Return to work for temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders

Sylvia J. Vermeulen

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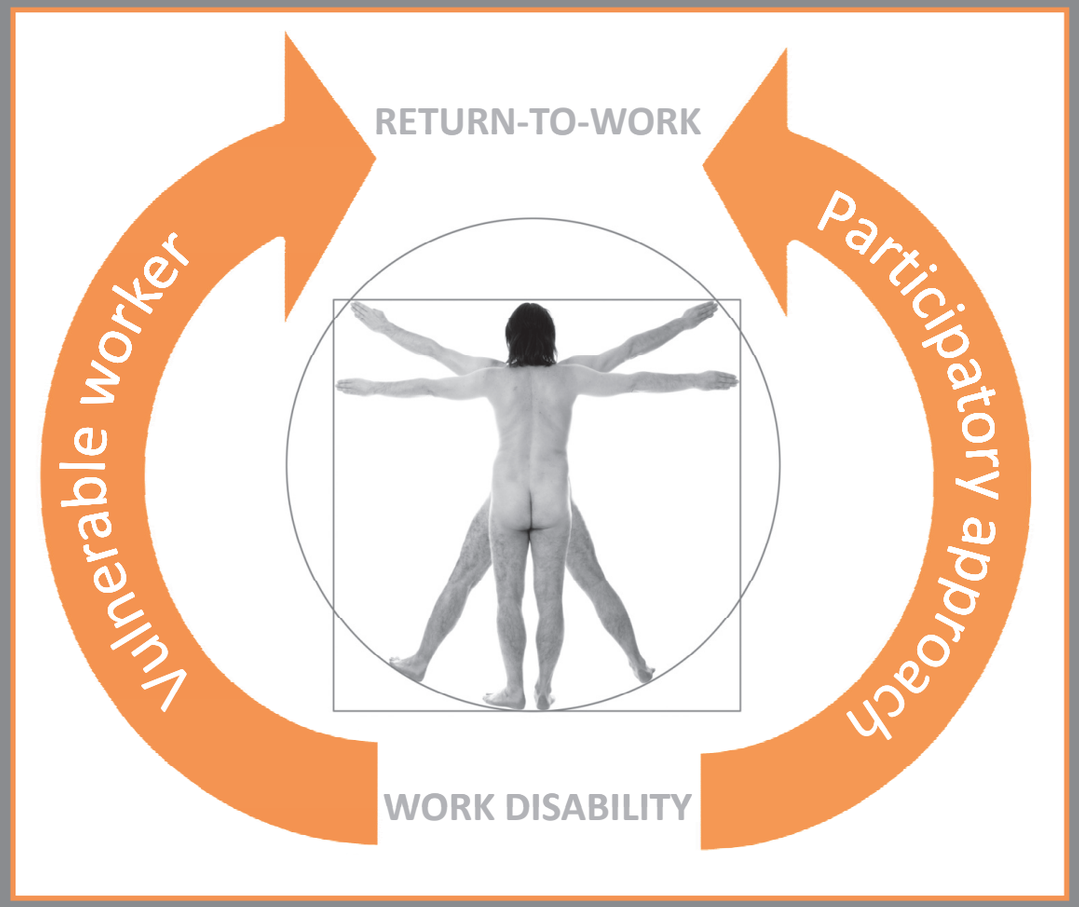

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The study presented in this thesis was conducted at the EMGO+ Institute for Health and Care Research, Department of Public and Occupational Health of the VU University Medical Center Amsterdam, The Netherlands. The Department of Public and Occupational Health of the VU Medical Center participates in the Dutch Research Center for Insurance Medicine, which is a joint initiative of the VU University Medical Center (Department of Public and Occupational Health, EMGO+ Institute for Health and Care Research), Amsterdam Medical Center, the University Medical Center Groningen, and the Dutch Institute for Employee Benefit Schemes (UWV). The EMGO+ Institute participates in the Netherlands School of Primary Care Research (CaRe), which was re-acknowledged in 2005 by the Royal Dutch Academy of Arts and Sciences (KNAW).

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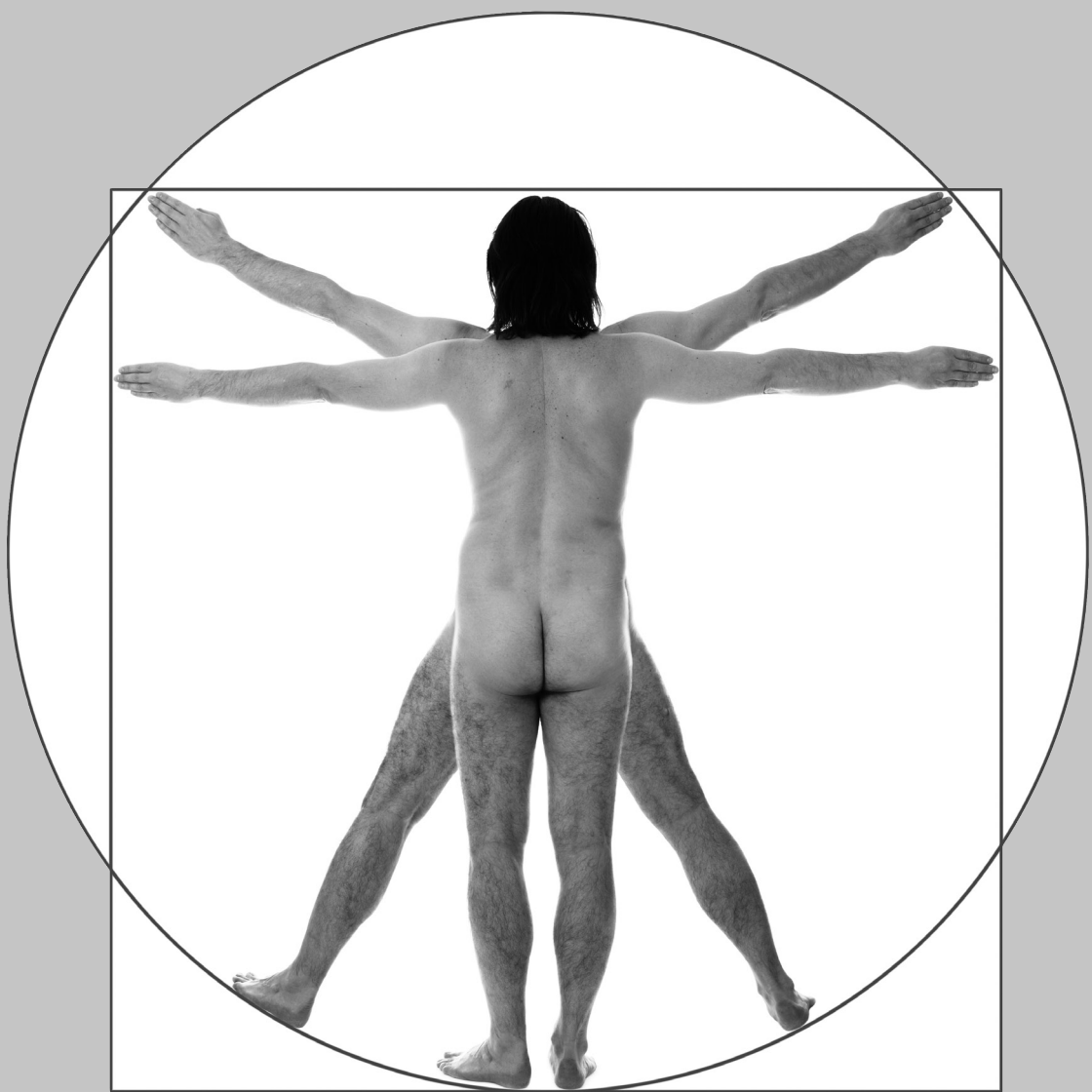
CONTENT



Chapter 1

General introduction

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Work disability: focus on vulnerable workers with non-traditional employment

The substantial socioeconomic burden of long-term sickness absence in industrialized countries has been underlined by various authors[1-7]. To illustrate, the total cost of illness in Canada in 1998 was an estimated 159.4 billion Canadian dollars (~95 billion Euros) with indirect costs due to short-term and long-term disability representing 6.2% and 20.2%, respectively, of the total annual cost[8]. Furthermore, in the UK in 2007-2008 the annual economical costs due to absence from work amounted to well over 13 billion pounds (~18 billion Euros)[9,10]. Notably, long-term absence (20 days or more) accounted for a massive 40% of all time lost, costing 5.3 billion pounds[10]. In addition, in 2009, at a cost of 16.8 billion pounds (~19 billion Euros) absence from work remained a significant burden to the UK economy[11]. In line with these figures, in the Netherlands, in 2008 sickness absence represented a substantial financial burden for employers with costs amounting to nearly 11 billion Euros[12]. Furthermore, the annual costs for work disability benefits paid by the Dutch Institute for Employee Benefit Schemes in 2007-2008 were approximately 17 billion Euros[13] and even approaching an annual cost of nearly 20 billion Euros in 2009[14]. To further illustrate, the total cost of neck pain in The Netherlands in 1996 was an estimated 535 million Euros[15]. Moreover, Lambeek and colleagues estimated the total costs of back pain in 2007 at 3.5 billion Euros[1]. However, it was not until recently, that sickness absence and related chronic health problems are increasingly considered a public health problem in the general medical literature[16]. In line with this, prevention of (long-term) sickness absence and work disability is nowadays an established topic in the field of occupational health care research. Moreover, there is an upcoming need for evidence-based practise and clinical practise guidelines among occupational health care professionals[17-22]. From this perspective, development of evidence-based occupational health care can be achieved, for instance, by identification of prognostic factors for work disability, by development of theoretical (prognostic) models for return-to-work (RTW), and also by development of (cost-)effective RTW interventions.

Focussing on RTW intervention research in particular shows that the majority of developed RTW interventions assume the presence of a workplace to return to[23-29]. However, although the 'traditional' labour contract (as an open-ended and dependent full-time employment relationship) is still common, in many countries important other, more flexible, forms of labour relations have developed during the last two decades[30]. In the EU, the 'non-standard' employment rate in part-time employment, temporary work, and self-employment (overlaps controlled) increased from 17.5% (1998) to 22.3% (2008)[30]. Furthermore, in 1998 the private employment agency industry constituted of close to 4.8 million agency workers (fulltime equivalent on a daily basis) worldwide[31]. Ten years later, in 2008, the number of workers in this industry had nearly doubled with 9.5 million agency workers (full-time equivalent) employed by private employment agencies across the globe[31]. Japan and the USA are the world leaders representing around 45% of the global agency work market[31,32]. Europe is the leading regional entity, accounting for 48% of global annual turnover, i.e. approximately 111 billion Euros, in 2008[32]. In addition, in the Netherlands, in 2008, nearly 3300 private employment agencies provided 242,000 fulltime jobs (daily average number of FTEs). Hence, in view of this international trend towards transitional labour markets with more flexible employment relationships[33-35], the presence of a workplace to return to when sick-listed is no longer self-evident for many workers. As a consequence, workers without (relatively) permanent employment relationships, such as an unemployed worker or a temporary agency worker, have an additional RTW burden as they have (in most cases) no longer a workplace to return to when sick-listed. In addition, these workers are characterised by an increased risk for (long-term) work disability compared to employees[36-41]. In the Netherlands, the risk of becoming long-term work disabled (> 18 months) with application for a disability benefit is three times higher for these workers compared to employees[41], accounting for 40% of the long-term disability claims received by the Dutch Institute for Employee Benefit Schemes[38]. Furthermore, in the past five years (2005-2010) the number of paid sickness benefits for sick-listed workers with flexible labour arrangements has doubled[40]. Also, vocational rehabilitation and RTW guidance for this group is unsatisfactory[41-43]. A recent cohort study in the Netherlands showed substantial

differences in RTW patterns, i.e. 9 months after the first day of reporting sick only 16% of the group of sick-listed unemployed workers and sick-listed temporary agency workers had attempted to RTW during the first 9 months, compared to 77% of the group of sick-listed employees[43]. Ten months after the first day of reporting sick only 8% of the group of unemployed workers and temporary agency workers were actually working (partially or fully), compared to 66% of the group of employees. Moreover, 27 months after reporting sick 71% of the group of sick-listed unemployed workers and sick-listed temporary agency workers had not resumed working at all, compared to 16% of the group of sick-listed employees[41].

Occupational health care for sick-listed workers without an employment contract in the Netherlands

Although in many countries sick-listing can only occur when an individual is (gainfully) employed, in the Netherlands the Sickness Benefits Act provides a social security safety net for sick-listed workers without an employment contract. After approval of the sickness benefit claim by the Dutch Social Security Agency (SSA) the sick-listed worker receives a supportive income, which equals maximally 70% of the last daily wage, with a ceiling at 189 Euros/day. Additionally, he/she is entitled to sickness absence counselling and vocational rehabilitation by a team of occupational health care (OHC) professionals of the SSA. Since there is no employer/workplace to return to, the SSA is responsible to facilitate RTW. Furthermore, the SSA is responsible for executing general obligatory OHC actions as dictated in the Dutch Improved Gatekeeper Act, for instance making a (medical) problem analysis and formulating a RTW action plan. Vocational rehabilitation is carried out by a team of OHC professionals from the SSA, consisting of an insurance physician, a labour expert, and a case-manager. The insurance physician of the SSA guides the worker according to the guidelines for OHC of the Netherlands Society of Occupational Medicine. He/she makes a problem analysis and advises the worker about recovery, e.g. health promotion and RTW options, and, if necessary, he/she can advise and refer the worker to work disability-oriented treatment, such as graded physical therapy. The labour expert is responsible for vocational rehabilitation support. Based on a

personal examination of the work abilities of the worker and expert knowledge of the labour market, the labour expert advises the worker with respect to RTW options, resulting in a RTW action plan. When the chance of work resumption in regular work without additional vocational rehabilitation support is viewed as slim, interventions such as referral to a vocational rehabilitation agency are offered to the worker. The case manager of the SSA monitors the vocational rehabilitation process to evaluate the progress. In case of an impeded (vocational) recovery/rehabilitation process the case manager consults with, and, if necessary, refers the worker to the insurance physician or the labour expert to identify and tackle the cause of this stagnation. This can lead to alterations in the vocational rehabilitation guidance. The OHC by the SSA ends when the insurance physician establishes full recovery of health and/or full work ability, i.e. no functional work limitations (with or without actual RTW of the worker). If the worker is still partially or fully work disabled after 18 months, then he/she can apply for a long-term disability benefit at the Dutch Institute for Employee Benefit Schemes (UWV). This is the same as for long-term sick-listed employees.

