

## RESEARCH PAPER

**Work-related limitations and return-to-work experiences in prolonged fatigue: workers' perspectives before and after vocational treatment**

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**Abstract**

*Purpose.* To gain insight into fatigued workers' perspectives regarding work experience before and after receiving vocational rehabilitation (VR) treatments.

*Method.* A qualitative survey was conducted using semi-structured interviews with 21 fatigued workers who attended an outpatient multi-component VR treatment. Six months after treatment, work-related limitations and employed VR strategies at work before treatment were explored. Next, VR treatment experiences regarding return-to-work (RTW) were explored. Two researchers performed partially independent, qualitative analyses that revealed topics, discussed by the project team, and organised into domains, categories and sub-categories.

*Results.* Work-related limitations were: symptoms of prolonged fatigue, personal limitations (e.g. lack of self-reflection on individual capacity and limitations), interpersonal factors, activities and conditions at work and life/work imbalance. Before the treatment, VR strategies such as work adaptations, well-intentioned advice and support, and/or referral to psychological or physical care were employed. VR treatment experiences on RTW were: personal challenges (e.g. gained awareness and coping skills), improved activities during work, work adaptations and unresolved problems (e.g. remaining fatigue symptoms and sickness absence).

*Conclusions.* New information about work experiences before and after multi-component VR treatments in workers with prolonged fatigue may help employers, occupational physicians and other caregivers to develop VR strategies that better meet individuals' needs.

**Keywords:** *Fatigue, patient perspective, qualitative interview, vocational treatment, return to work*

**Introduction**

The ability of a worker to perform optimally at work can be affected by having health problems, functional impairments, activity limitations and a range of factors in the individual and environmental context [1]. Prolonged fatigue is a health problem that is associated with impaired functioning [2,3]. Fatigue complaints can be seen as a continuum, ranging from mild complaints of tiredness to severe disabling fatigue that is neither task-specific nor easily reversible [4]. When fatigue is severe and prolonged, individual and social functioning are affected and as a consequence, so is the ability to participate at work. From previous research, we know that various factors are associated with the employment situation of

workers with general health complaints and with fatigue-related conditions. Symptom severity [5,6], cognitive difficulties, behavioural factors [7] and work organisational factors [8] are reported as being associated with sick leave and/or work disability. In addition, perceived health complaints, limitations in daily physical activities, heavy manual work and female gender were found to be prognostic factors for work disability in various chronic (somatic) diseases [9].

Knowing that personal and environmental factors may obstruct work participation in individuals, treatments that focus on diminishing limitations and restrictions affecting work participation should be encouraged. Vocational rehabilitation (VR) treatments are used to facilitate return-to-work (RTW)

and work retention, as well as to prevent future loss of work [10,11]. In addition, these strategies may be of importance because impaired work ability has a negative impact on people's quality of life [12] and has grave economic consequences [13,14].

Due to diverse legislations, differences may occur in the organisation of VR between countries. In the Netherlands, employers have to continue paying the salary of their sick-listed employees during the first 2 years of sickness absence or (temporary) work disability. During these 2 years, both employer and worker must cooperate in the VR process of the sick-listed worker. As a consequence, Dutch outpatient VR treatments that focus on job retention are offered to impaired workers and to workers on sick leave [15,16]. Some of these VR treatments that use multi-component treatment for fatigued workers were evaluated and found to be effective in reducing fatigue symptoms, and improving activities, and work participation over time [17].

As described above, risk factors for being off work have been studied, and treatments that focus on improving work participation of fatigued patients have been previously evaluated. However, perspectives of patients on work-related problems and RTW experiences have rarely been explored. Conducting research from the patient's point of view can provide a better understanding of the problems that patients actually face, how they perceive these problems and how the treatment that is offered is experienced [18–20]. Moreover, this knowledge has the potential to guide the development of VR that better meets patients' needs.

Therefore, we conducted a study in patients with prolonged fatigue complaints who were limited in their ability to perform their job (defined as fatigued workers) and who went on to attend an outpatient multi-component VR treatment. The aim of this study was to gain insight into the perspective of fatigued workers regarding work experiences before and after receiving VR treatment. This study reports on (1) work-related limitations that fatigued workers experienced before receiving VR treatment, (2) VR strategies employed at work before receiving VR treatment and (3) workers' VR treatment experiences of work participation.

## Method

### *Participants*

This qualitative survey was nested within a longitudinal intervention study investigating the outcomes of VR treatments in fatigued workers, provided by three established outpatient institutions. Our target population consisted of fatigued workers

who enrolled (by referral by occupational physicians or self-referred) in one of the outpatient institutions during the period 2006–2008. The outpatient institutions had specific inclusion criteria to select their clients before treatment, including: having complaints for more than 3 months, good command of spoken and written Dutch, being motivated to take part in the treatment and not suffering from a psychiatric disorder. The inclusion criteria to participate in the evaluation study were: aged between 18 and 60 years, fatigue complaints as a main or important symptom, and suffering from functional impairments (i.e. constraints in everyday life) due to fatigue complaints (self-reported). Patients were included in the study after an informed consent procedure. This study was approved by the Medical Ethical Committee of the Academic Medical Center.

In total, 110 patients enrolled in the intervention study. Ten dropped out because of financial problems ( $n=2$ ), lack of time ( $n=1$ ) or motivation ( $n=2$ ), personal circumstances ( $n=2$ ) or because of unknown reasons ( $n=3$ ). The remaining 100 participants agreed to take part in an interview after receiving VR treatment, as part of the intervention study. For the purpose of this qualitative survey, we used a sample of these interviews. A subsample was taken to achieve a sample of fatigued workers with a variety in five factors, reflecting fatigued workers participating in a VR treatment: gender, symptom severity, symptom duration, sickness leave (fully, partly, no sick leave) and outpatient institution where VR treatment was attended. A random sampling strategy was first used to select 30 out of 100 workers stratified per outpatient institution. If this strategy was not successful in obtaining diversity in the sample based on above described five factors, an extra purposive sample was conducted.

