

Return to work following vocational rehabilitation for neck, back and shoulder problems: risk factors reviewed

J. SELANDER*, S.-U. MARNETOFT, A. BERGROTH and J. EKHOLM

Centre for Studies on National Social Insurance, Mid-Sweden University, Östersund, Sweden and Section of Rehabilitation Medicine, Department of Surgical Sciences, Karolinska Institute, Stockholm, Sweden

Abstract

Purpose: The present aim was an overview of factors associated with return to work following vocational rehabilitation for problems in the neck, back, and shoulders.

Method: Studies were identified through a systematic keyword search in databases. For inclusion, return to work had to be in focus and studies to have been published between 1980 and 2000.

Results and conclusion: A great number of demographic, psychological, social, medical, rehabilitation-related, workplace-related and benefit-system-related factors are associated with return to work. The different types of risk factor are associated in many ways. People with greater chances of job return after vocational rehabilitation are younger, native, highly educated, have a steady job and high income, are married and have stable social networks, are self-confident, happy with life, not depressed, have low level of disease severity and no pain, high work seniority, long working history and an employer that cares and wishes them back to the work place. Unfortunately, people with the above profile are seldom found among the long-term sick.

Introduction

LONG-TERM SICK LEAVE AND VOCATIONAL REHABILITATION

A problem in Sweden and in many other western countries is the great number of people who do not work owing to sickness or injury. In Sweden, in 2000, the number of long-term sick (>90 days) and disability pensioners was around 520 000,¹ some 13% of the total working force. Musculoskeletal problems, particularly in the neck, back and shoulders, constitute by far the

most common complaint among the long-term sick and disability pensioners, in Sweden as in most other western countries.

Long-term sickness and disability pension often have negative consequences. For the individual they often lead to worsened economy and sometimes to social stigmatisation. For the employer, absence from work has great administrative and practical consequences. For the community the consequences are mainly economic. In Sweden, for example, the cost of long-term sick-leave and disability pension was in 2000 around 70 billion Swedish kronor (= 7 billion USD).² Added to this are costs for lost production, which for musculoskeletal problems alone, in 1995, were an estimated 30 billion Swedish kronor.³

To reintroduce sick or injured people to a job or availability for a job, increasing emphasis has been put on vocational rehabilitation. Internationally there is no standard definition of vocational rehabilitation. Literally, the term 'rehabilitation' indicates restoring someone or something to a previous ability status. Hence vocational rehabilitation concerns the provision of services for persons with previous work history to enable them to re-enter the labour market after illness/injury. Often, however, services to persons with inborn permanent disabilities who need tools for entering the labour market in the first place, are also defined as vocational rehabilitation. The International Labour Organisation (ILO) defines vocational rehabilitation by its objective—'to enable a disabled person to secure and retain suitable employment'.⁴ In this paper vocational rehabilitation is defined as medical, psychological, social and occupational activities aiming to re-establish, among sick or injured people

* Author for correspondence; e-mail: john.selander@mh.se

with previous work history, their working capacity and prerequisites for returning to a job or availability for a job.

In figure 1 vocational rehabilitation is integrated in the process from disease/injury to return to the labour market or to disability pension (figure 1).

In figure 1, the process starts with a person at work (1) (perhaps with symptoms) who at a certain moment falls ill or gets injured (2). After illness/injury the person is taken care of by the conventional health care system (3). A majority of patients then leave the care system and return, sometimes slowly, to normal life and work without any rehabilitative measures. Other patients, however, who have received health care, even if it was optimal, have not regained their original status. Where disability remains, rehabilitative action may be considered (4). Initially, the person might undergo medical rehabilitation measures at primary care level or at a rehabilitation unit (4a). In the next phase (4b), for people of working age, vocational rehabilitation may be initiated and can include both medical measures (e.g. physiotherapy, functional restoration programs [often including physical, psychological, social and occupational aspects]), non-medical measures (e.g. job counselling, job training, practical or theoretical education) and, which is common, combinations of different measures. After vocational rehabilitation the person may return to the labour market. Alternatively, working capacity is investigated and determined (5). If it is permanently reduced, or long-term reduced, the person is entitled to regular or temporary disability pension (6).