However, as already mentioned, the current vocational rehabilitation and RTW guidance for the group of vulnerable sick-listed workers without a (relatively permanent) employment contract is unsatisfactory. The aforementioned Dutch cohort study[41,43], showed the following figures when comparing a group of 9-month sick-listed workers without an employment contract with a group of 9-month sick-listed employees: 47% of the sick-listed workers without an employment contract reported having had no RTW guidance at all during the 9 months after reporting sick, compared to 14% of the employees. Only 22% of the sick-listed workers without an employment contract reported the making of a (medical) problem analysis, compared to 67% of the employees. In addition, 23% of the workers without an employment contract reported the making of a RTW action plan, compared to 63% of the employees. And, finally, 47% of the sick-listed workers without an employment contract reported having had no say in the proposed RTW actions versus 16% of the employees. Hence, there is an urgent need for OHC, including (cost-)effective RTW interventions, for these vulnerable workers without an employment contract or with a flexible, non-standard, labour agreement.

A theoretical approach to RTW of sick-listed workers without an employment contract

To date, a considerable amount of research has been done in the field of occupational disability. And although there is thus far no commonly adopted paradigm for RTW, many researchers in the field of occupational health have embraced the biopsychosocial model as theoretical framework[44]. Founded on the biopsychosocial model, the World Health Organization introduced the International Classification of Functioning, Disability and Health (ICF)[45]. The ICF model is an integrative approach proposing disability as a phenomenon resulting from a dynamic interactive process, in which impairment in bodily functions and subsequent development of functional limitations leads to restrictions at the participation level, all within the context of medical, personal, and external factors. From this perspective, work disability can be placed at the participation level. To further specify the external environment with regard to work disability and RTW, Loisel et al. proposed a transdisciplinary case management model, i.e. 'the arena of work disability'. This arena of work disability represents the actions of, as well as the interactions between, the main stakeholders in the occupational disablement process and the accompanying systems from within they act, i.e. the workplace system, the personal environment of an employee, the health care system, and the compensation system[46]. Notably, although in the biopsychosocial approach both disability and RTW are explained by a complex relationship among a variety of factors, operationalization of the decision-making process regarding sickness absence and work resumption is not embedded in the ICF model. However, from a psychological perspective, sickness absence and RTW are behaviours. The decision to be absent from work, i.e. to report sick, can thus be seen as a decision-making process based on several factors, commonly referred to as 'the threshold for absenteeism'[47-50]. This threshold is different for each individual, and is based on the following three factors: (1) the need to be absent, e.g. the presence of severe health complaints; (2) the desire to be absent, e.g. job satisfaction and organisational commitment; and (3) the opportunity to be absent, e.g. the presence of inhibitory measures, such as waiting days or wage penalties in case of sick leave abuse. Similarly, RTW can be viewed as a decision-making process. This is called 'the

threshold for RTW' and is based on: (1) the need to RTW, e.g. sufficient recovery from health complaints; (2) the desire to RTW, e.g. bonding with colleagues; and (3) the opportunity to RTW, e.g. access to social-medical guidance and the possibility of work adaptations. In figure 1 a conceptual model for work disability and RTW for a worker without an employment contract is presented. This model is adapted from the conceptual behavioural model for sickness absence and RTW, as proposed by Hooftman[51]. In line with the biopsychosocial approach, besides the effects of individual/personal factors, the effects of external factors are added to the model. Furthermore, to take into account the fact that the presence of a workplace is not self-evident for a sick-listed worker without an employment contract, having a bond with a workplace is added to the threshold for reporting sick, and the availability of a (therapeutic) workplace is added to the threshold for RTW. Additionally, based on the ICF model, improvement in functioning and restoring activities, as essential elements of (occupational) health care to achieve improvement in participation, i.e. RTW, are integrated in the model. Finally, with regard to the decision to RTW, a differentiation can be made, namely (1) the intention to RTW and (2) RTW behaviour. This distinction originates from one of the most influential models of behaviour change, the theory of planned behaviour or the derived ASE-model (Attitude, Social influence and self-Efficacy)[52-56]. According to this model the intention to RTW behaviour of a sick-listed worker is in itself influenced by attitudes (the positive and negative evaluation by the worker with respect to the expected outcome of RTW behaviour), social influence (beliefs of the worker about what others think of the RTW behaviour), and self-efficacy (belief of the worker that he/she is capable to RTW). Application of the ASE model for behaviour change has been extensively used for the development of health-related prevention programs[57-60]. Moreover, literature shows that the ASE model can also be applied in the field of OHC research[61-63]. As an underlying theoretical framework for achieving RTW behaviour, it can be used for the development of RTW interventions (Chapter 3).

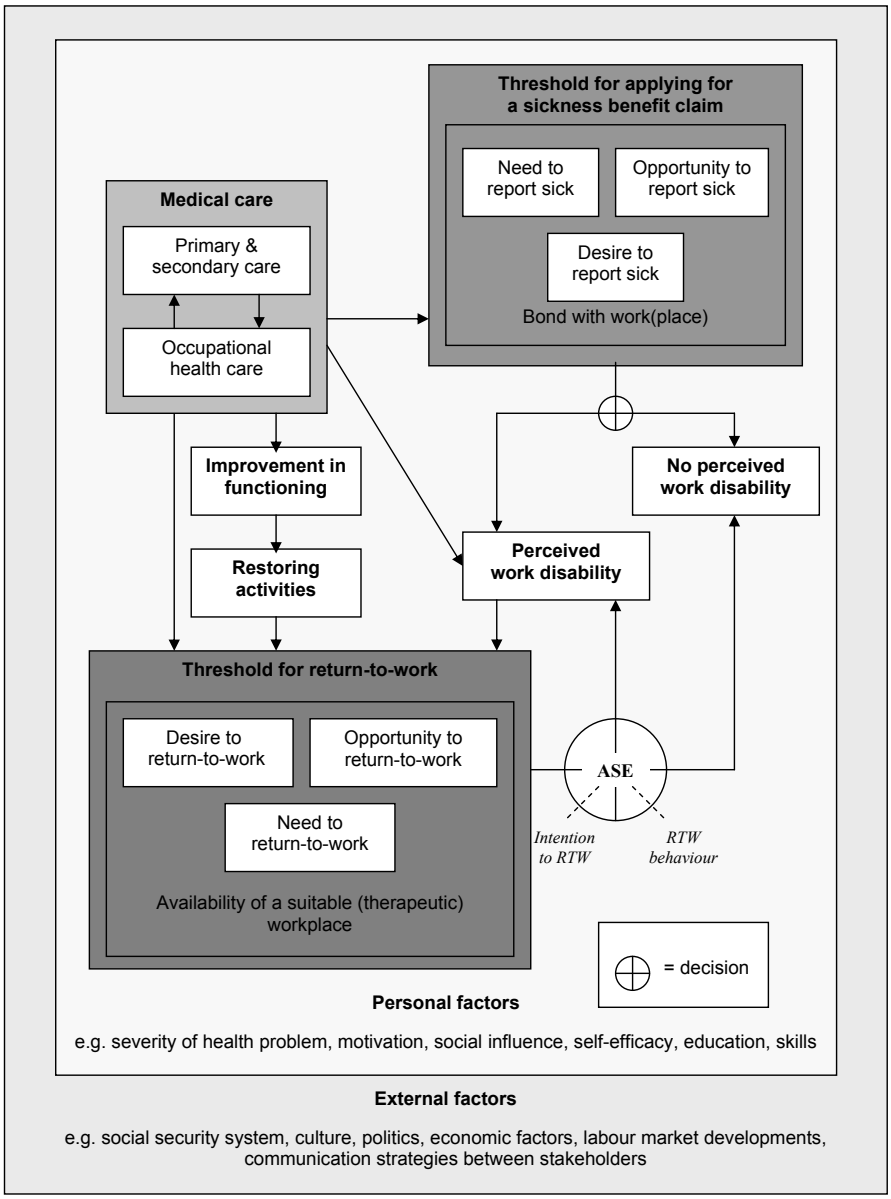

Figure 1. Conceptual model for work disability and RTW for a worker without an employment contract.

To further clarify, the afore-described conceptual model can be illustrated as follows: A 48-year old female worker with a low level education (=*personal factors*) has been working in several jobs as a temporary agency worker for the past two years. Since her divorce, approximately two years ago, she needs additional income as her alimony is not sufficient for household maintenance *(=external factor*). For the past three months she has been working fulltime as a factory worker in a food factory. This is physically demanding work with frequent lifting and carrying of heavy boxes. She would like to work as a shop assistant. However, due to her lack of work experience (=*personal factor*) and the presence of a national economical crisis (=*external factor*), it is difficult to find work, let alone finding suitable work that she wants to do. Since approximately two weeks she has a severe pain in the lower region of her back without radiation. Her general practitioner diagnoses her complaints as non-specific lower back pain. He prescribes pain medication and refers her to a physical therapist. Additionally, in view of the heavy work demands, he advises her to report sick (=*medical care*). She is not happy with her work in the factory and she has already thought about reporting sick. Being a temporary agency worker, she feels like an outsider at the factory (=*desire to report sick*). One week after visiting the general practitioner, the severe low back pain is still present and hinders her in all daily activities (=*need to report sick)*. Therefore, although she has two waiting days before she can receive sickness benefit (=*opportunity to report sick*), she decides to report sick at the Social Security Agency (SSA) (=*perceived work disability*). Because she is a temporary agency worker, the food factory where she worked has no legislative responsibilities to continue payment of wages during sick leave. In the Netherlands, the Sickness Benefits Act provides for sick-listed workers without an employment contract (=*external factor*). To approve her sickness benefit claim, she is invited to the consultation hour of the insurance physician of the SSA. During this consult she explains that the low back pain is still present. The prescribed pain medication and physical therapy have not (yet) helped to (sufficiently) relieve her back pain. Activities such as bending and lifting remain very painful. She explains to the insurance physician, that she is not able to do her work (=*perceived work disability*). The insurance physician advises her to stay active and to continue the physical therapy (=*improving functioning*) and to gradually resume her daily activities (=*restoring activities*). He makes a note in her medical file

that in case of persistent back pain with functional limitations during the follow-up consult, he will discuss referral to a graded activity program with her (=*occupational health care*). Three months later, she returns to see the insurance physician. The back pain has improved (=*need to RTW*) and she has been able to resume her daily activities. She has, however, not yet resumed working. Although she believes she is able to RTW (=*no perceived work disability*), finding a suitable workplace proves difficult. In order to gradually RTW, she would like to start with part-time work that is not psychically demanding. However, being a temporary agency worker this is not easy to realize (=*opportunity to RTW*). Also, the fact that she has to start in a new job with new colleagues and a new manager makes her somewhat reluctant to go job searching (=*desire to RTW*). The insurance physician wonders if OHC guidance of this worker can be improved.

Participatory interventions for RTW

Next to mental disorders, musculoskeletal disorders (MSD) are the second most common cause of work disability among both employees and workers without an employment contract in the Netherlands[64-66]. Furthermore, findings in the international literature show that workplace-based interventions are effective in reducing sickness absence among workers with MSD[29,67,68]. More specifically, participatory RTW interventions including a workplace component have shown to be effective on work-related outcomes for sick-listed employees with low back pain[69-71]. These participatory RTW interventions have their origin in participatory ergonomics (PE), which has traditionally been used to reduce work-related MSD in workplaces as a primary prevention[72]. Typical of PE studies is the formation of a team consisting of employees, managers, ergonomists, health and safety professionals, and research experts. By working together workplace conditions can be improved by active participation, by communication, and by consensus-based problem solving among all stakeholders involved. In a recent study in the Netherlands, Anema and colleagues showed that a participatory workplace intervention for RTW of employees with subacute low back pain, based on a successful Canadian participatory RTW program[69], was (cost-)effective compared to usual care[70]. This participatory

workplace intervention comprised of a structured stepwise process to identify and solve obstacles for RTW by the sick-listed employee and his/her supervisor, resulting in a consensus-based implementation plan to facilitate RTW. The proposed solutions for RTW can include aspects regarding work content, workplace, work organisation, work conditions, and/or work environment. Key element in the intervention was the presence of an independent RTW coordinator, who guides the process to achieve consensus. This participatory RTW program resulted in significantly earlier RTW, i.e. an average of 27 days. The estimated additional costs for one day earlier RTW, compared to usual care, were 19 Euros[73]. Also, compliance and satisfaction with the intervention were good for employees and OHC professionals. Furthermore, in another recent Dutch study, Lambeek and colleagues showed that an integrated care approach for sick-listed employees with chronic back pain (> 20 weeks of sickness absence), consisting of a participatory workplace protocol and a graded activity program, resulted in significantly earlier RTW, i.e. a median of 120 days earlier RTW during 12-month follow-up, compared to care as usual[71]. Economic evaluation showed that an additional 4 Euros needed to be invested in this integrated care program for one day earlier RTW. Furthermore, the return-on-investment for this integrated care intervention was estimated at 35 Euros[74], i.e. every Euro invested will return an estimated 35 Euros. However, as mentioned earlier, current RTW interventions are mostly workplace-based or contain at least a workplace component, which assumes the presence of a workplace to return to. Hence, RTW interventions specifically aimed at sick-listed workers without an employment contract, who have (in most cases) no workplace to return to, are rare[75]. This is in contrast to the fact that these type of workers represent a substantial and still growing part of the working population[33-35,39,76]. Therefore, in view of the aforementioned promising results with regard to the (cost-)effectiveness of a participatory RTW intervention for sick-listed employees with low back pain, it seems worthwhile to investigate the possibility of tailoring this participatory RTW program to the needs and the specific (societal and personal) context of sick-listed workers without an employment contract, e.g. temporary agency workers and unemployed workers. And, subsequently, to investigate the feasibility, the effectiveness, and the cost-effectiveness of such a newly developed tailor-made RTW intervention.

Aim of this thesis

This thesis describes the development of tailor-made OHC for the vulnerable working population who have no workplace to return to when sick-listed, i.e. workers without an employment contract. A participatory RTW program, including the possibility of a temporary (therapeutic) workplace, for temporary agency workers and unemployed workers, sick-listed due to MSD, is introduced.

The main objectives of this thesis are:

1. To develop a participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD.
2. To investigate the feasibility, the effectiveness, and the cost-effectiveness of this newly developed participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD.

The second chapter of this thesis concerns a sub-objective, namely:
To describe current OHC for sick-listed temporary agency workers and sick-listed unemployed workers in the Netherlands, and to examine the applied OHC interventions as possible determinants for RTW.

