Two questions will be addressed. First, what is the rate of return to work for cancer patients? Second, which factors are related to return to work?

METHODS

A series of literature searches was conducted on MEDLINE and PSYCLIT databases for the years 1985–1999. The medical subject headings: work, occupation, sick leave, workers' compensation, vocational rehabilitation, employment, absenteeism, return to work and disability evaluation, were combined with neoplasms. Additional searches were conducted via the reference lists of selected articles. Studies were identified that met the following criteria. First, studies had to focus on cancer patients. Second, studies had to contain either information on the percentage of cancer survivors returning to work and/or on factors related to return to work. Third, descriptive studies, qualitative studies and studies in which group differences were tested for statistical significance, were included. Fourth, because we were interested in the patient's perspective, results had to be based on self-report data. This implies that studies using health care professionals as information resources, as well as studies based solely on archival data were excluded. Fifth, case studies were excluded because of their limited comparability. Sixth, studies focussing on cancer as an occupational disease were excluded because the aetiology of the disease complicates a return to work. And finally, the original language of the studies was restricted to English, German, French or Dutch. The search identified 14 studies that met these criteria (Berry, 1993; Bloom et al., 1988; Bushunow et al., 1995; Edbril and Rieker, 1989; Ehrmann-Feldman et al., 1987; Fobair et al., 1986; Greenwald et al., 1989; Lima et al., 1997; Maunsell et al., 1999; Razavi et al., 1993; Satariano and DeLorenzo, 1996; Staley et al., 1987; Weis et al., 1992; Wouden et al., 1992).

The 14 studies are summarised in two tables. Table 1 summarises the main characteristics of the studies and patient samples involved, as well as the results on work participation and return to work.

Factors related to return to work are summarised in Table 2. Information on factors that have been statistically tested and on factors that have been identified at a more descriptive level is provided separately.

Factors were categorised according to the WHO disability model (WHO, 1998) into work-related, disease- or treatment-related and person-related factors. Health complaints, mood, and other psychological factors were categorised as person-related factors. Health complaints were subsumed under person-related factors, although health complaints can be related to the disease and treatment. Since all data were based on patients' reports and since complaints' levels are known to show individual variation, this seemed a more appropriate categorisation. The association with work-related, disease- or treatment-related and person-related factors was considered in terms of a positive association (indicating facilitation of return to work), a negative association (implying a hindrance to return to work), or no association with return to work.

RESULTS

Study characteristics

The 14 studies provide a rich diversity in aims, sample sizes, sample composition, study designs and results, within the frame of the adopted selection criteria (Table 1). The inclusion of men and women seemed to vary largely as a result of the cancer site considered. All studies used interviews and/or questionnaires designed for the purpose of the study. Five studies additionally administered standardised questionnaires (Bloom et al., 1988; Edbril and Rieker, 1989; Fobair et al., 1986; Greenwald et al., 1989; Razavi et al., 1993). Five studies investigated a heterogeneous group of cancer patients (Ehrmann-Feldman et al., 1987; Greenwald et al., 1989; Staley et al., 1987; Weis et al., 1992; Wouden et al., 1992), whereas the other eight studies examined patients with specific tumours. All studies either reported the time since diagnosis or the time since end of treatment. The average time since diagnosis ranged from less than 1 to 8 years. In studies that looked at the average time since the end of treatment, this time period ranged from 3 to 6 years with the exception of one study, where patients were interviewed during their treatment (Staley et al., 1987).