In general, vocational rehabilitation is considered successful if the person returns to work or to the labour market, and unsuccessful if he/she does not. A relevant question is therefore what factors are associated with return to work after vocational rehabilita-

tion. Since rehabilitation is complex and multifactorial and involves different actors (e.g. patient, therapist, rehabilitation counsellor, employer) from different disciplines (e.g. medicine, paramedicine, psychology, sociology, ergonomics, pedagogics, economy, law) such factors may occur as risks at many parts of the chain. Previous studies have focused largely on rehabilitation outcome. These studies, however, have all considered parts of the rehabilitation process. Many contribute to our knowledge within each limited field, but they seldom offer a more comprehensive view of the complex vocational rehabilitation process. The present background is the authors' belief that there is an interest in studies with a wider perspective on vocational rehabilitation, discussing more broadly the whole process, its problem complexes and types of risk factor. A general problem with broad studies is the loss of deeper detailed analysis. The present work is no exception, and the aim is therefore not to review and analyse all possible factors associated with vocational rehabilitation outcome for patients with musculoskeletal problems, however desirable this might be.

Aim of study

The aim is instead an overview of factors associated with return to work after vocational rehabilitation for problems in the neck, back, and shoulder, and to discuss the risk factors in relation to each other and in a broader perspective.

Methods

STUDIES INCLUDED

Studies were identified with a systematic key word search (vocational rehabilitation AND return to work OR disability pension OR early retirement AND predictors OR determinants OR risk factors) in databases including MEDLINE, CINAHL, Rehabilitation and Physical Medicine, Current Contents, Occupational Health and Safety, and Social Work Abstracts. Books and other publications were traced by searching the reference sections of relevant reviews and papers. Studies of physiotherapy, occupational therapy, multi-disciplinary functional restoration programmes, work hardening, vocational training and education were included. The scarcity of relevant studies precluded discussion of other vocational rehabilitation measures (e.g. job counselling and job placement). Besides studies purely based on subjects with problems in the back, neck

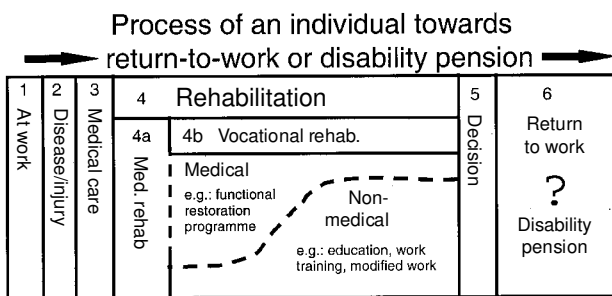


Figure 1 An individual's progress from disease or injury towards return to the labour market or a disability pension. (Modified after Berglind *et al.*)

or shoulders, 'work-related disorders' are included. Problems in neck, back and shoulders predominate, but other diagnoses may also appear. In the Results section, these studies are marked with an asterisk (*). The key word search turned up more than 200 studies. After exclusion of irrelevant articles (most often because return to work was not focused), 43 studies (4 reviews) remained. In the results section, the review studies are marked (rev.). All studies were based on subjects of working age. For inclusion, return to work had to be in focus and the studies published between 1980 and 2000.