Outline of this thesis

This thesis is organized as follows: in chapter 2 the aforementioned sub-objective is addressed by cross-sectional data analyses of a large cohort of sick-listed workers without an employment contract who were, at baseline, at least 13 weeks sick-listed. In chapter 3 the first main objective is addressed, i.e. the development of a participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD, is described. The Intervention Mapping protocol was used to develop a theory- and evidence-based RTW intervention specifically tailored for temporary agency workers and unemployed workers, sick-listed due to MSD. To ensure participation and facilitate successful adoption and implementation, important stakeholders were involved in all steps of program development and

implementation. Results of semi-structured interviews and 'fine-tuning' meetings were used to design the final participatory RTW program (chapter 3). Next, in the chapters 4, 5, 6 and 7 the second main objective is addressed. In chapter 4 the design of a randomized controlled trial to investigate the (cost-)effectiveness of the newly developed participatory RTW program is described. Chapter 5 describes the effects of the participatory RTW program on sustainable RTW and health-related outcomes. The feasibility of the participatory RTW program is illustrated in chapter 6. The reach and implementation of the participatory RTW program, the satisfaction and experiences of all stakeholders involved, and the perceived barriers and facilitators for implementation of the participatory RTW program in daily practise are presented. Chapter 7 describes the cost-effectiveness of the participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD, after 12-months of follow-up. Finally, chapter 8 presents the general discussion.

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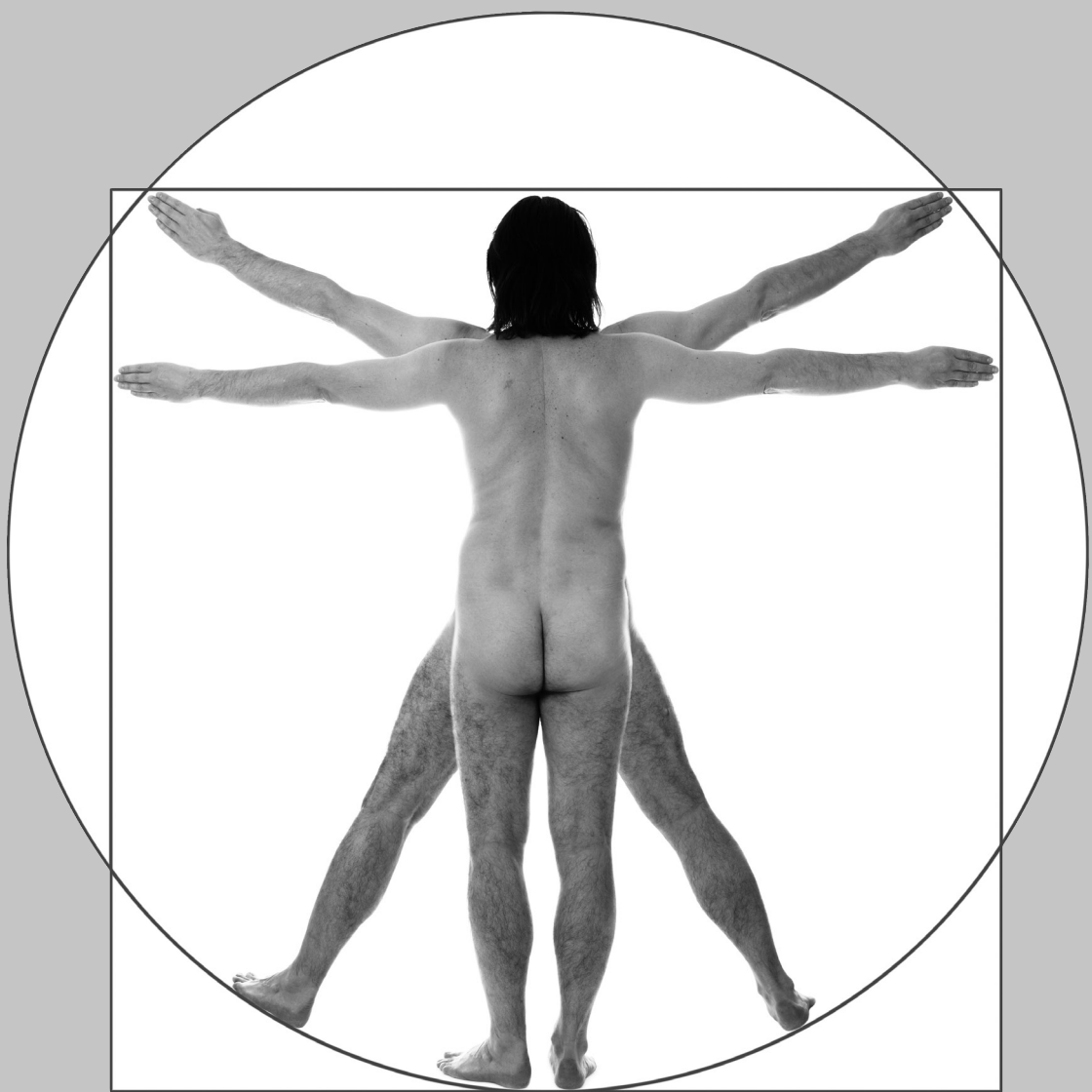

Chapter 2

Return-to-work of sick-listed workers without an employment contract - what works?

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ABSTRACT

Background

In the past decade flexible labour market arrangements have emerged as a significant change in the European Union labour market. Studies suggest that these new types of labour arrangements may be linked to ill health, an increased risk for work disability, and inadequate vocational rehabilitation. Therefore, the objectives of this study were: 1. to examine demographic characteristics of workers without an employment contract sick-listed for at least 13 weeks, 2. to describe the content and frequency of occupational health care (OHC) interventions for these sick-listed workers, and 3. to examine OHC interventions as possible determinants for return-to-work (RTW) of these workers.

Methods

A cohort of 1077 sick-listed workers without an employment contract were included at baseline, i.e. 13 weeks after reporting sick. Demographic variables were available at baseline. Measurement of cross-sectional data took place 4-6 months after inclusion. Primary outcome measures were: frequency of OHC interventions and RTW-rates. Measured confounding variables were: gender, age, type of worker (temporary agency worker, unemployed worker, or remaining worker without employment contract), level of education, reason for absenteeism (diagnosis), and perceived health. The association between OHC interventions and RTW was analysed with a loglinear multiple regression analysis.

Results

At 7-9 months after the first day of reporting sick only 19% of the workers had (partially or completely) returned to work, and most workers perceived their health as fairly poor or poor. The most frequently reported (49%) intervention was 'the OHC professional discussed RTW'. However, the intervention 'OHC professional made and discussed a RTW action plan' was reported by only 19% of the respondents. The loglinear multiple regression analysis showed a significant positive association between RTW and the interventions: 'OHC professional discussed RTW'; and

'OHC professional made and discussed a RTW action plan'. The intervention 'OHC professional referred sick-listed worker to a vocational rehabilitation agency' was significantly associated with no RTW.

Conclusions

This is the first time that characteristics of a large cohort of sick-listed workers without an employment contract were examined. An experimental or prospective study is needed to explore the causal nature of the associations found between OHC interventions and RTW.

BACKGROUND

New types of labour market arrangements and work disability

In the past decade flexible labour market arrangements have emerged as a significant change in the European Union labour market. As a result the standard form of production, i.e. employees with a fulltime permanent and regular job, has made way to an upcoming of flexible workers, such as fixed-term employees and workers without an employment contract[1-4]. Workers without an employment contract are for instance temporary agency workers and unemployed workers. Studies suggest that these new types of labour arrangements may be linked to ill health[1,3-10] and an increased risk for work disability[2,4,11]. In the Netherlands, this is reflected in the absenteeism pattern, which is characterised by a higher annual sick leave rate for workers without an employment contract compared to employees (2004; 8,3% temporary agency workers, 6,3% national mean)[12,13], and a lower outflow in the first year of sickness absence with a higher inflow into a long term disability pension after one year compared to employees (2004; 1,1% temporary agency workers, 0.76% national level)[14]. It is stated that one of the causes is a greater distance to the labour market due to a larger proportion of workers with lower credentials, lower income, more females, more (partly) occupationally disabled, and more immigrants[2,13,15]. Another cause could be that occupational health care (OHC) and return-to-work (RTW) guidance for workers without an employment contract are inadequate[13].

The Dutch Social Security System

There are many countries where sick-listing can only occur when an individual is gainfully employed. However, in the Netherlands the Sickness Benefits Act provides also for workers without an employment contract who become sick-listed. These workers, i.e. unemployed workers and temporary agency workers, can apply for a sickness benefit at the Social Security Agency (SSA) and receive 70% of their last daily wage during the first two years of sickness absence. In the absence of an employment contract there are no legislative mandates for these workers to be returned to their previous/last job. Therefore, the SSA is also responsible for OHC, i.e. sickness absence counselling and vocational rehabilitation of sick-listed workers without an employment contract. The sickness absence counselling is done by an insurance physician. The vocational rehabilitation is carried out by a team of OHC professionals, consisting of the insurance physician, a labour expert and a case-manager.

To claim sickness benefit, the sick-listed worker is obligated to report sick within two days after the start of sickness absence. He/she then automatically becomes entitled to OHC by the SSA for the duration of the sickness benefit. Based on the cause of sickness absence, i.e. diagnosis, the insurance physician of the SSA guides the worker according to the accompanying Dutch guideline for OHC, formulated by the Dutch association of occupational physicians. In addition, there are general obligatory OHC actions as dictated by Dutch legislation, i.e. the Improved Gatekeeper Law. For instance, summoning to consulting hours, discussing RTW with the sick-listed worker, and advising about actual starting with work again. The visits to the SSA are not voluntary. Not visiting the OHC professional and/or not cooperating with regard to recovery and RTW is punished, i.e. payment of the sickness benefit is stopped. When clients are 13 weeks sick-listed they have been invited to visit the insurance physician of the SSA at least once. The aim of this first medical assessment is dual, namely to certify sickness and thereby approving the sickness benefit claim, and a to make a (medical) problem analysis with advising about recovery, i.e. health promotion, and RTW possibilities. The insurance physician is not responsible for treating illness. This medical role belongs to the clients' general practitioner and/or other involved medical specialists. However, the insurance physician can advise and refer to work disability oriented treatment/guidance, for instance graded physical therapy or work-related psychological help.

The OHC by the SSA ends when the worker is no longer sick-listed and the sickness benefit ends. This moving from being sick-listed to 'recovery' can be initiated by either the client or the insurance physician. The client can report being recovered from illness and/or starting with work again, i.e. full RTW. The insurance physician can establish full recovery of health and/or full work ability (with or without actual RTW of the client). When the worker is still partially or fully work disabled after two years, he/she can apply for a long-term disability benefit. This is the same as for long-term sick-listed employees.

Flexible labour market arrangements: the temporary agency worker

Temporary agency work is a form of a flexible labour market arrangement. There is a triangular relationship (as opposed to the bilateral relationship between an employer and employee) between the worker, a company acting as a temporary work agency, and a user company. The temporary work agency places the worker at the disposition of the user company and the work is of temporary nature without a labour agreement. This in contrast to a temporary worker with a fixed-term contract. In the Netherlands, temporary workers with a fixed-term contract are viewed as employees with legislative responsibilities for the employer regarding payment of the daily wage and RTW guidance when the fixed-term employee becomes sick-listed.

Objectives

To date, only a few studies have been conducted with regard to OHC and RTW of the group of sick-listed workers without an employment contract. Therefore, the objectives of this study were: 1. to examine demographic characteristics of workers without an employment contract who are sick-listed for at least 13 weeks, 2. to describe the content and frequency of occupational health care interventions by the insurance physician of the SSA for these sick-listed workers without an employment contract, and 3. to examine the association between applied occupational health care interventions and RTW for sick-listed workers without an employment contract, accounting for possible confounding variables.

METHODS

Cohort recruitment and data collection

This study was part of a series of Dutch researches regarding OHC and RTW among employees and workers without an employment contract[16]. The study was commissioned by the Dutch Ministry of Social Affairs and Employment and conducted by the Netherlands Organisation for Applied Scientific Research (TNO) from May 2004 until June 2004. Inclusion criteria for the study population in this cohort study were: workers without an employment contract, who had reported sick between the first of August and the end of October of 2003 and who were at baseline at least 13 weeks sick-listed[16]. This 13 week period related to the registration of sickness absence by the Dutch Social Security Agency (SSA) , which started 13 weeks after the first day of reporting sick. A sample of 3.500 persons was random drawn by the SSA from a total population of 14.854 workers without an employment contract, who had reported sick between the first of August and the end of October of 2003 and were at baseline at least 13 weeks sick-listed[16]. Using the available data of the population, a non-response analysis was conducted to look at the possibility of selectivity of the response (n=1077). Next, based on the registration by the SSA, the sample was then divided into the following three representative subgroups: temporary agency workers, unemployed workers, and remaining workers. This latter subgroup consisted for instance of people who had partly a disability pension and worked partly as a temporary agency worker. Only demographic variables were available at baseline. Measurement took place 7-9 months after the first day of reporting sick, i.e. 4-6 months after inclusion. A questionnaire was send to the study population by mail by the SSA in May 2004 and after one month a written reminder was sent to the study population who had not returned the questionnaire. Due to privacy considerations it was not possible to call the respondents if the received questionnaires were not complete or if there was anything unclear. In total 1179 questionnaires (response rate of 34%) were received. The three subgroups were then redivided based on the type of worker as reported by the clients. Next, after analysing the reported first day of sick leave (56 of the 1179 respondents had a first day of sickness absence which did not fall between the first of August 2003 and the end of October 2003), and analysing the type of worker (i.e. respondents with a full disability pension or an employment

contract were excluded), the remaining group consisted of 407 temporary agency workers, 402 unemployed workers, 235 remaining workers without an employment contract, and 33 workers not classified (unknown). In conclusion, the cohort in this study consisted of 1077 workers without an employment contract. The cohort recruitment is summarised in figure 1.