### *Vocational rehabilitation treatments*

All workers attended VR treatments, provided by three existing outpatient institutions in the Netherlands. From previous research we know that these three institutions are all using a biopsychosocial-based multi-component treatment [17]. The main aim of the VR treatments was to improve individual and occupational functioning in workers with prolonged fatigue complaints by achieving a normal balance between activity and rest, and subsequently between daily life and work. The VR treatments consisted of a combination of biological/physical components, psychological/cognitive behavioural components and social/work-directed components.

*Biological/physical component.* Physical training included an individualised progressive personal

workout scheme based on daily heart rate levels or graded exercise programme using time-contingent training. Physical training was guided by a movement specialist and/or physiotherapist and exercises were done on bicycle, treadmill, cross-trainer and/or a power station. Physical training was aimed at improving physical fitness, and increasing activity levels and body awareness. Relaxation and breathing exercises were given, aimed to reduce stress and increase body awareness.

*Psychological component.* Group and individual sessions with a psychologist or personal/mental coach used cognitive-behavioural principles aimed at relieving distress and increasing illness knowledge, awareness of perceptions, attitudes and beliefs. Moreover, improving coping strategies and changing dysfunctional behaviour were also goals.

*Social/work-directed component.* RTW sessions (individual or group sessions) with a psychologist or occupational expert addressed patient's attitude towards work, job conditions and work adaptations, and involvement of the social environment (partner). In addition, a patient-tailored phased-RTW plan was made, in which RTW was gradually increased (e.g. gradual increase in number of working hours, work tasks and work demands). These sessions were aimed at increasing awareness of behavioural patterns at work and in private lives, improving coping skills and facilitating work participation. The VR treatments took in total 4–18 weeks with a clinic visit frequency of 3–5 times a week in the first part of the treatment period (1/3), decreasing from two times in the second part to one time a week in the third part of the treatment period. For detailed information about the content of the VR treatments see Joosen et al. [17].

#### *Study design and procedure*

This qualitative survey was conducted 6 months after fatigued workers completed the VR treatment and included questions about the situation of the patient before the VR treatment and after the VR treatment. We used a semi-structured interview based on a topic list. The interview questions were based on earlier research on barriers for work participation in chronic diseases patients [21], pilot interviews and the expertise of the research team. To enable readers to evaluate the possible effects that the researchers' backgrounds might have on their interpretation of the results, the following information is included. The research team had expertise in occupational medicine, psychology and physiotherapy in general, and in conducting qualitative research in work

experiences within several chronic diseases (e.g. rheumatoid arthritis, repetitive strain injury and acute coronary syndrome). All of the researchers helped develop the schedule of questions used in the interviews. None of the researchers knew any of the participants before the start of the VR treatment.

The face-to-face interviews were conducted in a private room in the institution where workers attended the treatment and had an average of 23 min in duration. All interviews were held by MJ (Woman, 27 years, physiotherapist and health scientist and practiced in patient communication and qualitative research) between May 2007 and August 2008. The interviewer explained the purpose of the interview that the interview was confidential and asked for permission to audiotape the interview. Personal demographics, symptom severity and duration and the employment situation of the workers were obtained by questionnaires given before the start of the treatment and 6 months after its completion.

#### *Interview*

The topic list we used in the interviews started with an introduction phase. The interviewer and the worker reviewed the worker's situation regarding employment status from before the start of the treatment to date. Next, the interview contained questions about the worker's situation before receiving the VR treatment: (i) problems experienced with functioning at work and (ii) arrangements/strategies taken at the work site to improve work participation. Questions about the situation after VR treatment included (iii) the extent to which the treatment affected functioning in daily life and (iv) in current functioning at work. When collecting the qualitative data, the interviewer would ask the opening questions, listen to the response and encourage the participants to elaborate their story through questions that emerged from this conversation. Typical questions were: 'How did this affect you?' or 'Would you tell me more about this experience?' Then the interviewer attempted to summarise and check back with the worker to determine whether their summary was correct. This way, the key information captured was checked and it gave workers time to reflect on their answers and correct themselves if they thought that something else had been important. This procedure supports validation of the data. The topics and questions are presented in the Appendix.

#### *Analysis*

All interviews were audiotaped and transcribed verbatim. We used MAXqda software 2007

(Udo Kuckartz, Berlin, Germany) for coding the transcripts. First, we developed a code structure based on the topic list as well as the research questions and used this as a framework. The topics within this framework were: ‘work-related limitations’, ‘VR strategies employed at work’ and ‘VR treatment experiences on RTW’. One researcher (MJ) read and open-coded all transcripts; text fragments were given a code representing this fragment and were assigned to one of the framework-topics. To improve the reliability of the analysis process, a second researcher (JS) read and open-coded three transcripts independent of the first researcher. One interview per institution was selected. The two researchers then compared their codes. At this meeting, different codes were discussed and refined until consensus was reached. Then similar codes were grouped together into an open-coding system. Next, MJ open-coded the remaining transcripts. Within the framework-topics codes were organised in broad domains. Within each domain, we looked for categories and sub-categories that were representative of that domain. This process was discussed in the research team and progressed until main domains and categories emerged. Coding the transcripts took place until saturation of the data was reached to answer the research questions [22,23]. Using this strategy, 21 interviews were analysed. Within this sample, diversity was reached in gender, symptom severity, symptom duration, sick leave and outpatient institutions (see workers’ characteristics below and in Table I).