Table 1. Study and sample characteristics, rate of employment and return to work

Nr	Sample	Age range	Design/Methods[a]	Measures[b]	Cancer site	Mean time since diagnosis	Mean time since end of treatment	In employment at time of diagnosis (%)	Rate of return to work (%)
1[c]	N = 12 (8 men)	32–69	L/NT	I	Genitourinary cancer			100	
2	N = 85 (all men)	18–46	C/ST	I, SQ, Q (POMS)	Hodgkin's disease		3 years	100	87
	N = 88 (all men)	23–61	C/ST	I, SQ	Testicular cancer		45 months	100	92
3	N = 145 (no men)	18–65	L/ST	SQ	Breast cancer	6 years		100	93 (12 months after treatment)
4	N = 74 (74 men)	19–59	C/NT	SQ, Q (POMS, BMS, CPBS)	Testicular cancer		6 years	80	90
5	N = 101 (51 men)	21–65	C/ST	I, SQ	Heterogeneous group		5 years	100	
6	N = 403 (222 men)	15–78	C/ST	I, SQ, Q (CES-D)	Hodgkin's disease		9 years		
7	N = 247		C/ST	I, SQ, Q (SIP POMS)	Heterogeneous group	< 1 year		100	Approx. 50
8	N = 181	124 < 50	C/NT	I, SQ	Acute Myelogenous Leukaemia		> 3 years	100	74 (< 50yrs)
		57 ≥ 50							30 (≥ 50yrs)
9	N = 13 (no men)	33–59	C/NT	I	Breast cancer	5 years		100	100[d]
10	N = 41 (23 men)	19–61	L/ST	I, SQ, Q (POMS)	Cancer of the lymphatic system		4 years	100	54
11	N = 296 (no men)	40–84	C/ST	I, SQ	Breast cancer	< 1 year		100	72
12	N = 61 (25 men)	24–83	C/NT	I, SQ	Heterogeneous group		Interview during treatment	100	90
13	N = 377 (210 men)	< 60	C/ST	SQ	Heterogeneous group	4 years		100	Approx. 41
14	N = 309	16–69	C/NT	SQ	Heterogeneous group	8 years		100	44

[a] C = cross-sectional; L = longitudinal; ST = results regarding return to work were statistically tested; NT: results regarding return to work were not statistically tested.
[b] I = interview; SQ = study-specific questionnaire; Q = standardised questionnaire. POMS = profile of moods state, SIP = sickness impact profile, BMS = brannon masculinity scale, CPBS = cancer patients behaviour scale.
[c] 1 = Berry (1993), 2 = Bloom et al. (1988), 3 = Bushunow et al. (1995), 4 = Edbril and Rieker (1989), 5 = Ehrmann-Feldman et al. (1987), 6 = Fobair et al. (1986), 7 = Greenwald et al. (1989), 8 = de Lima et al. 1997, 9 = Maunsell et al. (1999), 10 = Razavi et al. (1993), 11 = Satariano and DeLorenzo (1996), 12 = Staley et al. (1987), 13 = Weis et al. (1992), 14 = van der Wouden et al. (1992).
[d] Return to work was a selection criterion for participation in this study. Empty cells indicate that no information was available.

Rate of return to work

All patients were employed at the time of diagnosis for all but two studies (Edbril and Rieker 1989; Fobair et al., 1986). Return to work rates could be assessed in 10 of the 14 studies. Three studies provided no information on the rate of return to work (Berry 1993; Ehrmann-Feldman

Table 2. Factors related to return to work

Association with return to work[a]	Statistically tested	Not statistically tested
A. Positive association		
Work-related factors		
Positive attitude of co-workers		12
Discretion over work hours/ amount of work	7	
Disease/treatment-related factors		
Number of months since end of treatment	10	
Person-related factors		
Psychological complaints		
Reaction to diagnosis/ treatment		4
Mobilising social support		1[b]
B. Negative association		
Work-related factors		
Negative attitude of co-workers/clients		2, 9[b], 12
Social stigma		5
Physical demands at work/ manual labour	7, 11, 13	
Former work pace too high	2	
Experienced impediments at work		14
Unwanted changes in tasks		1[b], 9[b]
Absenteeism		5
Need for assistance with transportation	11	
Disease/treatment-related factors		
Disease stage	7, 11	
Cancer site	2, 13	14
Treatment	2	
Treatment toxicity	10	
Disease-related physical dysfunction	7	
Person-related factors		
Sociodemographic characteristics		
Increasing age	6, 13	8
Health complaints		
Fatigue	11	1[b], 5, 9[b]
Low energy level	6	
Physical limitations		8
Diminished physical activity		9[b]
Limitations in upper body strength	11	
Pain	11	
Psychological complaints		

Table 2. (*continued*)

Association with return to work[a]	Statistically tested	Not statistically tested
Concentration problems	2	
Depression	6, 10	
Anxiety	10	
Psychological problems		1[b], 5
Reaction to diagnosis/ treatment		4
Changing attitude to work		9[b]
Lack of discussion with health professionals		9[b]
C. No association		
Work-related factors		
Discrimination	5	
Disease/treatment-related factors		
Disease stage	6, 10	
Cancer site		4
Treatment	6	4
Nausea	11	
Recurrence	10	
Type of lymphoma	10	
Adjuvant chemotherapy	3	
Person-related factors		
Sociodemographic characteristics		
Education	7, 10	
Income	7	
Gender	7, 10	
Marital status	11	
Increasing age	7, 10, 11	
Health complaints		
Fatigue	10	
Low energy level	2	
Comorbidity	11	
Psychological complaints		
Depression	11	