Results

DEMOGRAPHIC FACTORS

Age

Chances of job return after vocational rehabilitation decreased with increasing age.^{6, 7*, 8, 9*, 10*, 11, 12, 13*, 14*}

Gender

Regarding gender, some studies indicated men as being more likely to return to work,^{9*, 12, 14*, 15*} while others indicated women as more favoured.^{7, 16}

Nationality

Subjects of foreign origin were less likely than others to return to work.^{9*, 17}

Income

Subjects with a higher income were more likely to return to work.^{7, 13*, 18*}

Level of education

Subjects with a higher level of education more often returned to work.^{9*, 10*, 18*, 19*, 20}

Marital status

Married people were more likely to return to work than unmarried people.^{9*, 16}

Urban living vs rural

Subjects living in the countryside were less likely to return to work.¹⁷

Legal claim

Subjects with legal claim were less likely to return to work.²¹

Working status

Subjects that had jobs to return to and/or were still considered as employees were more likely to return to work after vocational rehabilitation than subjects without.^{10*, 14*}

Earlier sick-leave

People with earlier sick-leave were less likely than others to return to work after vocational rehabilitation.^{13*}

PSYCHOLOGICAL AND SOCIAL FACTORS

Self-confidence

Subjects with stability and self-esteem were more likely to return to work after vocational rehabilitation²²⁻²⁴ as were subjects with perceived 'ease of changing occupations'.⁸

Life satisfaction

Subjects with more life satisfaction were more likely to return to work.¹⁷

Level of experienced health

Subjects with better experienced health more often returned to work.^{22, 25(rev.), 26}

Depression

Subjects who were also depressed or premorbidly pessimistic were less likely to return to work.^{27, 34}

Health locus of control

Subjects with less health locus of control were less likely to return to work.⁸

Cooperativeness

Highly cooperative subjects were more likely to return to work.²⁷

Hypochondria

Hypochondriacs were less likely to return to work.²⁷

Motivation and belief in return to work

Motivated subjects more often returned to work³⁰ as did subjects who strongly believed in a return to work.^{24, 31, 32, 65}

Social situation

Subjects with stable living arrangements are more likely than others to return to work after vocational rehabilitation.³³

MEDICAL FACTORS

Medical history

Subjects who had received more treatment before the rehabilitation programme were less likely than others to return to work.²⁹ Chances of job return were greater after first injury than after repeat injury^{23, 33} and greater for subjects with less surgery than for those with more.³⁴

Level of disease/injury severity

Subjects with less severe disease or injury more often returned to work^{16, 18*, 30, 35} as did subjects with good spinal flexion prior to rehabilitation¹¹ and those with good trunk and lower extremity strength.²¹

Pain

Subjects with intense pain were less likely to return to work.^{27, 34}

Neurological symptoms during treatment

Subjects with neurological symptoms were less likely to return to work.¹¹

Activities of daily living (ADL)

Subjects with deficits in ADL were less likely than others to return to work after vocational rehabilitation.^{8, 16}

FACTORS RELATED WITH REHABILITATION

Type of rehabilitation measure

Multidisciplinary treatment was more effective than single-mode treatment regarding return to work.^{36(rev.)} Subjects receiving back school and those receiving

education more often returned to work than those on work training.^{13*, 14*}

Timing of vocational rehabilitation

Subjects getting early vocational rehabilitation were more likely to return to work than those in late rehabilitation.^{8*, 11, 13*, 14*, 17, 30, 65}

Understanding of work place

Understanding of workplace by rehabilitation providers facilitated job return.^{41, 58}

Programme completion

Subjects completing rehabilitation course were more likely to return to work.³⁰

Patient influence

Subjects who were able to influence their own rehabilitation process were more likely to have a positive rehabilitation outcome.³⁷

Satisfaction with rehabilitation programme

Subjects who were satisfied with their rehabilitation programme were more likely to return to work.^{28, 29}

WORKPLACE-RELATED FACTORS

Changing jobs

Subjects who changed work tasks or jobs after vocational rehabilitation were less likely to report ill again.^{38, 39}

Working environment

Subjects returning to a work place with a bad environment were more likely than others to leave that work place and report ill again.^{40, 41(rev.)}

Modified work

Subjects offered modified work (at the work place) more often returned to work.^{12, 42*(rev.)}

Early return to workplace

A structured early return to the workplace immediately after injury increased chances of return to work.⁴³