## Results

### Workers’ characteristics

A total of 21 interviews with fatigued workers, 11 women and 10 men, were analysed. Ages ranged from 34 to 57 years, with a mean age of 47 years. The three VR treatments were equally represented. Before the start of the treatments, the mean duration of fatigue complaints was 3.3 years (ranging from 2 months to 15 years), and 19 workers (90%) had severe fatigue complaints (indicated by a score >76 at the Checklist Individual Strength) [24]. At the time of the interview, 6 months after completing the treatment, six workers (29%) still had severe fatigue complaints. Characteristics are further described in Table I.

### Work-related limitations before VR treatment

In retrospect, fatigued workers experienced a large number of limitations for participating in their work

Table I. Characteristics of the workers ( $n=21$ ).

Variable	Value	
Male	11 (52%)	
Female	10 (48%)	
Age, years		
34–39	3 (14%)	
40–49	9 (43%)	
50–57	9 (43%)	
Duration of fatigue complaints in years, mean $\pm$ SD	3.3 $\pm$ 4.6	
Duration functional impairments in years, mean $\pm$ SD	2.5 $\pm$ 3.8	
Type of work		
Management	6 (29%)	
Consulting	3 (14%)	
Office and administrative	2 (10%)	
Education	2 (10%)	
Financial	2 (10%)	
Health care	2 (10%)	
Technical	2 (10%)	
Aviation	1 (5%)	
Other	1 (5%)	
	Values before the start of the VR treatment	Values 6 months after completion of the VR treatment
Severe fatigue (CIS score >76)*	19 (90%)	6 (29%)
Employment situation		
Paid job, fully at work <sup>†</sup>	2 (10%)	9 (43%)
Paid job, partly on sick leave <sup>‡</sup>	8 (38%)	7 (33%)
Paid job, fully on sick leave <sup>§</sup>	11 (52%)	2 (10%)
No paid job <sup>¶</sup>	0	3 (14%)

\*CIS (Checklist Individual Strength) score above 76 was set as the cut-off point for chronic fatigue and increased risk of sickness leave due to fatigue [24].

<sup>†</sup>Workers with an employment contract and working 100% of the contracted working hours.

<sup>‡</sup>Workers with an employment contract and working less than 100% of the contracted working hours.

<sup>§</sup>Workers with an employment contract and being absent from work for 100% of the contracted working hours.

<sup>¶</sup>People with no (longer an) employment contract.

situation before the start of the treatment. We organised these problems into six domains: (1) symptoms of prolonged fatigue, (2) personal limitations, (3) interpersonal factors at work, (4) activities during work, (5) work conditions and (6) life/work imbalance. These domains are further discussed below. Table II summarises the findings and provides illustrative quotes to support the domains on work-related limitations before VR treatment.

*Symptoms of prolonged fatigue.* Almost all workers mentioned that mental and physical symptoms associated with the prolonged fatigue condition influenced their ability to work: being too tired to

Table II. Work-related limitations before VR treatment, presented in domains, categories and subcategories including representative quotes of individual workers per domain.

Domains	Categories (subcategories)	Illustrative quotes
Symptoms of prolonged fatigue	– Reduced concentration	P02.02: As soon as I got tired, which happened quite soon during the day, I had difficulty concentrating and remembering things. In the worst case, I had problems with typewriting, like mistyping numbers. I couldn't think straight and was very slow in processing information. (Female 34 years; VRI1)
	– Physical limitations	P02.09: During long flights, I got migraine headaches and felt nauseous. They came out of nowhere, getting worse slowly. Then it just takes a lot of energy to keep the rudder straight. (Male 54 years; VRI1)
	– Lack of energy/being exhausted	P02.09: and because of this [Fatigue] you can't set priorities properly. You can't respond adequately and fast enough to what is needed and that is very annoying. (Male 54 years; VRI1)
Personal limitations	– Cognitive limitations (Incapacity to assess situations; Difficulties with processing information; Memory loss)	P03.13: ... good advice was given, but I was quite stubborn and I didn't want to see it [that I was doing badly]. Because you're afraid that if you give up, you failed. Or at least, that others might think so. (...) I just wanted too much, and I wasn't clear in indicating when I had no time and when I didn't feel like it. (...) I was working long days, and at some point you're in this situation that you completely forget yourself. (Male 52 years; VRI2)
	– Self-reflection (Difficulty defining own limits; Difficulty to set limits to current capacity; Not receptive for feedback)	P02.08: ... you need to adjust your life to your new situation and discuss this [process] each week or each month. But I just wanted to do something from which I hoped to get better and regain my health. (Female 41 years; VRI1)
	– Emotional problems (Fear of sickness absence; Not accepting having prolonged fatigue complaints and limitations; Lack of self-confidence/doubting own abilities; Lack of persuasiveness)	P03.03: What was part of the problem as well, (...) was the way the job was changing. The reason why I once choose to do this work, the current policies and various measures from the government [changed]. My vision [on the job] was different than the organisation's vision. For years this has been the same, but it got more and more divergent. (Female 41 years; VRI2)
	– Attitude towards work organisation	
Interpersonal factors at work	– Interpersonal relationships with co-workers (Not being able to function socially; React negatively on social environment/feeling irritated; Dealing with contradictive ideas about work ethic)	P03.06: Non-verbally, I expressed myself as: 'stay out of this' (...). I've been keeping everyone and everything out; I stubbornly continued to do my work and, therefore achieved a negative effect. (...) [Coping with colleagues and supervisor] went bad. I wasn't open to reason. I constantly tried to defend myself because I was trying so hard. But that wasn't the problem; I just couldn't take it anymore. (Female 42 years; VRI2)
	– Interpersonal relationships with supervisor and occupational physician (Negative attitude of employer towards limitations of the worker; Employer perceives limitations but worker not)	P03.03: I mentioned [to my supervisor] that I didn't want to work there anymore. Because the vision they have and the way they want to organise it [the work] (...) I don't think that it will work with the colleagues in that team. (Female 41 years; VRI2)
		P03.08: They [supervisors] were afraid I would collapse at some point. I had many headaches and physical complaints such as colds that stayed on. Normally you would recover within a few days, but they [the complaints] stayed on and they turned into chronic complaints. I wasn't on sick-leave, but they [supervisors] noticed my complaints at work. (...) At some point, they sent me home. In the first week nothing happened, I was just angry that I was sent home. Then, the second week, I collapsed completely, I couldn't even get off the couch. (Female 43 years; VRI2)
Activities during work	– Limited work capacity	P03.13: He [the supervisor] noted that the quality of my work declined because of the amount of work I wanted to do. I could no longer fulfil all these things. (...) I had unfinished work everywhere, but nothing was completed. I had answered all the questions, but not in the way I wanted to answer them. One moment, I had piles of work, and then, increasingly, the pressure rises. (Female 41 years; VRI2)
	– Diminishing output	P04.18: I couldn't handle the class, that was the problem. I could not discuss this with my supervisors, nor with colleagues, and I was up to my ears in work. I mean, during the weekend I worked 12 hours on Saturday, 12 hours on Sunday and I couldn't manage it. So I needed help, my husband helped me; he took over parts of my work. Especially checking homework, filling in grade lists, because I made many mistakes doing that. [I spent] hours filling in grades and when I arrived at school on Monday, I discovered I forgot to click on save, and everyone said: 'Well, you did not hand in the grades!'. Then I thought, shit, I worked 12 hours yesterday. (Female 52 years; VRI3)
	– Limitations in the process of work (Difficulty performing and structuring work tasks; Making mistakes at work; Inability to handle demanding situations appropriately)	P02.09: I couldn't function properly in the cockpit, I felt like I experienced the outside world around me as through a haze. Often I couldn't respond adequately to things that were necessary or responded too slow. I knew this, I felt it, but I couldn't change it and that was very frustrating. (Male 54 years; VRI1)