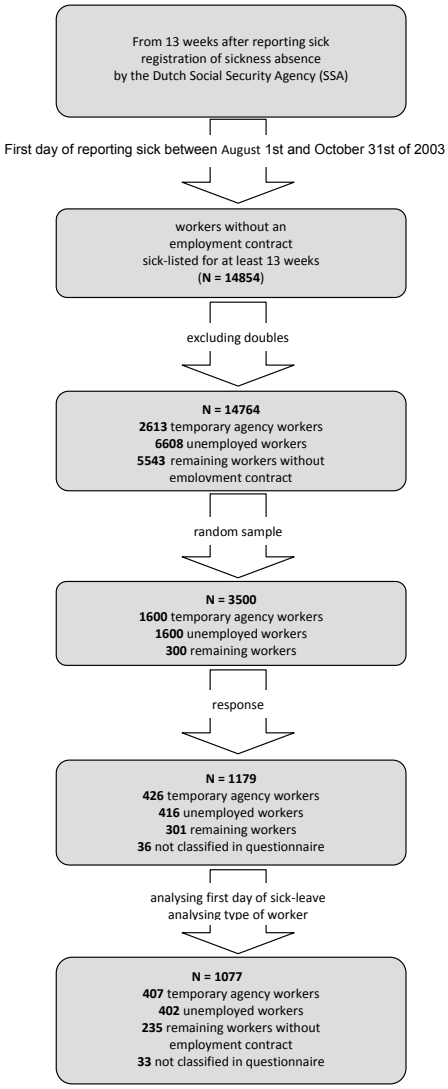

Figure 1. Summary of the cohort recruitment of workers without an employment contract, sick-listed for at least 13 weeks.

Questionnaire

The self-reported questionnaire was developed by the Netherlands Organisation for Applied Scientific Research (TNO) and modelled after a questionnaire to examine OHC among employees, which was used four years earlier[17]. The first part of the questionnaire gave information about RTW (full RTW was defined as working in any type of job, i.e. work with or without a contract and the number of working hours same as the last work before reporting sick), first date of sick leave, cause of absenteeism (health complaint), perceived health, and employment status. The second part gave information about occupational health care interventions carried out by the insurance physician of the SSA. These questions related to obligatory interventions, which were required according to Dutch legislation for OHC, i.e. the Improved Gatekeeper Act (for an overview of the examined occupational health care interventions see figure 2). Questions about the received occupational health care interventions were answered with 'yes', 'no' or 'do not know'. In the last part demographic characteristics were asked, such as age, gender, and level of education.

OHC professional discusses RTW
The insurance physician talks about RTW with the sick-listed worker. This is part of a multicausal problem analysis, which in principal is made during the first consult. To get insight in the following questions: why did the worker report sick and why is he/she not able to work now? What actions has the sick-listed worker undertaken regarding recovery and RTW? What are the RTW possibilities, now and the (near) future? What is necessary to achieve (full) RTW, e.g. medical, health and/or vocational interventions?

OHC professional discusses training and/or education
The insurance physician assesses the necessity for training and/or education to enhance the success of vocational rehabilitation with long-term RTW of the sick-listed worker and discusses this with the worker. Advise and agreements made regarding training and/or education as part of the vocational rehabilitation are described in a RTW action plan. The insurance physician can refer the sick-listed worker to the expert/ agency concerned.

OHC professional discusses actual starting with work again
During the sickness absence period an evaluation by the insurance physician takes places at regular intervals, minimally every 6 weeks. The insurance physician assesses the progress regarding the recovery process and the work ability of the sick-listed worker. When the health of the worker has sufficiently improved and work ability is present, the insurance physician discusses actual starting with work again. This results in advising about concrete RTW, i.e. type of work(place), number of working hours, number of working days, and a time path.

OHC professional makes and discusses a RTW action plan
The insurance physician of the SSA makes a RTW action plan with the sick-listed worker. This actions plan describes the actions to be taken aimed at achieving recovery and RTW, including proposed RTW interventions, RTW in previous or other work(place), the time path, responsibilities (who does what?) and, when applicable, advise regarding (medical) treatment and/or (vocational) rehabilitation. The RTW action plan has to be made after 8 weeks of sickness absence and also includes agreements regarding evaluation of the formulated action plan. Evaluation and, when necessary, adjustment of the action plan is required at least every 6 weeks.

OHC professional refers sick-listed worker to a vocational rehabilitation agency
The insurance physician assesses the distance to the labour market of the sick-listed worker concerned. If needed another OHC professional can be consulted for this assessment, for instance a labour expert of the SSA. If the chance of RTW in regular work without intervention of expert vocational rehabilitation support is viewed as slim, i.e. the 'labour market handicap' is significant, the insurance physician refers the worker to a vocational rehabilitation agency.

Figure 2. Overview of examined occupational health care interventions.

Statistical methods

Most data in this study were of a descriptive nature. All variables were on a binominal or categorical level. Numbers and percentages were rounded to the nearest point. Next, a model was built with loglinear multiple regression (listwise) to identify which occupational health care interventions were determinants for RTW, accounting for possible confounding variables and interaction effects. In the first step, the possible determinants were selected one by one for significance. Next, possible confounders were added to the model one by one. If a possible confounder altered the beta coefficient of one of the selected determinants with 10% or more, this confounder entered the model. For the selected determinants significance level was reached when the p-value was ≤ 0.05. In the last step, the possible interactions between the confounders and the selected determinants were examined. If relevant interactions were significant these were added to the end model. Before conducting the loglinear multiple regression analysis the bi-variate (Spearman) correlations of all the involved independent variables were checked to see whether or not problems due to multicollinearity could arise. All analyses were performed using the SPSS 15.0 software package (SPSS Inc., Illinois, USA).

Modification of variables

Two variables were modified before analysing. The first variable was the way in which the respondents had returned to work. They could choose from the following options: not returned to work, returned to work on a therapeutic basis (partially or complete), partially returned to work, and completely returned to work. For analysing the RTW-rates, due to the small numbers of therapeutic return-to-work, the variable was first converted into the following values: not returned to work, partially returned to work (this included partial or complete therapeutic return-to-work), or completely returned to work. Then, for the loglinear multiple regression analysis RTW was modified into a binominal variable, i.e. returned to work (partially or completely) and not returned to work. The second variable which was converted was the reason for absenteeism, because a lot of the respondents filled in the category ‘remaining complaints’ instead of the categories cardio-vascular disease, mental health complaints, or musculoskeletal complaints. When the health complaints were

described or clarified in the category remaining complaints, if possible, the diagnosis was manually reclassified by the researchers into one of the above mentioned categories.

RESULTS

Baseline characteristics of the cohort

In table 1 the results, i.e. frequencies, are presented for gender, age, type of worker, and level of education. Men and women were equally represented in this cohort study (49% versus 51%). The mean age was approximately 41 years with 75% of the workers equally distributed in the range between 25 and 54 years. Comparing the bottom age range (15-25 years) with the top age range (≥ 55 years) showed that the cohort consisted of more older workers. The youngest workers were with only 9% the smallest category. When looking at the level of education, more than half of the workers had a low level education. Only 14% of the workers had a high level education.

Table 1. Baseline demographic characteristics of the cohort of workers without an employment contract (n=1077).

Demographic characteristics		Cohort (n=1077)
Gender	*Woman*	51%
	Man	49%
Age	*15-24 year*	9%
	25-34 year	23%
	35-44 year	28%
	45-54 year	25%
	≥ 55 year	15%
	Mean (sd) age (years)	41.1 (11.4)
Level of Education	*Low*	54%
	Average	32%
	High	14%
Type of worker	*Temporary agency worker*	39%
	Unemployed worker	38%
	Remaining worker	23%
Missing values (range)		3.1%-7.8%

Perceived health and RTW at 7-9 months after the start of sick leave

In table 2 the results are presented for perceived health and RTW. The most reported reason for absenteeism was having musculoskeletal complaints (34%) The perceived health (present, past and future) was in general poor. Only 18% of the workers reported that their present perceived health was good or very good and most of the workers experienced no change or even an aggravation of their health in the past 3 months (47% and 25% respectively). In addition, the majority of the workers were not hopeful with regard to their health in the near future. Finally, looking at RTW showed that 7-9 months after reporting sick, i.e. 4-6 months after inclusion/baseline, only 12% of the workers had completely returned to work and 7% had partially returned to work , whereas 81% had not (yet) started working again.

Table 2. Health variables and return-to-work measured at 7-9 months after the first day of reporting sick.

Variables		Cohort (n=1077)
Health complaint	*Cardio-vascular*	5%
	Mental	23%
	Musculoskeletal	34%
	Other	24%
	Combination of complaints	14%
Present perceived health	*Very good*	3%
	Good	15%
	Moderate	31%
	Fairly poor	36%
	Poor	15%
Perceived health in the past 3 months	*Improved*	29%
	Unchanged	47%
	Aggravated	25%
Health expectation in the coming 3 months	*Will improve*	18%
	No change	31%
	Will aggravate	5%
	Do not know	46%
Return-to-work (7-9 months after reporting sick)	*Completely returned to work*	12%
	Partly returned to work	7%
	Not returned to work	81%
Missing values (range)		3.3%-3.8%

Content and frequency of the applied occupational health care interventions

In table 3 the content and frequency of the occupational health care interventions carried out by the insurance physicians of the SSA are presented. The most reported occupational health care intervention was 'the insurance physician discussed RTW' (49%; N=528). On the other hand, 46% (N=495) of the respondents reported not

having discussed RTW with their insurance physician. The occupational health care intervention 'the insurance physician discussed actual starting with work' was reported by 28% (N=302) of the workers, whereas 69% (N=743) reported not having received this intervention. Even more striking was the reported number of the occupational health care intervention 'the insurance physician discussed and made a RTW action plan', which is mandatory according to the Dutch Gatekeeper Act. Only 19% (N=205) of the respondents reported discussing and making of a RTW action plan by their insurance physician, while 74% (N=797) of the workers reported that no RTW action plan was made. And finally, 'discussing training and/or education' and 'referral to a vocational rehabilitation agency' were also interventions reported only by a minority of the workers, respectively 13% (N=140) and 17% (N=183).

Table 3. Content and frequency of the occupational health care interventions carried out by the insurance physicians of the Social Security Agency.

Occupational health care interventions by the insurance physician of the SSA		Workers without an employment contract N=1077
Discussed RTW	*Yes*	**49%**
	No	**46%**
	Do not know	**5%**
Discussed training and/or education	*Yes*	**13%**
	No	**83%**
	Do not know	**4%**
Discussed actual starting with work again	*Yes*	**28%**
	No	**69%**
	Do not know	**3%**
Made and discussed RTW action plan	*Yes*	**19%**
	No	**74%**
	Do not know	**7%**
Referred to vocational rehabilitation agency	*Yes*	**17%**
	No	**81%**
	Do not know	**2%**
Missing values (range)		**3.1%-4.6%**

Occupational health care interventions as determinants for RTW

To examine if the reported occupational health care interventions were associated with RTW of the sick-listed workers without an employment contract, a loglinear multiple regression analysis was conducted accounting for possible confounding variables and interaction effects. Confounding effects were found for type of worker, age, present perceived health, perceived health in the past 3 months, and health expectation in the coming 3 months. No interaction terms were included in the end model, since no important interaction effects were found. The results are presented in table 4. In the first part of the table, without adjusting for confounding variables, strong significant positive associations between RTW and reported occupational health care interventions were found for: 'OHC professional discussed RTW'; 'OHC professional discussed actual starting with work again'; and 'OHC professional made and discussed a RTW action plan'. A strong significant negative association with RTW was found for the intervention: 'OHC professional referred worker to a vocational rehabilitation agency'. In the second part of the table, after adjusting for confounding variables, a significant positive association with RTW remained for the occupational health care interventions: 'OHC professional discussed RTW'; and 'OHC professional made and discussed a RTW action plan'. The negative association with RTW, i.e. no RTW, for the intervention: 'OHC professional referred worker to a vocational rehabilitation agency' also remained significant. And finally, significant associations were found between RTW and the background variables: perceived health and age. Perceived good health was strongly associated with RTW (p=0.000), whereas perceived bad health (p=0.000) and age > 55 years (p=0.021) were associated with no RTW.

Table 4. Associations between reported occupational health care interventions and return-to-work, not adjusted and adjusted for the measured baseline variables and health variables.

Occupational health care intervention by the insurance physician	Association with RTW not adjusted for confounding variables*			Association with RTW adjusted for confounding variables*		
	OR	*95.0% CI for OR*	*p-value*	*OR*	*95.0% CI for OR*	*p-value*
Discussed RTW	1.644	1.142-2.368	0.008	1.573	1.030-2.404	0.036
Discussed training and/or education	0.899	0.529-1.529	0.694	0.829	0.451-1.525	0.547
Discussed actual starting with work again	1.982	1.387-2.833	0.000	1.003	0.659-1.526	0.990
Made and discussed RTW action plan	1.868	1.252-2.788	0.002	1.869	1.164-3.002	0.010
Referred to vocational rehabilitation agency	0.424	0.248-0.725	0.002	0.521	0.285-0.953	0.034

*confounding variables: type of worker; age; present perceived health; perceived health in the past 3 months; and health expectation in the coming 3 months

Results of the non-response analysis

The sample of 3.500 persons was random taken from a population of 14.854 persons. On basis of the population data, provided by the SSA, we looked at the possibility of selectivity of the response (N=1077). There were no important relative differences between the response data used in this study and the available population data as provided by the SSA. Therefore, we concluded that the non-response did not harm the reliability of the data used in this study.

DISCUSSION

The aim of this cohort study was to examine characteristics of workers without an employment contract, sick-listed for at least 13 weeks; to examine OHC for this group of sick-listed workers; and to examine the association between applied occupational health care interventions and RTW. The sick-listed workers without an employment contract in this study were characterised by a low level of education. At 7-9 months after the first day of reporting sick most of the workers viewed their (present, past and future) health as fairly poor or poor and the most reported reason for absenteeism was having musculoskeletal complaints. Only 19% of the workers without an employment contract had (partially or completely) returned to work, whereas the majority (81%) of the workers had not (yet) started working again.

When looking at the reported occupational health care interventions, the most frequently reported (49%) intervention was 'the OHC professional discussed RTW'. However, the intervention 'the OHC professional discussed and made a RTW action plan', which is mandatory according to the Dutch legislation for OHC, was reported by only 19% of the workers while 74% of the workers reported that no RTW action plan was made by their insurance physician. Finally, a loglinear multiple regression analysis showed a significant positive association between RTW and the reported interventions: 'OHC professional discussed RTW'; and 'OHC professional made and discussed a RTW action plan'. In addition, a significant negative association with RTW, i.e. no RTW, was found for the intervention: 'OHC professional referred worker to a vocational rehabilitation agency'.