[a] 1 = Berry (1993), 2 = Bloom *et al.* (1988), 3 = Bushunow *et al.* (1995), 4 = Edbril and Rieker (1989), 5 = Ehrmann-Feldman *et al.* (1987), 6 = Fobair *et al.* (1986), 7 = Greenwald *et al.* (1989), 8 = de Lima *et al.* (1997), 9 = Maunsell *et al.* (1999), 10 = Razavi *et al.*, (1993), 11 = Satariano and DeLorenzo (1996), 12 = Staley *et al.* (1987), 13 = Weis *et al.* (1992), 14 = van der Wouden *et al.* (1992).
[b] Qualitative study.

et al., 1987; Fobair *et al.*, 1986). In one study, the rate of return to work was 100% because patients had to be back at work in order to qualify for inclusion of the study (Maunsell *et al.*, 1999). In the remaining 10 studies, the rate of return to work ranged from 30 to 93%. Of the 1904 patients included in these studies, 1170 had

returned to work giving an overall mean rate of return to work of 62%. In the study by Lima *et al.* (1997), the return to work rate was considered conditional on patients' age. For patients younger than 50, the rate of return to work was 74%, while for patients older than 50, the rate was 30%.

Factors related to return to work

Work-related factors. A positive attitude of co-workers and discretion over work hours or amount of work was positively associated with return to work. Most work-related factors, however, were negatively associated with return to work, such as manual labour and work posing physical demands. Interestingly, discrimination at work was not significantly related to return to work and did not seem to be a more prevalent problem among cancer survivors than in a control group of persons who did not have cancer (Ehrmann-Feldman *et al.* 1987).

Disease- and treatment-related factors. The only positive association was related to the number of months since the end of treatment. The chance of a return to work increased if more time had passed since the end of treatment.

Most factors related to disease and treatment were not related to return to work. Mixed results were found for disease stage and cancer site. In a study of patients with Hodgkin's disease (Fobair *et al.*, 1986), as well as in a study of lymphoma patients (Razavi *et al.*, 1993), disease stage (divided in stages I–IV) was not related to return to work. In a study of breast cancer patients, disease stage was coded as a three-level variable into 'local', 'regional', and 'remote'. Women diagnosed with regional and remote disease stage were more likely to be on leave three months after diagnosis than women diagnosed with localised disease (Satariano and DeLorenzo, 1996). Equally, in a study of patients with lung, cervical, pancreatic and prostate cancer, a negative association between disease stage and return to work was found (Greenwald *et al.*, 1989). However, no further specification of disease stage was given in the latter study. Weis *et al.* (1992) studied a heterogeneous group of cancer patients and found that patients with head and neck cancer and breast cancer reported most problems upon their return to work. Similarly, Wouden *et al.* (1992) reported

more problems in returning to work for patients with head and neck cancer. Patients with testicular cancer generally reported very few problems upon returning to work and consequently had a high rate of return to work. The relatively few problems in return to work of patients with testicular cancer were also reported in a study by Bloom *et al.* (1988). In this study, patients with testicular cancer were compared with patients with Hodgkin's disease. The reporting of fewer problems by testicular cancer patients was considered to be treatment-related rather than work-related.

Person-related factors. Mobilising social support was positively associated with return to work (Berry, 1993). However, most person-related factors were negatively associated with return to work. For example, a changing attitude to work reflected a reduced importance of work and a decrease in aspirations with regard to work. These changes were negatively related to return to work (Maunsell *et al.*, 1999).

With the exception of increasing age, none of the sociodemographic characteristics were found to have a statistically significant relation with return to work. Mixed results were found for increasing age, fatigue and reaction to diagnosis/treatment. For increasing age, three studies reported no relation and three studies reported a negative association with return to work. Equally, fatigue was found to have either a negative or insignificant relation. In a study of men with testicular cancer, the reaction to diagnosis/treatment was found to have both a positive and a negative relation. For some patients surviving the debilitating treatments made them perceive themselves as stronger and more capable. Other patients felt less confident about their physical ability in relation to their work, or about their ability to cope with stress. They also commented on becoming less interested in work achievements as a result of having cancer. 'Life is too short' to be so involved with work (Edbril and Rieker 1989).