(continued)

Table II. (Continued).

Domains	Categories (subcategories)	Illustrative quotes
Work conditions	<ul style="list-style-type: none"> <li>– Experiencing too much work stress/pressure</li> <li>– Problems with noise in work environment</li> <li>– Problems with irregular working hours</li> <li>– Difficulty with commuting</li> <li>– Negative atmosphere at work</li> </ul>	P03.07: I was working on routine, but the organisational structure and work procedures changed and that was very difficult for me. As long as it remained the same, I would have been able to manage the work, but because of all the changes and stuff [I couldn't]. (Male 56 years; VRI2)
		P02.06: everything just goes slower and you try to keep up. But you just feel like you are failing, it is like you're on a soapy slope trying to climb up. But you still try to do things; you try to do what you want to do because you are hired for that job after all. (Female 54 years; VRI1)
		P03.11: My concentration is bad. My room is very busy, people talk a lot and the phone is ringing a lot. So it takes a lot of energy to ignore it and to focus on my own work. (Female 38 years; VRI2)
		P03.03: For about 8 years I have done 24 hour shifts. That is, early or late shifts, sleeping or weekend shifts and during holidays. I had thought before 'I don't want to do that anymore, I want [to work] from Monday to Friday'. But in this work [it is not possible], and you still enjoy it ... But I was struggling with this more and more. (Female 41 years; VRI2)
		P04.15: ... people [at work] were complaining and were unsatisfied [with the situation at work]. This led to bad collegiality and created friction. (...) It [the team] was no longer a 'well-oiled machine'. (Male 56 years; VRI3)
Life/work imbalance	<ul style="list-style-type: none"> <li>– Problems with finding the balance between demands in work and private life</li> </ul>	P03.13: My children already moved out, but I couldn't give attention to ... Some attention for this, and some for that. (...) but I couldn't give enough attention to work and not enough to my private life. I was trying to find the balance. (Female 41 years; VRI2)
		P03.05: If everything is in balance: work, home and of course just taking care of yourself, keeping in shape and not neglecting your personal health, you are able to handle a lot at work. And you know it is not a problem. But the other two [factors: home and personal health] should stay in balance. There it went wrong and it made that I could no longer function at that high level. (Male 43 years; VRI2)
		P03.03: I realised, ... that it was a combination of private life, work, irregular working hours and the problems at home that I had to deal with at work, that was the problem. (...) This was the reason for me to call in sick ... that a situation at work referred to my problems at home in a way that it made me unable to work anymore and unable to return. (Female 41 years; VRI2)

function at work and in private life, tasks took too much energy and/or more than normal, experiencing a lack of concentration, and having physical complaints, such as muscle and headaches. Cognitive difficulties, such as lacking the ability to assess situations properly and set priorities, and difficulties with processing information and memory loss were also mentioned as limiting work ability.

*Personal limitations.* Three categories were found concerning personal problems: lack of self-reflection, emotional difficulties and attitude towards work. With respect to self-reflection, workers mentioned having difficulties defining their own limits and setting limits to their current capacity. Because of their fatigue complaints, energy supplies had dropped and so did their general work capacity. It was hard for workers to adjust and take 'a step back'. Another barrier related to self-reflection was that workers noted that in retrospect, they were stubborn, did not want to show that they were not doing fine and were afraid to fall short. This attitude led to not being receptive to feedback from co-workers and/or supervisors.

Being afraid of having a relapse and doubting oneself and their one's own abilities were emotions which were mentioned as affecting work ability. Moreover, the feeling of being unable to persuade others and or to persuade oneself was mentioned. Furthermore, not accepting their condition, their limitations and the fact that they had to adjust their life to their disability were noted as barriers to functioning at work.

Additionally, workers stated that a negative attitude towards work was limiting their ability to participate. This attitude became negative with reorganisations in progress which workers found frustrating (to not have control), which they could not unite with or which gave them a feeling of distrust concerning their position in the organisation.