RTW of sick-listed workers without an employment contract

After 7-9 months only 19% of the sick-listed workers without an employment contract had partially (7%) or completely (12%) returned to work, whereas the majority of the workers had not (yet) returned to work. A comparable TNO study among sick-listed employees[16] showed 7-9 months after reporting sick a RTW rate of 81% (31% partially and 50% completely). With the remark that other study designs are needed to further investigate this considerable difference in RTW rate, two possible explanations for this phenomenon will be discussed. First, as mentioned earlier

these workers represent a vulnerable group within the working population with a greater distance to the labour market[2,13,15]. Finding a workplace and getting an employment contract is therefore in any case more difficult for these workers. It is also likely that being sick-listed adds to this already present 'labour market handicap'. This is supported by findings in international literature[18-20], indicating that the work status before sickness absence is a prognostic factor for the duration of sick leave and work disability. The presence of a workplace/employer to return to seems to be an important factor in the success of RTW (Vermeulen et al., 2009, submitted). Secondly, an important finding of this study is the relatively low amount of received occupational health care interventions as reported by the respondents. These interventions are obligatory according to Dutch legislation for OHC and in line with this higher numbers could be expected. In this study all respondents were at least 13 weeks sick-listed and should have been invited to visit the insurance physician at least once. However, summoning to consulting hours was reported by only 54% of the respondents. Therefore, a low rate of visits to the insurance physician appears to be an explanation for the low number of occupational health care interventions. On the other hand, an important factor also seems to be insufficient OHC practise by the professionals of the SSA. Obligatory interventions, such as making of a RTW action plan, and discussing actual starting with work again, were reported by only 19% and 28% of the respondents respectively. If a low rate of visits to the insurance physician would be the main reason for the low number of applied occupational health care interventions, the number of reported obligatory interventions should be closer to the found rate for visiting the insurance physician.

Association between RTW and received occupational health care interventions

The loglinear multiple regression analysis showed that the interventions 'OHC professional discussed RTW' and 'OHC professional made and discussed a RTW action plan' were positively associated with RTW. In addition, a striking finding was the strong significant positive association found for RTW and the occupational health care intervention 'discussing actual starting with work again', which disappeared when adjusted for confounding variables. Further examination of the results showed a strong association between the intervention 'OHC professional discussed actual

starting with work again' and the (present) perceived health status, i.e. perceiving health as good. Therefore, it is likely that experiencing a good and/or improved health, as part of the recovery process, resulted in talking about actual starting with work again (initiated by either the worker or the insurance physician of the SSA) and eventually actual RTW.

Meaning of study findings in an international perspective

Workers with flexible labour market arrangements work in more hazardous psychological and physical work environments (painful or tiring position, intense noise, repetitive tasks) than employees[2], with higher hazard exposures, disease risk and injury rates[11]. International literature also reports higher rates of mortality among temporary employment and unemployment[21-25]. In addition, as mentioned above, this vulnerable working population is characterised by a greater distance to the labour market[2,13,26].

However, there are many countries where workers without an employment contract, i.e. with flexible work arrangements, have no or only limited access to vocational rehabilitation interventions[27-29]. From this perspective, the frequency of reported occupational health care interventions found in this Dutch study, can even be considered as high.

Looking at reviews concerning occupational health interventions and return-to-work shows that most studies are aimed at 1. identifying prognostic factors regarding RTW[30-32]; 2. assessing the effectiveness of OHC intervention programs[33-41]; and 3. identifying the effective components of OHC intervention programs[32,42-44]. Many of these OHC intervention programs are workplace-based or at least contain a workplace component. Also, literature suggests that employer participation, a supportive work climate, cooperation between labour and management, and work accommodations are important factors in facilitating return-to-work[32,44]. However, a major obstacle for the sick-listed worker without an employment contract is the absence of a workplace to return to. In international literature the absence of adequate OHC for the vulnerable workers without an employment contract or with a flexible labour agreement is a rarely described problem. However, it can be expected that this problem will only increase because the trend towards more flexible labour

market arrangements is growing in West-European countries[1,2]. In our opinion, this study contributes to knowledge, i.e. insight into current OHC practise, needed for the development of adequate, i.e. tailor-made, occupational health care to optimize vocational rehabilitation and RTW of the vulnerable workers with flexible labour agreements.

Furthermore, the attention paid in this study to the vulnerable working population, is also in line with the goals of the World Health Organisation (WHO), which aims at 'OHC for all' and a change of focus from occupational health to workers health.

Strengths

Strength of this study is its large sample size. It is the first time, that characteristics of a large cohort of sick-listed workers without an employment contract are described, in particular the amount of reported occupational health care interventions, and actual RTW. Another strength of this study is the focus on a vulnerable group within the working population, i.e. workers without an employment contract. In the international literature this subject is rarely described in spite of the extent of the problem; by definition, RTW will always be more difficult since sick-listed workers without an employment contract have (in most cases) no workplace/employer to return to.

Weaknesses

The first limitation of this study is the fact that all findings are based on self-reported data. Therefore, the presence of recall-bias may have influenced the findings in this study. It is possible that the respondents who had already successfully (partially or completely) returned to work, i.e. only 19% in this study, remembered more occupational health care interventions, resulting in an overestimation of the associations between the reported interventions and RTW. On the other hand, due to the low RTW rate, a lot of the respondents had more opportunities to receive occupational health care interventions.

A second limitation is the possibility of a wrong estimation of the amount of applied occupational health care interventions due to the fairly high number of non-responders. However, we found no indication for this in the non-response analysis.

And finally, the aim of this study was to describe the content and frequency of applied occupational health care interventions and to examine the association between these interventions and RTW. The causal nature of the associations found between RTW and applied occupational health care interventions in this study needs to be investigated in future research.

Research challenges for present and future

Given the fact that in this study only 19% of the sick-listed workers without an employment contract had (partially or completely) returned to work 7-9 months after the first day of reporting sick, there can be gained a lot by efforts reducing short- and long-term sickness absence and work disability of these vulnerable workers[26]. A potentially useful RTW intervention for sick-listed workers without an employment can be e.g. the presence of a therapeutic workplace to return to. Because different stakeholders are involved[45] and centralized coordination of RTW of the sick-listed worker is essential[44], realizing structural collaboration and communication between all stakeholders involved should be an important part of such an intervention. Currently, based on the Intervention Mapping (IM) process[46-48], a participatory RTW intervention was developed for workers without an employment contract sick-listed due to musculoskeletal disorders (Vermeulen et al., 2009, submitted). Tailoring of an RTW intervention to a specific target group with IM proved also to be successful in other OHC research[49]. The new intervention is based on a previous developed and successful participatory intervention for employees sick-listed due to low back pain[50,51] and will be evaluated in an randomised control trial in the eastern part of the Netherlands. To study the effect of a structured stepwise program for realizing a RTW implementation plan and creating an actual therapeutic workplace as stepping stone to permanent RTW.

CONCLUSIONS

It is the first time, that characteristics of a large cohort of sick-listed workers without an employment contract are described, in particular concerning the content and frequency of applied occupational health care interventions, RTW and the

relationship between these. To explore the causal nature of these associations, an experimental or prospective study is needed for the vulnerable working population, i.e. workers without an employment contract. This should include further research for the development of tailor-made occupational health care interventions to optimize the frequency and content of these interventions and to evaluate the effect of these interventions on RTW of the vulnerable workers.

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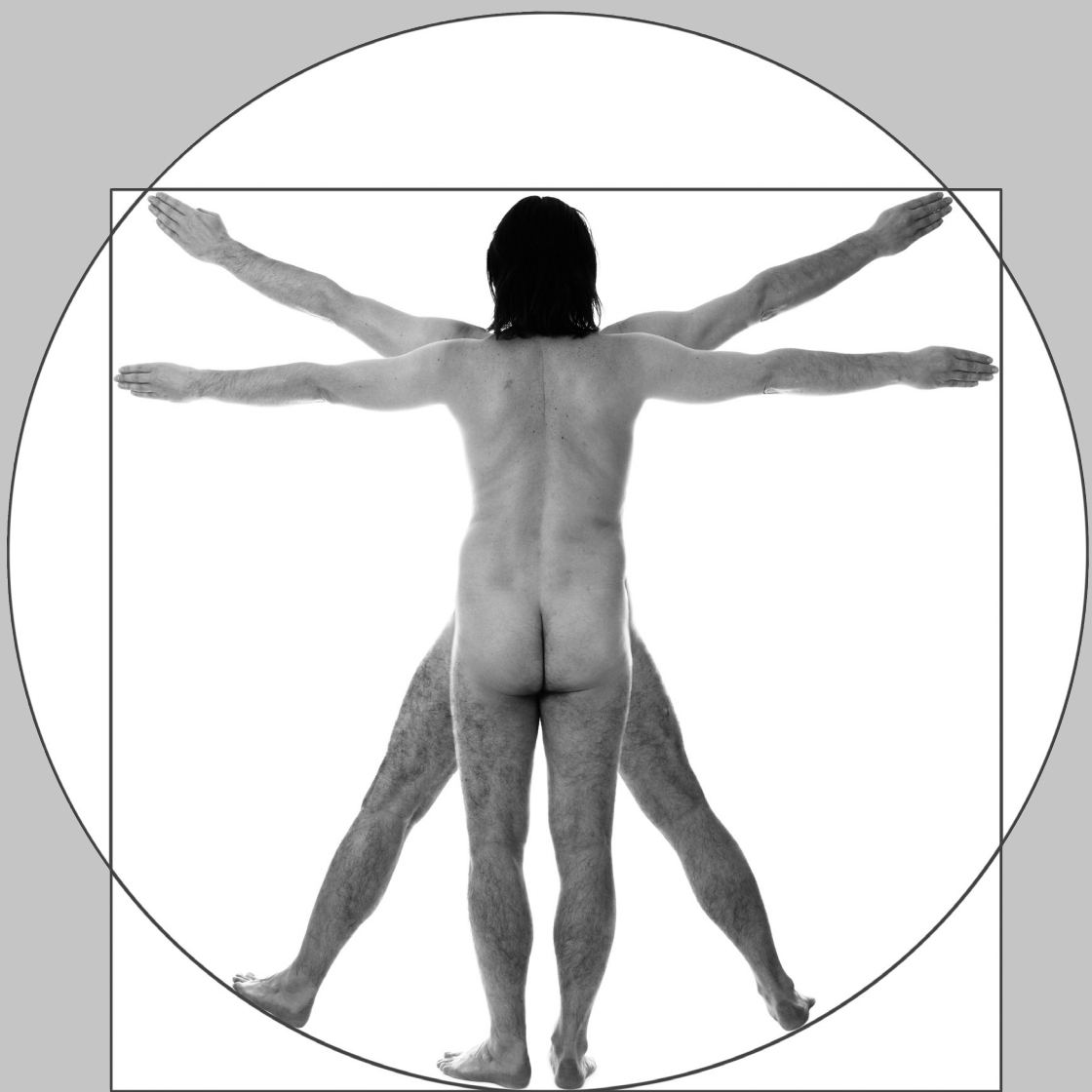

Chapter 3

Intervention mapping for development of a participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders

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ABSTRACT

Background

In the past decade in activities aiming at return-to-work (RTW), there has been a growing awareness to change the focus from sickness and work disability to recovery and work ability. To date, this process in occupational health care (OHC) has mainly been directed towards employees. However, within the working population there are two vulnerable groups: temporary agency workers and unemployed workers, since they have no workplace/employer to return to, when sick-listed. For this group there is a need for tailored RTW strategies and interventions. Therefore, this paper aims to describe the structured and stepwise process of development, implementation and evaluation of a theory- and practise-based participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders (MSD). This program is based on the already developed and cost-effective RTW program for employees, sick-listed due to low back pain.

Methods

The Intervention Mapping (IM) protocol was used to develop a tailor-made RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. The Attitude-Social influence-self-Efficacy (ASE) model was used as a theoretical framework for determinants of behaviour regarding RTW of the sick-listed worker and development of the intervention. To ensure participation and facilitate successful adoption and implementation, important stakeholders were involved in all steps of program development and implementation. Results of semi-structured interviews and 'fine-tuning' meetings were used to design the final participatory RTW program.

Results

A structured stepwise RTW program was developed, aimed at making a consensus-based RTW implementation plan. The new program starts with identifying obstacles for RTW, followed by a brainstorm session in which the sick-listed worker and the labour expert of the Social Security Agency (SSA) formulate solutions/possibilities for suitable (therapeutic) work. This process is guided by an independent RTW

coordinator to achieve consensus. Based on the resulting RTW implementation plan, to create an actual RTW perspective, a vocational rehabilitation agency is assigned to find a matching (therapeutic) workplace. The cost-effectiveness of this participatory RTW program will be evaluated in a randomised controlled trial.

Conclusions

IM is a promising tool for the development of tailor-made OHC interventions for the vulnerable working population.

BACKGROUND

Participatory interventions and return-to-work

In the past decade in activities aiming at return-to-work (RTW), there has been a growing awareness to change the focus from sickness and work disability to recovery and work ability[1]. In line with this need for a (re)activating approach and the focus on RTW, development of participatory occupational health care (OHC) interventions has received growing attention in recent years[2-7]. To date, studies on the effect of participatory OHC approaches on RTW are limited in number. Participatory approaches in ergonomics as a primary preventive intervention have a longer history and are more established[8-12]. However, when looking at OHC and RTW evidence suggests that participatory ergonomic RTW interventions have a positive impact on: musculoskeletal symptoms, reducing injuries and workers' compensation claims, and a reduction in lost days from work or sickness absence[12]. It is to early to generalize, but the found positive effects on RTW are hopeful[13-15] (Lambeek et al., 2009, submitted). And although the elements of these participatory RTW interventions that contributed most to the favorable outcomes cannot be established based on the above mentioned studies, two key-elements have been suggested[15]. First, the participation of all stakeholders involved in the RTW process, and second stimulating involvement of the sick-listed worker can lead to greater patient control and greater adherence to work modifications.

When looking at the development of participatory RTW interventions, these interventions have to date mainly been directed towards employees[16]. But, within

the working population in the Dutch Social Security System there is a vulnerable group: workers who have no workplace/employer to return to when sick-listed.

The Dutch Social Security System

There are countries where sick-listing can only occur when an individual is gainfully employed. However, in the Netherlands the Sickness Benefits Act provides for workers who are sick-listed and have no (longer) an employment contract. When these workers, i.e. unemployed workers and temporary agency workers, fall ill they can apply for a sickness benefit at the Social Security Agency (SSA) and receive 70% of their last daily wage during the first two years of sickness absence. However, since there is no (longer) a labour agreement, there are no legislative mandates for these workers to be returned to their previous/last job.

Temporary agency work can be considered an atypical and non-standard form of employment. First, there is a triangular relationship (as opposed to the bilateral relationship between an employer and employee) between the worker, a company acting as a temporary work agency, and a user company in which the temporary work agency places the worker at the disposition of the user company. And second, the work is of a temporary nature without a labour agreement, this in contrast to a temporary worker with a fixed-term contract. In the Netherlands temporary workers with a fixed-term contract are viewed as employees and when sick listed the employer has to pay 100% of the daily wage.