Unscheduled breaks

Subjects able to take unscheduled work breaks were more likely to return to work.¹¹

Vocational sector

Subjects working in specific vocational sectors were less likely to return to work. Workers from care/custodial/food service sectors appear to have poorer outcome than those from other sectors.^{10*}

Job seniority

More senior workers were more likely to return to work.^{18*}

Work history

Subjects with more than 24 months of employment in the industry were more likely to return to work.¹¹

Size of workplace

Workers from larger employers were more likely to return to work than those from smaller.^{10*}

Public sector vs private

Subjects working in the public sector were more likely to return to work after vocational rehabilitation than people in the private sector.¹¹

FACTORS RELATED TO DISABILITY BENEFIT SYSTEM AND GENERAL UNEMPLOYMENT

Disability benefit status

Subjects with no social benefit more often returned to work than subjects entitled to social benefits.²⁰

Level of compensation

Subjects with higher levels of disability compensation more seldom returned to work.^{18*, 44*, 45*} Subjects with partial sickness benefit at start of vocational rehabilitation were more likely to return to work than those on full benefit.^{14*}

Unemployment rates

Subjects living in regions with low levels of unemployment are more likely to return to work³⁰ and in times of

low national unemployment rates, the probability of returning to work is higher.^{46*}

Discussion

The aim was an overview of factors associated with return to work after vocational rehabilitation following neck, back, and shoulder problems, and to discuss the risk factors in relation to each other and in a broader perspective. The overview shows many and diverse factors associated with job return after vocational rehabilitation.

DEMOGRAPHIC FACTORS

Regarding age, it was not surprising that, the older a person is, the less are the chances of job return. Job return is probably facilitated by younger people's better overall health. Younger people are also perhaps more motivated than older. For people over 60, disability pension might in many cases be a 'regular and common way' to leave the labour force. Further, younger people are in general more attractive on the labour market, and, with the expanding demand for IT skills, this trend may become even stronger. Age is the strongest separate factor predicting return to work.⁴⁷

Regarding gender, even though a majority of studies indicate that men more often return to work, others indicate the opposite. The picture is unclear and requires further research. Previous studies focusing on gender indicate that women and men appear to cope with musculoskeletal pain in different ways,⁴⁸ receive different types of rehabilitation measure and are treated differently by rehabilitation counsellors.⁴⁹ Also, job opportunities differ in many crucial aspects for men and for women. Thus men are claimed to have 5000 different types of jobs to choose from while women have 30!

A few studies indicate foreign origin as an obstacle to return to work. This is probably at least partly explained by the traditionally higher rates of unemployment among people of foreign origin. Also, unemployed people, especially women, are more difficult than others to rehabilitate.⁵⁰ This probably also interacts with the finding by e.g. Straaton *et al.*²⁰ that low education level is related to poor return to work outcome. Workers with higher education have greater freedom to change jobs or employers than the educationally disadvantaged. Additionally, workers with low education do not qualify for technical upgrading because of their low potential for success. The finding that subjects with low incomes are less likely to return to work has much to do with this positive association between education and income.

Some studies show that married people are more likely to return to work than others. Other studies report that people with social support and social networks are more likely to return to work. Obviously, loneliness vs social interaction play an important role for vocational rehabilitation outcome. The finding by Heikkilä¹⁷ that rural subjects are less likely to return to work than others is interesting. Perhaps 'having a job' is not as important in rural settings as in urban? Perhaps 'being on the social' is socially more accepted in the countryside? A further explanation could be the types of job available. In the city, with its great diversity of jobs, it is probably easier to find a suitable job than in the countryside.

PSYCHOLOGICAL AND SOCIAL FACTORS

General self-confidence obviously affects chances of returning to work. This is in line with the finding that people who find it easy to change occupations are more likely to return to work. Neither is it surprising that subjects with high quality of life and who experience their health as fairly good are more likely to have a positive rehabilitation outcome. The finding by Gallagher⁸ that subjects with less health locus of control are less likely to return to work is supported by other studies. Wiegmann and Berven,⁵¹ for example, found that those with a strong belief in internal control improved their physical functioning more than others. Since the rehabilitees' level of motivation, programme satisfaction and belief of vocational return positively correlates with rehabilitation outcome, it seems of great importance for the actors involved in rehabilitation to establish a positive atmosphere.