*Interpersonal factors at work.* Interpersonal barriers at work were mentioned, especially in relationships with co-workers. Workers had difficulties in performing social activities (e.g. socialising with co-workers), reacted negatively on their social environment and also feel irritated. In addition, a few workers mentioned having different ideas about work ethic

and changes made in the organisation structure; this led to misunderstandings with co-workers.

Barriers to participation were also mentioned in the relationship with supervisors and occupational physicians. Some workers felt that their employer did not really listen to their complaints and their perceived limitations and they felt misunderstood. However, one worker noted that her supervisor was concerned about her health condition but she herself was not.

*Activities during work.* We organised problems concerning activities during work into limited work capacity, diminished output of work, and difficulties in processing work. In general, limited individual work capacity and not being able to handle the responsibility of the job were mentioned. Workers also noticed their work output or quality of work was reduced. With regard to processing work, workers had difficulties performing work tasks, their work pace slowed down, they lost control of work, and they had difficulties structuring work tasks. Workers made mistakes, were not responsive during work and could not appropriately handle critical situations. These limited and/or reduced activities at work were affecting participation and well-being at work. Often, workers mentioned they had multiple problems with performing activities.

*Work conditions.* Experiencing too much pressure at work (overload), a noisy work environment, irregular working hours and commuting to and from work were mentioned a lot as demanding work conditions. Workers mentioned that in some cases they experienced pressure at work because of changes in organisation structure or work procedures, which they could not keep up. As long as nothing changed, they would have been able to manage because of their experiences. Next, a negative atmosphere at work was also mentioned as being a problem for participation. This type of atmosphere led to poor work relationships, and workers felt inhibited to talk about their problems in these conditions.

*Life/work imbalance.* With respect to life and work, workers struggled to find a balance between demands at work and in their private life. When private life claimed attention from the worker, workers mentioned that it was difficult to concentrate and to keep on functioning at the same level at work. Moreover, demands at work that referred directly to unresolved personal problems or problems at home made it difficult to participate at work and in one case was the direct reason to call in sick.

### *VR strategies employed at work before VR treatment*

Various VR strategies were conducted at the work site before the workers started the outpatient vocational treatments. These strategies were employed by the worker's employer to prevent and/or reduce sickness absence and improve work participation. Domains concerning employed strategies were as follows: (1) work adaptations, (2) advice/communication and (3) referral strategies. In addition, failed strategies were also mentioned. The strategies are discussed below and summarised in Table III, including illustrative quotes.

*Work adaptations.* Employers used various strategies to facilitate work participation by modifying job conditions; work tasks and work demands were reduced, work content was adjusted by switching jobs within the organisation and working hours were scheduled more flexibly according to current work capacity. Often these adaptations were made in accordance with the worker; however, sometimes workers were complaining that individual preferences were not taken into account. Before the start of VR treatment some workers were fully or partly on sick leave. Employers tried to facilitate the RTW process by tailoring the number of work tasks and working hours a week.

*Advice/communication.* Workers received support from their co-workers by showing understanding for their situation and giving feedback about their work capacity and functioning. For some workers, the occupational physician and/or the supervisor gave supportive communication and advice (e.g. 'when you feel very fatigued, first take rest and take off from work to recuperate'). However, this advice did not always lead to positive results, since some workers mentioned being stubborn about taken advice.

Several workers mentioned that they communicated with their supervisor about their impairments and limitations and/or had monthly evaluations regarding the RTW process. In addition, in some cases strategies for coping with specific problems faced at work were discussed with the supervisor.

*Referral.* Next to conducting VR strategies at the work place, employers also used external services to facilitate work participation. A few workers were referred to individual (company) physiotherapy care, social work, mental coaching and/or career counselling. Although these services were sometimes perceived as helpful, none was effective to improve work ability sufficiently.

*Failed strategies.* A few workers noted that either they or their employer tried to make VR arrangements but failed because it was not possible to find a suitable

Table III. Strategies employed at work before VR treatment, presented in domains, categories and subcategories including representative quotes of individual workers per domain.