Risk for sickness absence and work disability

Sickness absence and risk for long-term work disability for sick-listed temporary agency workers and sick-listed unemployed workers is higher than for employees[17-19]. One explanation for this is the greater representation of persons with a higher risk for work disability (i.e. lower education, female gender, non-natives and occupationally disabled, i.e. people with developmental or acquired disabilities resulting in occupational impairments)[20-23]. Also, vocational rehabilitation and RTW guidance for this group is unsatisfactory[18,20]. For this group there is a need for tailor-made RTW strategies and interventions (Vermeulen et al., 2009, submitted). However, a participatory RTW program for sick-listed temporary agency workers and sick-

listed unemployed workers is not available yet. Therefore, we wanted to develop a participatory intervention for this vulnerable group of workers, sick-listed due to musculoskeletal disorders (MSD). We decided for MSD because this is, next to mental disorders, the second most common cause of work disability among both employees and workers without an employer in the Netherlands[17,24].

Participatory RTW program for employees with low back pain as starting point

The successful participatory RTW program for employees 2-6 weeks sick-listed due to low back pain[3,15] was the starting point. This program, based on participatory ergonomics (PE)[8,9] consists of a stepwise process to identify and solve obstacles for RTW by the sick-listed employee and his/her supervisor, resulting in a consensus based implementation plan to facilitate RTW. Key element is an independent RTW coordinator who guides the process to achieve consensus. This participatory RTW program resulted in significantly earlier RTW; an average of 27 days. Furthermore, compliance and satisfaction with the intervention were good for employees and OHC professionals. To tailor this RTW program to the needs and specific context of the new target group, i.e. sick-listed temporary agency workers and sick-listed unemployed workers, and to enhance applicability and effectiveness of the program we used Intervention Mapping (IM)[25,26]. This is a six-step iterative process intended to integrate theoretical and empirical knowledge, including input and feedback from multiple stakeholders. To date, IM has been mainly used for health education and health promotion research. Recently, IM has been also applied in the field of OHC and proved to be a promising tool for intervention development[6]. The aim of this paper is to describe the IM process to develop a participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD.

METHODS

Intervention Mapping (IM) describes the stepwise process for development of theory- and evidence-based and practise-based interventions[25-28]. The basis for IM is formed by three core processes: searching the literature for empirical findings; assessing and using theory; and collecting and using new data. IM stimulates

involvement of stakeholders during the entire process of program development, implementation and evaluation.

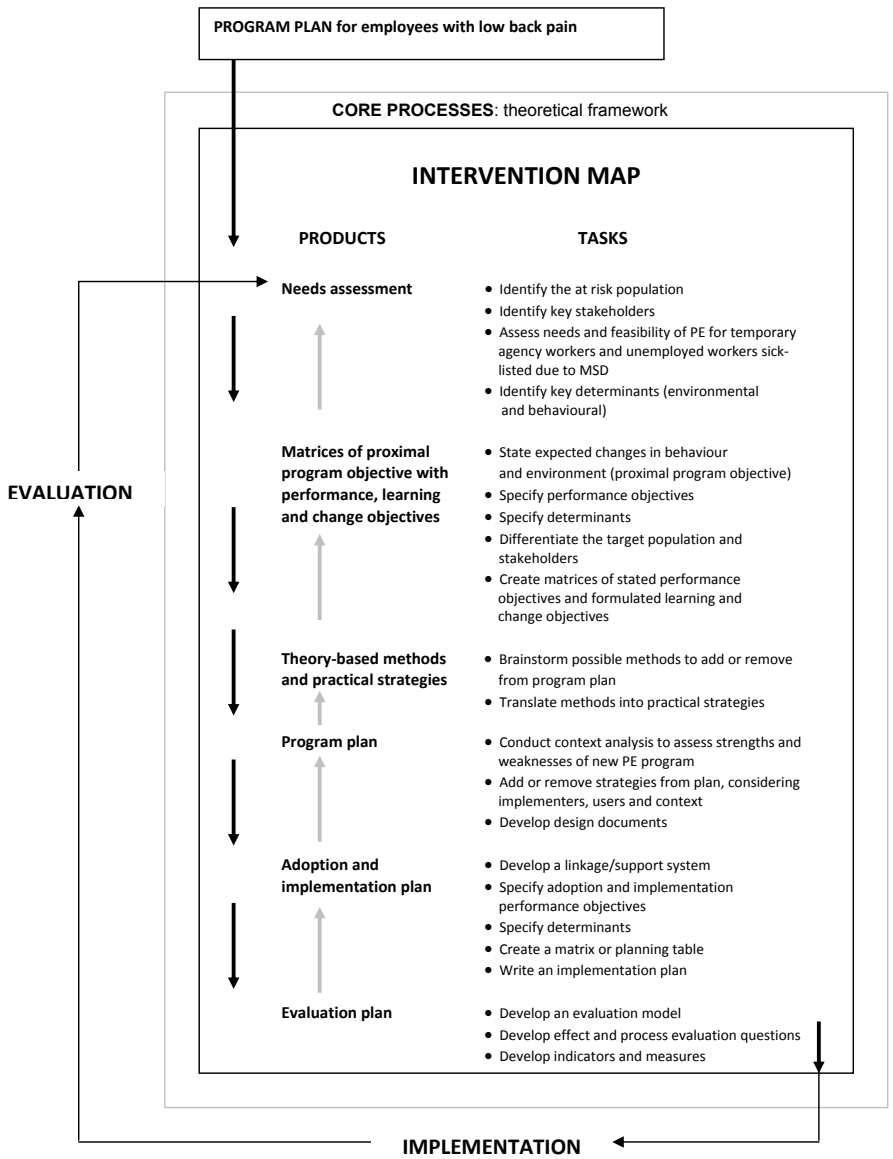

Figure 1. Intervention Mapping process
Intervention Mapping process for development of the PE program for temporary agency workers and unemployed workers, sick-listed due to MSD (based on Intervention Mapping as described by Bartholomew and colleagues [25-27]).

The Intervention Map itself consists of six steps and, to date, it has been used mainly as a tool for the planning and development of health promotion interventions. IM is an iterative and cumulative process. The program developer moves back and forth between the steps and each step is based on previous steps. In this study, the starting-point was the evidence-based RTW program already developed for employees sick-listed due to low back pain, i.e. the participatory RTW program[3,15]. Next, IM was applied to tailor this participatory RTW program to develop a theory- and practise-based RTW program for a vulnerable group among the working population, i.e. sick-listed temporary agency workers and sick-listed unemployed workers. The six steps of the Intervention Map are described below. In addition, the whole IM process is presented in figure 1.

Step 1 Needs assessment

The first step in IM is the needs assessment[25-27]. The key purpose of this step was to assess the need for and feasibility of a new RTW program for sick-listed temporary agency workers and sick-listed unemployed workers. The effectiveness of the participatory RTW program has been shown in employees with low back pain[13-15] (Lambeek et al., submitted). However, the target group and involved key stakeholders in this study were significantly different. Therefore, exploration of relevant key stakeholders involved in RTW of sick-listed temporary agency workers and sick-listed unemployed workers in current practise, as well as the needs and feasibility for this type of intervention was conducted. First, the most important stakeholders were the sick-listed temporary agency worker and sick-listed unemployed worker, i.e. the target group. Results from a survey were used to asses the needs among these stakeholders (n=1077). Next, other important key stakeholders were identified and interviews were held with these stakeholders. They consisted of decision makers from the Social Security Agency (SSA) (n=3), representatives of the SSA involved in policy regarding the Sickness Benefits Act and Unemployment Insurance Act (n=5), a decision maker of the Dutch association of temporary work agencies (n=1), a decision maker of a large temporary work agency (n=1), and representatives of vocational rehabilitation agencies (n=3). Based on the needs assessment and a literature review, the new target group (population at risk) and key determinants (environmental and

behavioural) for the health problem were identified. Finally, based on this first step, the desired program outcomes were formulated.

Step 2 Proximal Program Objective

Step 2 of IM is important, because in this step the expected change or program outcome is stated, i.e. who and what will change as a result of the intervention? The main objective of the new program, i.e. the proximal program objective, was defined based upon the needs assessment (step 1) and a scientific analysis of the health problem. Identifying the health problem and associated determinants (environmental and behavioural) in the new target group/population at risk, provided the basis of the new RTW program. Subsequently, performance objectives, learning objectives and change objectives were stated. Finally, matrices were created of these performance objectives, learning objectives and change objectives.

Step 3 Methods and Strategies

The purpose of step 3 of IM is to select suitable theoretical methods and practical strategies to address the learning and change objectives formulated in step 2. Theoretical methods are techniques derived from theory and research, while a strategy is the practical application of a specific method. In selecting methods and strategies several routes may be taken based on experience with theory and practise. Reviewing of the literature showed that RTW of sick-listed temporary agency workers and sick-listed unemployed workers is a rare topic, therefore the general theory approach was used. In line with the development of a participatory RTW program for stress-related mental disorders[6], the Attitude-Social influence-self-Efficacy (ASE) model was chosen as underlying theoretical framework[29-31] for achieving RTW behaviour. This ASE model is based on the theory of planned behaviour[29]. According to this model (see figure 2) the intention regarding RTW behaviour of a sick-listed worker is determined by attitude (views, feelings and preferences of the sick-listed worker regarding RTW), social influence (beliefs, safety, and support of a social network regarding RTW of the sick-listed worker), and self-efficacy (belief of the sick-listed worker that he/she is capable to RTW). In addition, the ASE model includes the influence of barriers and resources, and knowledge and skills to achieve

RTW. A review of the literature showed that the three main determinants: worker's attitude, social influence and self-efficacy all have been identified as prognostic factors regarding RTW[32-37].

Next, based on the review of literature, a brainstorm session in the project group, and input from key stakeholder derived from the semi-structured interviews, suitable methods and strategies were chosen. This resulted in a matrix, matching the selected methods and strategies for each determinant.

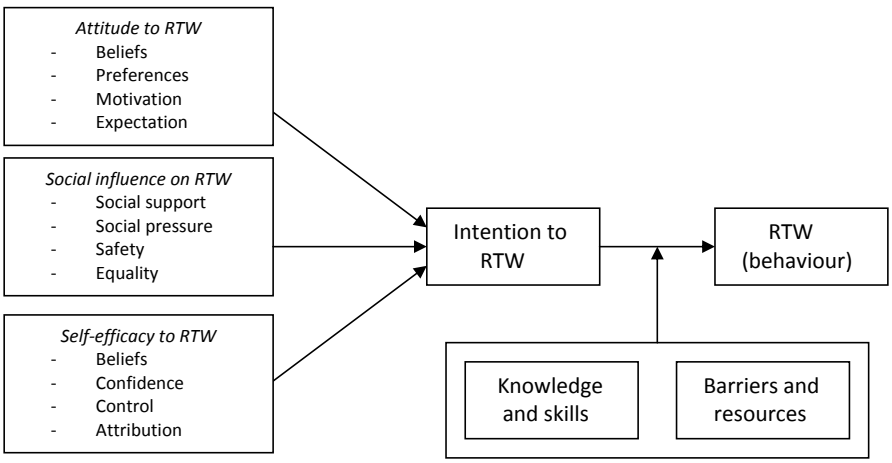

Figure 2. ASE model applied to RTW of a sick-listed worker
ASE model regarding RTW of a sick-listed temporary agency worker or a sick-listed unemployed worker, based on the theory of planned behaviour [29].

Step 4 Program production

In step 4 it is important to verify that the program content matches with the intended target group and program context. To assess the strengths and weaknesses of a participatory RTW program for sick-listed temporary agency workers and sick-listed unemployed workers, a context analysis was conducted[38]. Semi-structured interviews were held with important stakeholders of the SSA, i.e. decision makers (board and management; n=5), implementers (management and staff; n=5) and users (insurance physicians and labour experts; n=17), and representatives of national temporary work agencies (n=3). Questions were asked regarding the potential benefits of the new RTW program, the complexity of this program, compatibility

with daily practise, possibility to try it out, and directly visible results of the new RTW program. Besides analysing the potential of the new program itself, it was also important to take into account the specific factors of the context in which the participatory RTW program will be implemented and used. Therefore, important factors regarding each stakeholder and his/her environment were also analysed, in relation to the individual person (knowledge and skills, self-efficacy, experience, expectations, willingness to change, attitude towards new RTW program, and attitude towards makers of the new RTW program) and the organisation in which they worked (organisation culture, organisation standards and values, organisation structure, degree of policy support, degree of preconditional support, and degree of social and professional support). Each interview was tape-recorded and transcribed. Participants signed a privacy agreement declaring: voluntary participation, no transmittal of information to others, and permission for using this information for the development of the program. The information from these interviews was then used to tailor the participatory RTW program, taking into account the specific target group, the implementers, the users and the specific factors concerning the context in which the program will be applied. Subsequently, two focus group meetings were held to fine-tune the draft version of the new RTW program. These focus groups consisted of representatives of decision makers, implementers and users employed by the SSA. Based on the matrices developed in step 2 and 3, the results of the semi-structured interviews, and the input from the focus groups, a final version of the participatory RTW program for the target group was developed.

Step 5 Adoption and implementation

Step 5 can be seen as a re-run through the previous IM steps, now focussing on objectives, methods and strategies to ensure the adoption and implementation of the participatory RTW program by the users. Anticipation of implementation is an important factor, ideally starting at the beginning of the IM process. In this step it is required to identify potential users, to formulate adoption and implementation performance objectives for the program users, and to select methods and strategies to achieve the necessary change in behaviour. To achieve successful adoption and implementation in this study, instruction and coaching sessions were held among

the users, i.e. OHC professionals. This was supported by purposely developed syllabi with detailed information about the intervention, practical summaries and schemes, and practice material.

Step 6 Evaluation plan

Step 6 is the anticipation of process and effect evaluation. The list of proximal program objectives, i.e. the main objectives of the new program formulated in step 2, was used as a guidance for the evaluation of the participatory RTW program effects. This resulted in an evaluation plan with defined variables and corresponding evaluation measures.

RESULTS

Step 1 Needs assessment

A longitudinal cohort study among sick-listed workers without an employment contract[39-41], constituting of both temporary agency workers and unemployed workers, was used to assess the need of a participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. Absence of an actual workplace and decreased possibility for RTW in (temporary) adapted work were considered major obstacles and a main reason for the absence of actual RTW[39-41]. Also, satisfaction with OHC by the SSA was moderate[40]. Sick-listed workers without an employment contract reported receiving less OHC interventions than sick-listed employees [39-41]. From their perspective, more could be done by the OHC professionals of the SSA to facilitate RTW. For instance, a problem analysis with making of a RTW implementation plan was viewed as an important OHC intervention. However, only 20% of the sick-listed workers reported receiving this OHC intervention[41]. In contrast to sick-listed employees, there is no legal obligation for employers and temporary agencies regarding RTW support of sick-listed workers without an employment contract. However, among these workers there was a need for structural cooperation regarding RTW with responsibilities for all parties involved, including employers and temporary agencies[41].