MEDICAL FACTORS

Regarding medical factors associated with return to work, the results were not surprising. As a rule of thumb, the worse off the patient is, the least chances for job return. Subjects with great pain, severe disability, complex medical history and ADL deficits return to work more seldomly than others after vocational rehabilitation. These 'objective' findings are in line with the health-related psychological factor level of experienced health.

FACTORS RELATED WITH REHABILITATION

Various methods are available for treating back, neck and shoulder problems, yet it appears difficult to determine whether one treatment is superior in terms of return to work. Studies are often hampered by design

problems: many are conducted without controls or with inappropriate samples. Methodological problems following assessment of vocational rehabilitation programmes have been discussed in detail by Selander.¹³ Despite the problems, high-quality studies now support the hypothesis that multidisciplinary treatment is more effective than single-mode treatment regarding return to work. The findings confirm that return to work for patients with musculoskeletal problems is complex and requires help from professionals in different fields, rather than just one. The finding that clients who receive education are better off than those who do work training is controversial in a gender perspective. Some Swedish studies show that men more often than women receive education and that women more often than men receive work training as a vocational rehabilitation measure. This and other gender-specific differences in vocational rehabilitation are discussed in detail by Backstrom.⁴⁹

The widely held opinion that early vocational rehabilitation is more effective than late is supported by a majority of the studies reviewed above, although this is questioned in others.^{6, 52}

The finding that subjects able to influence their own rehabilitation are more likely to return to work highlights the importance of involving the subject in her/his own rehabilitation. This may be difficult. In a process involving several different professionals it is sometimes forgotten that the disabled individual is the centre with and around which they should work and cooperate. Some studies^{53, 54} indicate that the individual in today's vocational rehabilitation is too often perceived as an object rather than a person, and tends to be tossed around between the different actors involved. To prevent this, the client may be allotted a vocational rehabilitation counsellor (in Sweden at the social insurance office), whom he/she can trust to help and guide him/her through the system. In the nature of vocational rehabilitation, the counsellor's role is very complex and skill-demanding. Roessler and Rubin,⁵⁵ for example, underline medical and psychological aspects of disability, legal and sociological influences in rehabilitation, rehabilitation and human services, and principles of human behaviour, as skills needed for professional rehabilitation counselling. Some studies indicate that vocational rehabilitation counsellors do not always possess these diverse skills.^{56, 57}

Several studies stress good understanding of the work place by the rehabilitation providers;^{41, 58} others, for example, Battie,⁵⁹ Marnetoft *et al.*,¹⁴ the importance of communication among rehabilitators. A general conclusion here is that communication in today's vocational rehabilitation is not working appropriately.

FACTORS RELATED TO EMPLOYER AND WORKPLACE

The importance of a good work environment for the subject to return to after rehabilitation is often stressed. Ekberg⁴¹ notes physical, psychological and organisational aspects. A poor physical work environment has uncomfortable work postures, highly repetitive movements, work performed at or above shoulder level, heavy work, vibrations, too much or too little sitting, and lack of breaks. A poor psychological (and organisational) work environment involves great time pressure, high work pace, monotonous tasks, unstimulating work content, low influence on the job, low social support and uncertainty on how to perform one's work task. To create a good work environment, all these aspects must be considered, not only one, for example the physical environment. In line with this are findings regarding modified work. Subjects offered modified work at their former work place are more likely than others to return to steady employment. This is probably connected with the finding that workers in larger organisations are more likely to return to work than those in smaller, and that those in the public sector are more likely to do so than those in the private sector. Larger (and public) employers are more likely than smaller (and private) to have the economic and organisational resources for offering modified work.