DISCUSSION

Attention for return to work is part of the societal reintegration of cancer survivors. Despite our extensive efforts to trace studies, the literature search yielded only 14 studies, that were char-

acterised by a high degree of heterogeneity with regard to the patient characteristics including age ranges, cancer sites, and treatment modalities. Additionally, the studies differed widely in measures employed and time since diagnosis or treatment.

Perhaps most striking was the wide variation in factors affecting return to work. Forty-one factors were investigated for their association with return to work: 10 work-related factors, 10 disease/ treatment-related factors and 21 person-related factors. Of these 41 factors, only 14 were examined in more than one study and only five studies used standardised measures to this effect. For example, fatigue is known to be a major long-term complaint of cancer survivors and standardised measures assessing fatigue are available (Andrykowski, *et al.*, 1998; Broeckel *et al.*, 1998; Smets *et al.*, 1995). Four of the five studies assessing fatigue reported a negative relation with return to work, although three of these studies did not test these results statistically. The only study that measured fatigue with a standardised questionnaire (Razavi *et al.*, 1993) found a statistically insignificant association between fatigue and return to work.

This review spanned a time frame of 15 years. Over these 15 years of studies, no clear trends emerged. For example, there was no indication of an increase in the rate of return to work. Equally, from a methodological point of view no trends could be discovered: not in the use of larger sample sizes, the use of more standardised questionnaires, or in an increase in statistical testing of results.

All studies suffered from one or more of the following methodological weaknesses: the use of small samples; unstandardised, study-specific instruments; cross-sectional rather than longitudinal designs; and no statistical testing of results. Despite the heterogeneity in the factors studied and the methodological shortcomings, some trends emerge from this review. Although we recognise the need for additional corroboration of these findings, the accumulated results suggest that:

1. The rate of return to work varied from 30 to 93%, with a mean rate of 62%.
2. A supportive work environment facilitated return to work.
3. Manual work and/or work which requires strong physical effort is negatively associated with return to work.

4. With respect to disease- and/or treatment-related factors, patients with head and neck cancer, in particular, are at a disadvantage when returning to work, whereas patients with testicular cancer experienced relatively few problems upon their return to work.
5. Sociodemographic characteristics, including education, income, gender and marital status, were not found to be associated with return to work.
6. Although it is generally assumed that increasing age is an important hindrance to return to work, results were mixed. Most studies did not find an association, whereas only one study reported a negative relation between increasing age and return to work. The results did not seem biased towards a younger group of workers with a relatively good prognosis.

Directions for future research. Perhaps the most important finding of this review is that there is a lack of systematic research into the return to work of cancer patients. In addition, most research lacks a theoretical framework. Moreover, this review also points to omissions in the literature and to areas that have received too little attention. For example, we did not find information on the prevalence of cancer in the working population. Without this information, the true extent of the problem cannot be assessed, i.e. for what percentage of cancer survivors is return to work relevant. Additionally, very little attention was paid to the effect of cancer site. Moreover, we could not identify studies that compared the impact of the most common types of treatment (surgery, radiotherapy, and chemotherapy). Furthermore, differences in job type were not addressed beyond a distinction between manual and non-manual labour. It might be hypothesised that different cancer sites, different treatment modalities and different job types have a differential effect on return to work.

Clearly, more systematic research is needed. The following recommendations might help design future studies:

1. Studies need to adopt a longitudinal and prospective design. Only such studies can shed light on the development over time of factors associated with return to work.

2. The distinction between work-related, disease/treatment-related, and person-related factors might guide the selection of variables, which preferably should be studied concurrently.
3. Standardised measures need to be used to establish the impact of these factors on return to work, to allow for a more reliable and valid assessment and to enhance the comparability of results.
4. The relations among the different factors need to be studied. For example, is radiotherapy per se affecting return to work or is it the experienced fatigue resulting from radiotherapy that hinders return to work? For this purpose a model needs to be developed that includes the factors and interrelationships among these factors that affect return to work. This model would not only aid to establish the relative importance of a particular factor on return to work, but also the course of its path to return to work.

Finally, given the increasing number of cancer survivors, it is recommended that Cancer Registries record information on the working status of patients. In time this would allow us to obtain the much-needed information on the prevalence of cancer in the working population.

With the use of a more systematic approach of research into the return to work of cancer survivors, it will be possible to distinguish better between factors that do and do not impact on survivors' return to work. This information can be used to design interventions to facilitate the return to work of cancer survivors by health care workers such as nurses, clinicians, occupational physicians, psychologists and social workers. In turn this may lead to a reduction in unnecessary work cessation and thus increase the rate of return to work of cancer survivors.

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