Domains	Categories (subcategories)	Illustrative quotes
Work adaptations	<ul style="list-style-type: none"> <li>– Adjust work tasks</li> <li>– Switch to another job within the organisation</li> <li>– Diminish pressure at work</li> <li>– More flexible working hours</li> <li>– Adjust number of working hours</li> </ul>	<p>P03.03: then they offered me a different place to work, but that didn't fit my preferences. It was more like, this way you stay within the organisation and you keep working the same hours. But they didn't take into account what you had done previously, what you had achieved, what your preferences were and what matched to what was happening to me personally. They didn't take that into account. (Female 41 years; VRI2)</p> <p>P02.02: For instance, changing the time I started the workday. There was a time, that I worked just as long as I could, as often as I could and was partially on sick leave. (Female 34 years; VRI1)</p> <p>P03.11: I have worked less hours for a while. And sometimes I started an hour later, so that I had time to rest before I went to work in the morning. (Female 38 years; VRI2)</p> <p>P04.33: When I was on sick leave full-time they said I should at least come over for coffee, just to be present [at the work site]. Later, I started to read my email and similar tasks, and, at some point, I worked 2 times 2 hours. (Male 38 years; VRI3)</p>
Advice/ communication	<ul style="list-style-type: none"> <li>– Support from co-workers and supervisor</li> <li>– Advice from supervisor and occupational physician (Advice to keep physically active; Advice to take rest; Supportive communication)</li> </ul>	<p>P04.39: Everyone was surprised that it [sick leave due to prolonged fatigue complaints] happened to me, it happens to the best, apparently. One colleague supported me a lot and often pointed out to me that I was overdoing it, exceeding my limits. (Male 49 years; VRI3)</p> <p>P03.08: The occupational physician knew [about the fatigue complaints] and said: stay at home, stay at home, stay at home. But, I didn't want to. So I made a lot of effort . . . phoning people, putting things into action; to make sure that in some way or another I could return to work quickly (Female 43 years; VRI2)</p> <p>P03.07: During the conversations I had with my supervisor every 14 days, it [fatigue complaints] was a topic of conversation [ . . . ] He gave advice too, but I think I was a bit stubborn, in a way that I simply didn't see the point in the suggestions he made. ( . . . ) At that time he did try to stimulate me, he was good at that. Until I just couldn't manage anymore. (Male 56 years; VRI2)</p>
Referral	<ul style="list-style-type: none"> <li>– to (company) physiotherapy</li> <li>– to a social worker</li> <li>– to a career counselling</li> <li>– to a mental coach</li> </ul>	<p>P04.33: The occupational physician referred me to social work. ( . . . ) I went there once, but I didn't think it suited me. The advice he gave me . . . I already did those things; it [guidance] didn't work out. Then, I was sent to a company physiotherapist for relaxation exercises mainly because I was tight with tension. At that time I didn't really work. (Male 38 years; VRI3)</p> <p>P03.03: [The occupational physician] told me to go to the LAK, that's the career advice centre within our organisation, to see if you can work somewhere else. That is how I ended up at that last working place, but it was counterproductive. (Female 41 years; VRI2)</p>
Failed strategies	<ul style="list-style-type: none"> <li>– Measures tried to take, but did not manage to</li> <li>– Inadequate/insufficient action</li> </ul>	<p>P04.32: I tried to give the workmen [other co-workers] more responsibilities, but that was very difficult because one didn't want to and the other couldn't. (Male 49 years; VRI3)</p> <p>P03.06: I almost went on sick leave before and had previously said, 'this is not working anymore', that I didn't like it anymore and I couldn't handle it. ( . . . ) Then they [supervisors] said they were going to take some work off me and they did. But at the same time, 4 or 5 [projects] came in. They hadn't noticed how deep I was in. (Female 42 years; VRI2)</p> <p>P04.15: [Work adjustments] couldn't be achieved. If they [supervisors] had just listened to me, when for example I said I don't agree with this and they had given in . . . But, you simply weren't heard, yes, they were listening superficially but they didn't do anything. (Male 56 years; VRI3)</p>

replacement to take over tasks, it was impractical to reduce responsibilities or it did not manage to delegate tasks. Also, workers mentioned that supervisors were not really listening to their complaints and limitations or that they were listening but did not take action. Some workers mentioned that no other strategies but the VR treatments were employed.

#### *VR treatment experiences on RTW*

Workers' VR treatment experiences regarding RTW and work participation concerned three domains: personal challenges (i.e. improved awareness, coping skills and confidence), improved activities during work and work adaptations. The domains are

discussed below and summarised in Table IV, including illustrative quotes.

*Personal challenges.* Improved personal factors, especially awareness, were mentioned. During the treatment, workers learned meta-cognitive skills about their functioning in private and working life. Workers mentioned being more aware of themselves and their wishes, thoughts and attitudes towards work. This awareness helped them gain insight into their own capacity and pitfalls.

Being aware of their personal identity and knowing their abilities and limitations was important before learning how to deal with these personal characteristics. Workers mentioned that learning coping skills helped them to participate at work. In general, workers mentioned learning how to deal with their limitations and how to protect themselves from exceeding their capacity (i.e. learning to set boundaries and how to ‘say no’). Workers also learned tools to cope with their condition at work (e.g. using relaxation techniques or taking breaks) and/or with

Table IV. Workers’ RTW experiences regarding the attended VR treatment in relation to work participation, presented in domains, categories and subcategories including representative quotes of individual workers per domain.