Among the interviewed stakeholders, the need for a new and (cost-)effective RTW program for sick-listed temporary agency workers and sick-listed unemployed workers was commonly shared. Representatives of the SSA involved in policy regarding the Sickness Benefits Act argued that there should be more focus on RTW and on what a disabled worker still can do. Furthermore, decision makers from the SSA emphasized that there is a need for more uniformity and evidence-based interventions. Representatives of the SSA involved in policy regarding the Sickness Benefit Act and Unemployment Insurance Act underlined the need for starting earlier with OHC than current usual care, i.e. between 2 and 4 weeks after reporting sick. In addition, many of the stakeholders viewed also the absence of a workplace to return to a major obstacle for sick-listed temporary agency workers and sick-listed unemployed workers. And although there is a need for (temporary) adjusted work to facilitate RTW for these workers, this is not offered in practice. For the Dutch association of temporary work agencies (ABU) it was important to emphasize "the possibility for temporary work agencies to contribute to their social function and relevance by participating in RTW programs for these sick-listed workers". Since 2003 there is an official covenant between the SSA and the ABU, in which responsibilities for RTW of sick-listed temporary agency workers have been stated. Major themes are attention for the sick-listed temporary agency worker, offering a perspective regarding RTW, and reducing sickness absence. For the decision makers of the SSA and the ABU, minimizing the annual cost of benefit schemes was an important incentive. However, according to the ABU, in daily practice "temporary agency staff are judged on turnover, not on time-consuming rehabilitation support". Moreover, knowledge and experience regarding rehabilitation and RTW of sick-listed temporary agency workers were limited among the temporary agency staff. Structural communication to exchange information, knowledge and experience about OHC and RTW between the SSA and temporary agencies, was viewed as an important and crucial factor in the success of RTW programs for sick-listed temporary agency workers. One of the interviewed vocational rehabilitation agencies had a collaboration with several companies and offered directly available temporary workplaces. The other agencies relied on their network of potential employers, to supply a suitable (temporary) workplace. However, directly available workplaces among the employers in their

network were rare. Because searching for a suitable (temporary) workplace and a willing employer takes time, as a result of the interviews it became evident that a financial incentive was needed for the vocational rehabilitation agencies. In figure 3 illustrating statements derived from the interviews with stakeholders are presented.

More attention for workers without employer: the vulnerable working population
"Although in recent years there has been a growing awareness of the importance of prevention of occupational disability and development of effective RTW methods, the focus has been mainly on sickness absence and work disability among employees."
Decision maker of the SSA

Evidence-based medicine
"Having a structured and evidence-based RTW program, could increase the acceptance of a new and more uniform work procedure by the OHC professionals."
Decision maker of the SSA

Timing
"Nowadays the period between reporting sick and the first consult with the insurance physician is to long. At the moment it varies between 9 and 12 weeks."
Representative of the SSA involved in policy regarding the Sickness Benefits Act

Need for (temporary) adjusted work
"In practice temporary work agencies and users undertaking are often not able or willing to offer an adjusted workplace. Providing an actual (therapeutic) RTW setting could be a breakthrough."
Decision maker of the Dutch association of temporary work agencies (ABU)

Communication link
"A more active involvement is needed, but when a person starts working for an user undertaking, the temporary agency has limited insight in what happens on the work floor. Therefore, influence on a work situation is very difficult."
Decision maker of a large temporary work agency

Financial incentive
When a sick listed person can work with preservation of benefits, usually there is no need for additional financial incentives for the employer. However, vocational rehabilitation remains a commercial business. When there is no gain or profit, the agency will not accept a client."
Representative of a vocational rehabilitation agency

Figure 3. Illustrating statements derived from the interviews with stakeholders.

Summarizing, based on the needs assessment it became clear that the strength of the participatory RTW program was thought to be the consensus procedure to stimulate an active role of the sick-listed worker, to enhance the motivation for RTW and to ensure an adequate match between the temporary work and the capacities/ capabilities of the sick listed worker. The possibility of an actual workplace for therapeutic RTW was also viewed as an important key element. Taking into account appropriate incentives for all the stakeholders involved, it was believed to provide an important contribution in RTW of this vulnerable group of workers.

Step 2 Proximal Program Objective

Proximal program objective

Based on the needs assessment and a literature review the proximal program objective, i.e. the main objective of the new program, was formulated: reducing long-term sick-leave and occupational disability for temporary agency workers and unemployed workers, sick-listed due to MSD. Temporary agency workers and unemployed workers with MSD should RTW early and safely by reducing obstacles for RTW and by matching of personal capacities with work(place) demands. Obstacles for RTW can be related to the workplace, work organisation, working conditions, social relations, work environment (mental and/or physical workload), and personal abilities. In the absence of a workplace to return to, a matching temporary (therapeutic) workplace has to be created.

Target group and stakeholders

Important stakeholders for a participatory RTW program for sick-listed workers without an employer appeared to be: the temporary agency worker or unemployed worker himself/herself, the OHC providers, i.e. the insurance physician and the labour expert from the SSA as well as the case-manager from the vocational rehabilitation agency or temporary agency. And finally, an important stakeholder in the new participatory RTW program was found to be the RTW coordinator[42], who is an independent person who guides the process towards a consensus-based RTW implementation plan. Involvement of all stakeholders was found to be important, because they all play a key role in the success of RTW of this vulnerable group of workers.

Performance objectives

The selected performance objectives to reduce long-term sickness absence and occupational disability among temporary agency workers and unemployed workers sick-listed due to MSD are presented in figure 4. Eight performance objectives were formulated for the target group, based on the structure of the participatory RTW program developed for employees sick-listed due to low back pain.

Performance objectives for temporary agency workers and unemployed workers, sick-listed due to MSD, to reduce long-term sickness absence and occupational disability

1. To learn the negative consequences of occupational disability and having long-term sickness benefit as temporary agency worker or unemployed worker with a musculoskeletal disorder
2. To learn about the benefit of therapeutic RTW
3. To learn about the importance of matching of a temporary adapted work(place) design with personal abilities to achieve early RTW
4. To be able to identify and prioritise (physical and mental workload) obstacles for early RTW
5. To be able to discuss/explain obstacles for a safe and early RTW with RTW-coordinator and labour expert of the SSA
6. To be able to identify & prioritise solutions for obstacles for an early RTW
7. To be able to discuss solutions (related to physical and mental workload) for early RTW with the RTW-coordinator and labour expert and achieving consensus regarding solutions for RTW
8. To discuss about RTW implementation plan with RTW-coordinator and labour expert

Figure 4. Performance objectives.
Performance objectives for temporary agency workers and unemployed workers, sick-listed due to MSD, to reduce long-term sickness absence and occupational disability.

Determinants of performance objectives

After stating the performance objectives, the ASE model was used as a framework to describe factors influencing a change in behaviour, i.e. achieving (therapeutic) RTW of the temporary agency worker or unemployed worker. The identified determinants for each performance objective were divided into *personal* determinants (risk perception and knowledge, attitude, skills, self-efficacy, assertiveness, and outcome expectations) and *external* determinants (safety and equality, and support).

Learning and change objectives

Finally, based on evidence from a literature review and the needs assessment, matrices were created of the stated performance objectives, and the formulated learning and change objectives. Table 1 shows an example of learning objectives, which belong to the performance objective: the temporary agency worker or unemployed worker will discuss the RTW implementation plan with a RTW coordinator and a labour expert. Table 2 presents an example of change objectives, which belong to the performance objective: the temporary agency worker or unemployed worker is able to identify and prioritise (physical and mental workload) obstacles for early RTW.

Table 1. Example of learning objectives

Performance objective for temporary agency worker or unemployed worker	**Learning objectives**				
	Attitude	**Skills**	**Self-efficacy**	**Assertiveness**	**Outcome expectations**
To discuss about RTW implementation plan with RTW coordinator and labour expert	Positive attitude towards the consensus based RTW implementation plan Own initiative/ motivation for (therapeutic) RTW Belief in positive outcome of PE program	Participate in discussion with RTW coordinator and labour expert Making of realizable appointments regarding persons involved and time scheme for RTW	Confidence in own ability to discuss with RTW coordinator and labour expert Confidence in own ability to comply with appointments in RTW implementation plan	Dare to participate in discussion with RTW coordinator and labour expert	Having appropriate expectations of (therapeutic) RTW

Learning objectives based on the combination of a performance objective and determinants.

Table 2. Example of change objectives

Performance objective for temporary agency worker or unemployed worker	**Change objectives**	
	Safety and equality	**Support**
To be able to identify and prioritise (physical and mental workload) obstacles for early RTW	RTW coordinator provides clearness about PE process and his/her role RTW coordinator provides clearness about how to identify and prioritise obstacles for RTW	RTW coordinator provides tools to identify and prioritise obstacles (work related and personal factors) for early RTW

Change objectives based on the combination of a performance objective and determinants.

Step 3 Methods and Strategies

Suitable methods and strategies were selected based on a review of the literature, a brainstorm session in the project group, and input from key stakeholders derived from the semi-structured interviews. Next, these methods and strategies were incorporated in the new RTW program. In table 3 the selected methods and strategies are shown for the determinants risk perception and knowledge, skills and self-efficacy.

Table 3 – Theoretical methods and practical strategies

Determinant	Methods from theory	Strategy	Tools/materials
Risk perception and knowledge	Passive learning/ providing information	Providing written and verbal information	Letter sent to W about research IP explains about personal risk of occupational disability and ending in long term sickness benefit scheme Researcher explains participatory RTW program in phone call and sends invitation with folder, IP also explains in first consult. RC explains participatory RTW process to W and guides the RTW program
	Active processing of information	Evaluating understanding	IP instructs inventory of RTW obstacles to W as home assignment Inventory of RTW obstacles in RTW intervention program
Skills	Guided practise	Guided practise	W practises explanation of obstacles to LE with RC Practise thinking in broad outline during brainstorm session with RC RC provides post-it notes to stimulate thinking of multiple solutions
		Evaluation	RC checks at the end of the brainstorm session with W if the appointments in the RTW implementation plan are realizable

Self-efficacy	Positive reinforcement	Providing feedback	SIP and RC focus on personal abilities and capacities of W regarding RTW
		Evaluation	RC performs an evaluation with W by phone

Matrix of selected theoretical methods and practical strategies for the determinants risk perception and knowledge, skills, and self-efficacy, identified for the PE program. W = temporary agency worker or unemployed worker, IP = insurance physician, LE = labour expert, RC = RTW-coordinator

Step 4 Program production

Context analysis

From the interviews with the users, i.e. OHC professionals (insurance physicians and labour experts from the SSA), it became evident that clear information about and adequate training in using the participatory RTW program was considered important. To avoid delay in starting with the program, appointments had to be made to ensure a quick consult with the insurance physician and labour expert. Additionally, avoiding too much paperwork and supplying adequate computerised support to follow the RTW program were mentioned as relevant success factors. Realizing sufficient support by the staff of the SSA and a structural communication link between all participants by appointing case-managers were also seen as crucial elements. Furthermore, work pressure in daily practise was perceived high and the OHC professionals argued that explicit appointments had to be made with management to ensure sufficient time for implementing and using the new RTW program. Another important precondition was the presence of a RTW perspective for the sick-listed temporary agency worker or sick-listed unemployed worker, by offering an actual workplace for (therapeutic) RTW. In addition, the decision makers advised to ensure adequate overall implementation support by appointing a fulltime project manager. And the staff of the SSA emphasized the importance of having an independent person to guide the process towards a consensus based RTW implementation plan. Also, clear appointments about financial rewards for vocational rehabilitation agencies were seen as an important precondition to ensure the presence of RTW perspective

for these vulnerable workers. Finally, from the perspective of the temporary work agencies it was important to have a worker who is directly employable. This meant that the RTW implementation plan could be matched with existing vacancies. The results of the semi-structured interviews and input from the 'fine-tuning' meetings with the OHC professionals, staff and management of the SSA were used to design the final participatory RTW program.

Processing of program plan

Important elements from the needs assessment that have been incorporated in the RTW program are: the making of a RTW implementation plan with active involvement of the sick-listed worker and matching of possibilities with capacities; creating an actual (therapeutic) workplace; focus on what a disabled worker still can do; starting earlier with OHC; facilitating structural communication between the SSA, the temporary work agency and the vocational rehabilitation agency and; supplying a financial incentive for the vocational rehabilitation agency. In addition, as a result of the context analysis, i.e. the semi-structured interviews, the following items were incorporated: an appointment was made to ensure a quick consult with the insurance physician; an appointment was also made to ensure that the OHC professionals had sufficient time to work with the new RTW program; a specifically tailored computerised support system was developed; case-managers were appointed for structural communication between all parties involved and; a fulltime project manager was appointed.

As a result of the needs assessment, the semi-structured interviews and input from the focus groups, the existing participatory RTW program for employees sick-listed due to low back pain was adapted and resulted in a participatory RTW program for temporary agency workers and unemployed workers sick-listed due to MSD. First, the sick-listed worker is an essential stakeholder. Another important stakeholder in the RTW program for sick-listed employees is the supervisor at the workplace. Since in most cases the sick-listed temporary agency worker or sick-listed unemployed worker has no employer, there is also no formal supervisor. For this group of sick-listed workers, the SSA is responsible to facilitate RTW: the insurance physician has the role of OHC professional and the labour expert has the role of case manager in vocational

rehabilitation support. Thus, the labour expert of the SSA is the second important stakeholder in the new RTW program. Finally, a key role in the participatory RTW program was found for the RTW coordinator[42], who guides the process towards a consensus based RTW implementation plan. This person has to have good process guiding abilities, an independent position, and sufficient knowledge and experience regarding rehabilitation. The labour experts of the SSA fulfilled these requirements. To guarantee the independence of the RTW coordinator, it was stated that he/she should have no other involvement in the rehabilitation support of the sick-listed worker concerned. Table 4 shows an overview of the new participatory RTW program.