The finding by Infante-Rivard and Lortie¹¹ that ability to take a break is positively associated with return to work could refer to physical as well as psychological work conditions. Finding that piecework is not a predictor of return to work, these authors interpret the ability to take a break as a factor more related to decision latitude than to physical exertion, as it allows some self-regulation of psychological demand.

Regarding poor rehabilitation outcome for subjects in certain vocational sectors (Voaklander *et al.*¹⁰ mention subjects working in care/custodial/food services) this is probably explained, at least partly, by the nature of the work. In such jobs heavy lifting is often involved and people often work alone on specific tasks. Besides heavy working conditions, the poor outcome is probably also explained by the selection of employees to these sorts of job in the first place, i.e. what types of people they are.

FACTORS RELATED TO BENEFIT SYSTEM AND TO GENERAL UNEMPLOYMENT

The finding that type and degree of social benefit are associated with vocational rehabilitation outcome is also not surprising. The interest in, and the outcomes of,

vocational rehabilitation are probably, at least some what, influenced by economic incentives. Do economic incentives exist, however? According to a study by Statskontoret,⁶⁰ based on circumstances in Sweden, the answer is 'no'. In many cases, the study concludes, involvement in vocational rehabilitation has even negative economic consequences. For the community it is a good thing if people are helped from benefits back to productive work. For the company the incentives are less clear. Despite some claim that vocational rehabilitation is a good economic investment,⁶¹ questions remain. Studies^{3, 53, 54, 60} show that employers are not fulfilling their obligations regarding rehabilitation activities. Little action is taken, and often at a late stage. In times of recession, with too many employees in combination with relatively strict laws concerning dismissal, it is perhaps, in a strict economic perspective, more beneficial for the employer not to invest in vocational rehabilitation but let the community take care of the problem. For the disabled individual, too, economic incentives are small. A comprehensive report⁶² concludes that a disability pension for the average industrial worker in Sweden, when taxes, other benefits and charges are taken into consideration, compensates for around 84% of the worker's earlier income. The report also shows that the people most likely to be pensioned due to disability are the people that lose least economically. For these people, benefits often approach 100%. Economic incentives for other important actors in rehabilitation, e.g. the rehabilitation counsellors, are also unclear. Interest in vocational rehabilitation would probably increase if the economic incentives were greater.

Lastly, the finding that regional and national unemployment rates are associated with rehabilitation outcome, was not surprising either. When people with no health problems have difficulties finding a job, those with disabilities find it even harder. This thesis is further supported by Ravaud *et al.*⁶³ and Larsson.⁶⁴

It may be of interest to relate the present findings to the characteristics of people undergoing vocational rehabilitation, i.e. the long-term sick. Who becomes long-term sick? In a literature review,¹³ Selander concludes that the long-term sick differ from the general population regarding both personal factors and factors related to work. Among them, older people, women, people with low education, smokers, people of foreign origin, unemployed people, blue-collar workers (especially textile and process workers, cleaners and store men), people with no or little social support, people from lower social classes, workers in poor physical working environments and people working in passive jobs or under high stress are all over-represented. Unfor-

tunately the characteristics of a majority of the long-term sick resemble those of people with small chances of job return after vocational rehabilitation.

Conclusion

The present aim was an overview of factors associated with return to work after vocational rehabilitation for neck, back, and shoulder problems. We also wished to discuss these different types of risk factor in relation to each other and in a broader perspective. The study shows a great number of demographic, psychological, social, medical, rehabilitation-related, workplace-related and benefit-system-related factors associated with rehabilitation outcome and with each other. Subjects with a greater chance of return to jobs after vocational rehabilitation are younger, native, highly educated with a steady job and high income, married, with stable social networks, self-confident, happy with life, not depressed, with low levels of disease severity, no pain, high work seniority and long working history and an employer that cares and wishes him or her back to the work place. Unfortunately, such subjects are seldom found among the long-term sick.

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