Domains	Categories (subcategories)	Illustrative quotes	
Personal challenges	<ul style="list-style-type: none"> <li>– Awareness (Being more aware of oneself; Exploring wishes and thoughts/ cognitions towards work; Knowing their own capacities and limitations)</li> <li>– Coping (Coping with limitations; Learning to protect oneself; Learning tools to cope with (fatigue) symptoms/disease; Learning a different work strategy)</li> <li>– Confidence (Gaining self-confidence)</li> </ul>	<p>P04.39: not by the theory that was educated, but particularly by the group discussions, I realised that it was foolish that way I was working. It just was mad what I did, and unnecessary as well. During my [VR treatment] I started to work again and I tried to apply what I had learned. (Male 49 years; VRI3)</p> <p>P03.13: pitfalls will always remain. I did learn that, when I really don’t want to do something, I don’t. And when I think: ‘this becomes too much’, I take an afternoon off. I just go away. And that’s not running away [from the problem]. It’s reading a nice book at home, ‘building up reserves’, dealing with it my way. (Female 41 years; VRI2)</p> <p>P04.14: Body and mind both didn’t work properly. Then you start to doubt yourself a lot and this program has really helped, in that you can do things without getting tired. And that gave me back a little confidence, like ‘I can still do more than I expected’. When I left [VR treatment] after three weeks, I continued going to the gym, to work on my physical fitness and being active. Before I would have never started that. (Male 46 years; VRI3)</p>	
		Improved activities during work	<p>P03.06: Here [VR treatment] they first made sure that you improved physically, so you felt fitter, so you can think more clearly. Secondly, by the total programme, they made you aware of the problems you are facing, what your weaknesses are and how to tackle them differently? And that really made me think. The fact that the physical training is there, ensures that you get stronger and become more able to think. (Female 42 years; VRI2)</p> <p>P04.39: I found it very disappointing that I was not allowed to return to 40 hours immediately, because I felt quite capable to work 40 hours. But at the same time that was my pitfall. ( . . . ) I went back to my normal work again, and I felt capable of doing it, I dared to take responsibility, felt energetic and was able to work throughout the day. (Male 49 years; VRI3)</p> <p>P04.39: I think I am on my original level, with everything I have learned, at least in terms of work I am back at the level before my depression two years ago. Including things just going well automatically. (Male 49 years; VRI3)</p>
			<p>P04.32: First, tasks were reduced to make it easier to come back. Then a new colleague started, so parts of the tasks were divided. Hereby, the workload was clearly less. (Male 49 years; VRI3)</p> <p>P04.33: I am just doing the same work, only less hours. ( . . . ) I have applied for a WIA [disability pension], because I worked 28 hours before and we decided that the goal was to go back to 20 hours. But, I had the feeling that between 16 and 20 hours would be reasonable and we have now reached 16 h. (Male 38 years; VRI3)</p>
Work adaptations	<ul style="list-style-type: none"> <li>– VR strategies at work employed</li> </ul>	<p>P04.32: . . . this [VR treatment] opens your eyes to who you really are. You will recognize your pitfalls and know how to handle them. ( . . . ) But it doesn’t always work out [to cope with pitfalls]. I sometimes get kicked back. (Male 49 years; VRI3)</p> <p>P02.08: [The program hasn’t helped] in that I have returned to work, because I didn’t improve that much yet. I had really hoped I would have, and I had expected it. You think you will start and after 18 weeks I’ll be up and running again and be able to do anything. Well, that was disappointing. (Female 41 years; VRI1)</p> <p>P02.02: My body is stronger, so that’s handy when you have to walk the stairs. But in terms of concentration and getting tired of conversations or just noise around me or whatever, no that hasn’t improved. (Female 34 years; VRI1)</p>	
Unresolved problems	<ul style="list-style-type: none"> <li>– No full-time return to work achieved</li> <li>– Fatigue symptoms remain</li> <li>– Not accepting limitations</li> <li>– Difficulty to coping with limitations</li> </ul>	<p>P04.32: . . . this [VR treatment] opens your eyes to who you really are. You will recognize your pitfalls and know how to handle them. ( . . . ) But it doesn’t always work out [to cope with pitfalls]. I sometimes get kicked back. (Male 49 years; VRI3)</p> <p>P02.08: [The program hasn’t helped] in that I have returned to work, because I didn’t improve that much yet. I had really hoped I would have, and I had expected it. You think you will start and after 18 weeks I’ll be up and running again and be able to do anything. Well, that was disappointing. (Female 41 years; VRI1)</p> <p>P02.02: My body is stronger, so that’s handy when you have to walk the stairs. But in terms of concentration and getting tired of conversations or just noise around me or whatever, no that hasn’t improved. (Female 34 years; VRI1)</p>	

specific limitations at work (e.g. learned to use a more efficient work strategy). In addition, workers mentioned that their self-confidence increased and/or that the treatment helped to reduce concerns about their physical complaints.

*Improved activities during work.* Workers mentioned that by attending the VR treatment their mental and physical functioning improved. They were feeling stronger physically (e.g. using the stairs more easily) and mentally (e.g. emotionally more capable to work). Workers also mentioned that physical activity during the treatment regained their energy level and improved their ability to concentrate as well as think clearly.

With regard to RTW strategies, some workers who were on sick leave used a plan to gradually RTW. These plans were patient-tailored and discussed together with the worker, their supervisor and a treatment caregiver. Work tasks, work demands and working hours were customised and were intended to gradually increase during the RTW phase.

Some workers were able to work at their former capacity and/or perform even better due to the coping strategies learned (e.g. 'I work better because I take more time and space for doing my job properly').

*Work adaptations.* Workers mentioned that they were able to participate better at work because of changes made in the work setting. These modifications were influenced, directly or indirectly, by the treatment and included arranging to work fewer contractual hours, reducing workload due to extra manpower or deciding to quit the current job to make a career turn.

*Unresolved problems.* Some workers mentioned that they had not yet achieved full-time RTW and/or were still suffering from fatigue complaints and limitations in daily life and work. Furthermore, workers stated that it was sometimes hard to cope with their limitations despite learned coping skills. One worker said she did not accept her condition and remained suffering from limitations.

## Discussion

First, this study highlights perceived limitations to participate at work in fatigued workers. In general, fatigue symptoms and personal limitations, such as lack of self-reflection on individual capacity, were perceived as limiting work ability. Work issues concerning difficulties with interpersonal relations, performing activities during work, demanding work conditions and work/life imbalance were problems

that affected participation. Second, by conducting this study, insight into the VR strategies that were conducted at the work site by the employer to prevent further sick leave and/or facilitate RTW was gained. Overall, several work adaptations were made. On personal level, co-workers and supervisors showed support, and psychological or physical care was given. Lastly, this study reports on workers' experiences of attending an outpatient multi-component VR treatment on work participation. Afterwards, fatigued workers had positive experiences towards work including personal challenges (i.e. increased awareness, coping skills and confidence), improved activities during work and several work adaptations. However, in some workers, satisfactory recovery was not achieved.

Our results are partly in line with previous research concerning risk factors for work loss or work disability. These studies confirm that lack of support from co-workers or supervisors [21], demanding working conditions, problems with social relations [25] and work-family conflicts [26,27] limits workability in fatigue-related conditions. Interestingly, our findings emphasise personal factors that also limit workability. Although personal characteristics such as lack of self-acceptance, self-efficacy [21] cognitions and behavioural factors are known to be related to fatigue complaints [7], according to our results, lack of self-reflection and lack of awareness of reduced capacity were mentioned to limit workability. Workers mentioned that in the period before receiving VR treatment, they were not aware of their own capacity and limitations. Moreover, they were stubborn and not receptive to any advice or feedback on their ability to function. In other words, workers were not aware of their behaviour and their abilities and could not correctly interpret advice that was given.

In this view, it is not surprising that the numerous VR strategies employed in the work situation before receiving the VR treatment were not as effective at achieving satisfactory recovery and work participation. This was especially true because these strategies mainly consisted of work adaptations and support and advice from co-workers and supervisors, to which workers were not open at that time. Finally, in all workers, the decision was made to start an external multi-component VR treatment. These treatments all included physical, psychological (e.g. cognitive behavioural therapy) and work-directed components using a biopsychosocial approach in guiding their patients [17]. We found that workers gained awareness of their personal identities, capacities and limitations during the treatment. Additionally, workers learned to reflect on their cognitions, emotions (illness perceptions) and their behaviour, and learned to cope with their limitations

and to protect themselves from exceeding their personal capacities. Workers expressed that learning about these perceptions and behaviours affected their work participation positively. Next, we found that functioning at work was improved by means of formulating a phased-RTW plan. This plan, initiated by the VR treatment, was made in accordance with the worker, employer and care givers of the treatment and was tailored to the worker's work capacity.

We found that the vocational strategies made at the work site before the treatments were almost identical to the aspects addressed in the VR treatments; both addressed work adaptations and advising workers about dealing with functional problems. However, during the VR treatments, prominent attention was given to personal factors that hindered the ability to change workers' behaviours. In addition, these perpetuating personal factors were treated, leading to recovery. Workers see additional value for the process of their recovery and RTW in learning to recognise their own behaviour patterns at work and in their private lives, and, subsequently, in training to cope with their limitations and capacities. We think that the outpatient setting of the VR institutions is of importance for this process. By taking the worker out of the work site, perpetuating personal factors can be examined and interfered with thoroughly, without being distorted by relations at work. However, it is of importance to also involve the workplace and provide an active role for the employer in the rehabilitation process because we know that this can facilitate RTW [10,28,29].

Not all workers had positive experiences, and unsolved limitations were also mentioned. These remaining problems concerned fatigue symptoms, difficulties coping with limitations and not yet being able to work full-time. Huibers et al. [7] found that recovery from prolonged fatigue and resuming work entangles different underlying processes and that improved health perception and RTW do not necessarily coincide. This observation is in line with our findings because workers with a wide variety of fatigue severities, duration of fatigue complaints, functional impairments and employment status were included. Consequently, individual differences in duration of the recovery process are to be expected.

The work-related problems experienced by fatigued workers and their experiences after receiving VR treatments, revealed by this current study, have important implications for professionals for the design of treatments for fatigued workers. Professionals need to consider perpetuating personal limitations which could hinder recovery. Strategies to deal with these problems seem important for treatment, in combination with conducting VR strategies at the work site (e.g. using gradual RTW

plans and involving the employer in the RTW process). For employers it might be difficult to recognise and cope with the complexity of fatigue conditions and impaired personal factors of their employees. Cooperation with health care providers and combining forces to employ patient-tailored VR strategies at the work site are recommended.

The first two questions of the current study regarding experiences before receiving VR treatment were explored retrospectively. The interviews took place 6 months after the treatment was followed. Therefore, recall loss has the potential to be an issue. However, workers had experienced fatigue complaints and functional impairments for many years; thus, their condition was not a fleeting phenomenon. In addition, research has demonstrated that people are able to remember with good accuracy events related to their ability to perform tasks and actions for as long as 10 years following complaints [30]. For some workers, details were sometimes difficult to recall (e.g. exact dates). However, the majority of the workers could, during the interview, recall detailed memories of the events and feelings before the treatment. Therefore, it would appear that loss of recall was not highly prevalent. Nonetheless, recall bias may remain a threat since participants' memories may change or distort over time. On the contrary, by using this method, we were able to highlight 'new' insight into problems faced by fatigued workers. It takes reflectivity to recognise your own problems and interpret what exactly it was/is that limits you. By the richness of the results of this study, we know that workers had this reflectivity at the time of the interview, but might not have had in the period before the treatment when suffering from prolonged fatigue complaints. So, the workers in this study all participated in a VR treatment and were motivated to change their health and work situation, as being motivated was an inclusion criteria set by the individual VR treatments. This issue should be taken into account when interpreting and trying to generalise the findings. This is one qualitative study in an area that is currently not well-investigated. Findings only reflect what is considered important by this specific group of participants. That is, workers with prolonged fatigue complaints with functional impairments, who participated in a VR treatment. Besides, motivation may have influenced the findings in this study since it is plausible that motivated workers have different views on return to work than non-motivated workers. However, as we included only workers who were 'normally' enrolled in the VR treatment, our sample seems to reflect a considerable patient group in real life practice.

In conclusion, whilst aggravating working conditions, difficulties with activities during work, and interpersonal relations, all play roles in limiting

workability; the current findings suggest that lack of self-reflection on individual capacities and limitations also greatly affects work ability in fatigued workers. Vocational treatments that encouraged participant reflection on personal characteristics and life- and work style, learning coping strategies, and phased RTW positively affected work participation. These findings stress the importance of involving personal factors in the process of recovery and RTW beyond modifying the worksite. These results are useful for employers and professionals working in the occupational health field with impaired fatigued workers in the development of VR strategies that better meet patients' needs. To apply these results in other populations, researchers should reproduce this study in different settings, for example in other countries with different social systems.

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## Appendix

Topics and interview questions in a semi-structured interview

*Employment situation and timetable from start of VR treatment to date*

1. starting date of the VR treatment
2. employment situation before the start of VR treatment
3. occupation before the VR treatment
4. time schedule from the start of VR treatment to date

*Work-related problems faced before VR treatment*

Which problems did you experience that prevented you from participating in your work environment?

- What was it about this barrier that was a problem at work?
- How did it affect your work?

*Strategies employed to improve work participation (before VR treatment)*

Were there any strategies taken to improve functioning at work?

- What were these strategies?
- How did you experience these strategies?

*VR treatment experiences*

Did attending the VR treatment affect your ability to function?

- How did attending the VR treatment affect your ability to function at work?