Table 4. Structure of the PE program

Step		Content	Who are involved?
1.	*Organisation and preparation*	Check if insurance physician and labour expert have been informed about program and agree with it	RTW coordinator
		Check if combined consult with insurance physician and labour expert is planned	RTW coordinator
		Check who is case manager of vocational rehabilitation agency for placement in temporary (therapeutic) work	RTW coordinator
		Plan appointments for conversations	RTW coordinator, worker and labour expert
2.	*Inventory of obstacles and experienced limitations regarding RTW*	Interviews about work tasks, obstacles and experienced limitations for RTW	RTW coordinator has separate interviews with worker and labour expert
		Prioritize obstacles and limitations for return-to-work	RTW coordinator, worker and labour expert
3.	*Inventory of (therapeutic) work possibilities (thinking of and choosing solutions*	Thinking of and collecting solutions for suitable (therapeutic) work (places)	RTW coordinator, worker and labour expert
		Prioritizing solutions	RTW coordinator, worker and labour expert

4.	*Preparation of matching (temporary) work(place) and reporting*	Make plan for implementation of solutions i.e. placement in matching (therapeutic) work	RTW coordinator, worker and labour expert
		Stimulate own initiative of worker. While waiting on placement by agency, worker can also search for a suitable workplace	RTW coordinator, worker and labour expert
		Contact with vocational rehabilitation agency for intake	RTW coordinator, worker and case-manager of vocational rehabilitation agency
		Intake with vocational rehabilitation agency	Case-manager of vocational rehabilitation agency and worker If desired also RTW coordinator
5.	*Placement in matching (therapeutic) work and support*	Placement in matching (therapeutic) workplace	Case-manager of vocational rehabilitation agency, worker and employer
		If necessary, information and instruction at new workplace	Case-manager of agency, worker and employer
6.	*Evaluation/control*	Evaluation by phone: has placement in matching (therapeutic) work been realised? Satisfaction with placement in (therapeutic) work? Are adjustments necessary?	RTW coordinator has separate evaluations with worker and labour expert
		If placement has not yet been realised: stimulate own initiative of worker to find a suitable work(place)	Case-manager of rehabilitation agency also evaluates separate with worker and provides feedback to RTW coordinator

Additional points of interest were found for each step and are described below.

1. Organisation and preparation

To ensure that the (labour expert in the role of) case-manager in the participatory RTW program has sufficient information regarding the sick-listed worker, the sick-listed worker always has a consult with the labour expert before the start of the program. For practical reasons, and to minimize the inconvenience for the sick-listed worker, this consult directly follows the first consult with the insurance physician.

To stimulate an active involvement of the sick-listed worker in the participatory RTW program, the insurance physician asks to make an inventory of RTW obstacles, whether it be work or non-work related, as a home assignment in the first consult. The sick-listed worker is also asked to indicate to what extent the obstacles can be influenced. This inventory can be used as a starting point in the interview with the RTW coordinator.

2. Inventory of obstacles and experienced limitations regarding RTW

Adequate introduction by the RTW coordinator is important. The RTW coordinator underlines his/her independence, and stresses that guiding the participatory RTW process with equal contribution of the sick-listed worker and the labour expert is his/her main goal.

3. Inventory of (therapeutic) work possibilities (thinking of and choosing solutions)

In the planned brainstorm session the RTW coordinator, the sick-listed worker and the labour expert formulate solutions/possibilities for suitable (therapeutic) work. These solutions/possibilities can include aspects regarding work content, workplace, work organisation, work conditions and/or work environment. Since there is (in most cases) no workplace to return to, an extra element was added to the program. To provide an actual workplace, agreements were made with four vocational rehabilitation agencies. Within four weeks after enlisting, the assigned vocational rehabilitation agency has to offer at least two suitable therapeutic workplaces matching with the RTW implementation plan. If these suitable workplaces are not offered within the four week period, the other vocational rehabilitation agencies are asked also to search for suitable workplaces.

4. Preparation of matching (temporary) work(place) and reporting

As a conclusion of the above mentioned brainstorm session, the RTW coordinator makes a report in which the main items of the participatory RTW process are described: a summary of prioritised obstacles for RTW, the consensus based solutions, and if possible a concrete work(place) profile. In this RTW implementation plan explicit arrangements are formulated, including a concrete time path. Who does what and when? This report is then sent to the sick-listed worker, the labour expert and the insurance physician. And finally, the RTW coordinator informs the case-manager of the assigned vocational rehabilitation agency.

5. Placement in matching (therapeutic) work and support

The vocational rehabilitation agency has the task to find a (therapeutic) workplace, matching with the profile in the RTW implementation plan. A financial reward is given by the SSA to the vocational rehabilitation agency for placement in a matching (therapeutic) workplace.

6. Evaluation/control

The RTW coordinator evaluates approximately six weeks after making the consensus-based RTW implementation plan to see if everything is going according to plan. This is then registered in a final report and send to the sick-listed worker, the labour expert and the insurance physician.

Step 5 Adoption and implementation

As mentioned above, important stakeholders were involved in development of the new participatory RTW program to facilitate successful adoption and implementation. Next, purposely developed instruction and coaching sessions were held among the users, i.e. OHC professionals. All involved professionals received a syllabus with detailed information about the program, the participatory RTW protocol, practical summaries and schemes, and practice material. An additional training was developed for the RTW coordinators. The coaching for all involved professionals focused on: content of the protocol, role of the insurance physician, role of the labour expert, placement in (therapeutic) work by the vocational rehabilitation agency, and a brief instruction regarding the for this project developed computerised support system. The additional training for RTW coordinators focused on: content of the protocol, role of the RTW coordinator with illustrations for each step, and practise with anonymous cases and reporting. All professionals were offered personal guidance with the first cases to facilitate working with the new RTW program. Also a follow-up session was held with all participating multidisciplinary teams separately, consisting of the RTW coordinator, the labour expert and the insurance physician, to discuss difficulties and problems with working with the new RTW program in practise. A second follow-up session was held with all involved professionals together, including staff and management. This session was aimed at briefly refreshing the content of the participatory RTW program and to practise with cases as the main purpose.

Finally, to ensure adequate overall implementation support a project manager was appointed. Also a team to guide the process of implementation was formed, consisting of the researchers, representatives of the staff and management of the SSA, including the project manager, and representatives of the participating vocational rehabilitation agencies to facilitate adoption and implementation.

Step 6 Evaluation Plan

The (cost-)effectiveness of the new participatory RTW program will be evaluated in a randomised controlled trial. In addition, the implementation process will be evaluated. The Medical Ethical Committee of the VU University Medical Centre (Amsterdam, the Netherlands) has approved the study protocol. Trial registration: NTR1047. The results will be described elsewhere.

DISCUSSION

The aim was to describe the development, implementation and evaluation of a theory- and practise-based participatory RTW program for a vulnerable group among the working population, i.e. temporary agency workers and unemployed workers, sick-listed due to MSD. Following each IM step carefully, made it possible to tailor the existing participatory RTW program, taking into account the specific target group, the implementers, the users as well as the context in which the new participatory RTW program will be applied.

Strengths

IM proved to be a useful tool to map the path from needs and feasibility to a specifically tailored participatory RTW program. Because implementation of evidence-based interventions in OHC has been difficult, there is a need for systematic documentation of intervention development and implementation research[43]. Going back and forth between the IM steps made it possible to carefully consider each decision in the development, implementation and evaluation of the new program. And since the degree to which a project is planned is an important factor for its potential success[44], we believe that following all IM steps will enhance applicability and

future implementation. Furthermore, there is a growing need to optimize the role of stakeholders in OHC research, including intervention development and implementation[45-49]. In line with this, the IM protocol strongly supported input from different stakeholders to ensure participation and involvement in all steps of program development and implementation.

Another strength of this study is the use of the ASE model[29-31] as an underlying theoretical framework for determinants of behaviour regarding RTW and development of the intervention. This is strongly supported by recent insights regarding conceptual models for RTW, arguing that there is a need for a commonly adopted paradigm[50,51].

In addition, the new participatory RTW program was specifically tailored for the target group, the users and the context. By discussing with stakeholders e.g. in focus groups about important factors for innovations, such as potential advantage, complexity of the new program and compatibility with daily practise, we believe that this will enhance the success of future implementation[38].

Finally, in our opinion, following a time-consuming intervention development process, i.e. IM, instead of choosing a more haphazard approach to intervention design, led to innovations that otherwise would have been missed. For instance, the development of a specifically computerised support system, and making of explicit appointments with the management to ensure sufficient time for the OHC professionals to work with the new program. We believe that following the IM process resulted in a combination of keystones to be incorporated in the new participatory RTW program, which will enhance the commitment of the stakeholders and the implementation of the intervention by tailoring the intervention to their needs and the specific context.

Weaknesses

In this study the contribution of the intended target group itself was relatively modest compared to other stakeholders. Because the program has to be carried out by the OHC professionals of the SSA, the majority of involved persons in IM were from the SSA. It is possible, that the IM process would have resulted in other changes of the participatory RTW program if temporary agency workers and unemployed workers, sick-listed due to MSD, would have played a larger role in program development.

R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R31 R32 R33 R34

However, when looking at the results of a longitudinal cohort study among sick-listed workers without an employment contract[39-41], which was used for the needs assessment, the new participatory RTW program contains many of the elements mentioned in this study by the sick-listed temporary agency workers and sick-listed unemployed workers. This new RTW program stimulates early RTW intervention, more contact with the OHC professionals of the SSA, making of a consensus based RTW implementation plan, the presence of a (therapeutic) workplace to RTW, and structural communication between all parties involved. Therefore, we believe that the new RTW program matches the need of this vulnerable group for tailor-made OHC interventions. However, it will be difficult to generalize this RTW program to another context.

Comparison with other studies

Development of OHC interventions is a relatively rare described topic in the international literature. The few publications[4,52, 53] are based on a three phase process: development, implementation and evaluation, as proposed by Goldenhar and colleagues[43]. The importance of participatory strategies in program development has been also underlined by others[54-56]. In contrast to these studies, the main strength of IM for development of OHC interventions is the combination of a theory-based framework, choosing practical strategies and stimulating active involvement of all stakeholders during the whole process of program development, implementation and evaluation[25-27]. To our knowledge this is the first study, which has applied IM for intervention development for a vulnerable working population, consisting of temporary agency workers and unemployed workers.

Recommendations

To date, IM has been mainly used as a tool for the planning and development of health promotion interventions[25-27]. Recently, promising results were shown for the use of IM in OHC research[6]. This study shows that IM can also be useful for development of intervention programs for vulnerable working populations.

In addition, further development of other occupational disability interventions for the vulnerable working population, i.e. workers without an employment contract,

is needed. Since these workers do not have a permanent workplace/employer to return to when they are sick-listed, there is a need for new interventions which focus on RTW possibilities and which provide an actual RTW perspective for this group of workers. IM seems a promising tool to tailor new interventions to the specific needs and context and to enhance applicability and effectiveness of these programs.

CONCLUSIONS

Following all IM steps resulted in a structured stepwise participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. The implementation process and the cost-effectiveness regarding this new intervention will be evaluated in the near future.

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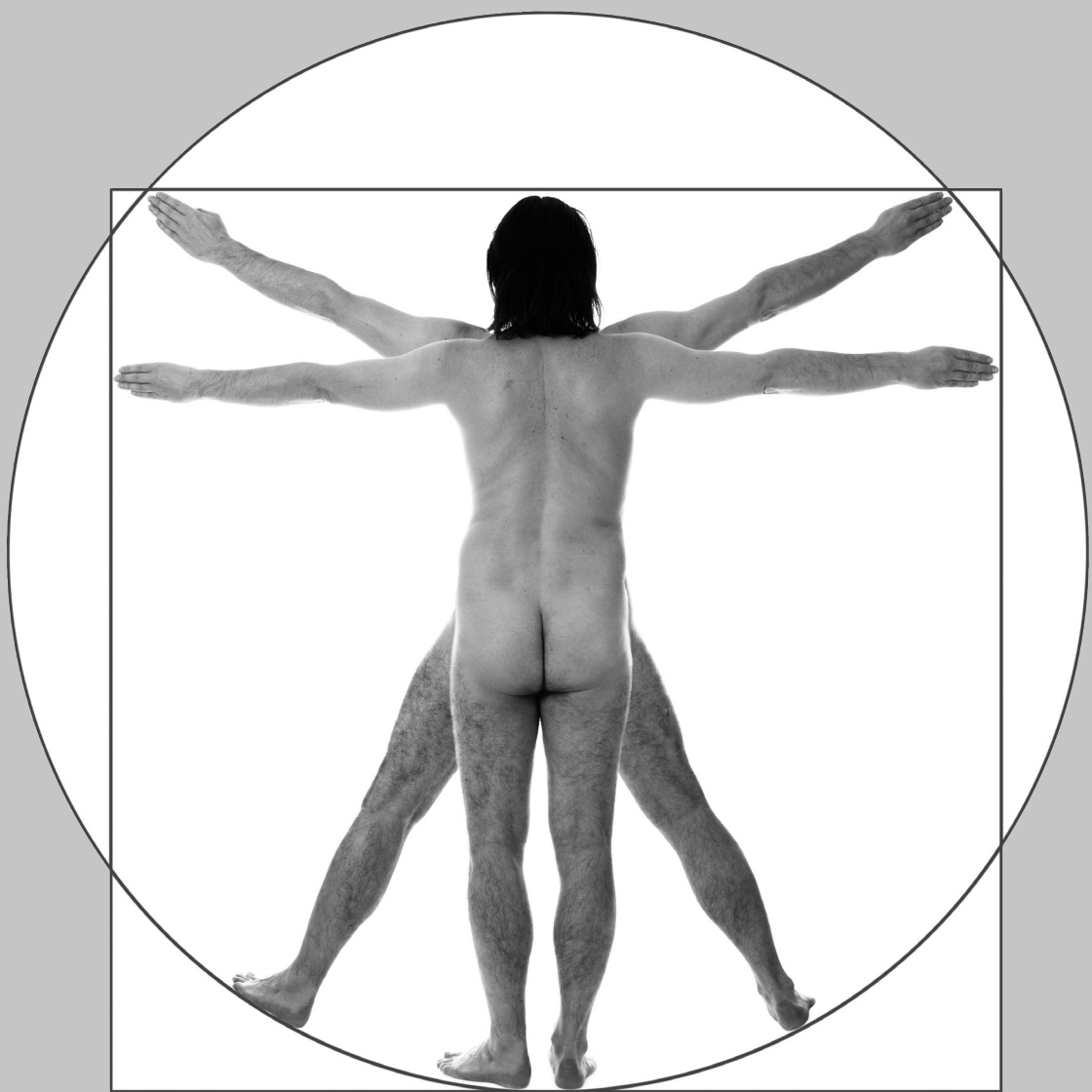

Chapter 4

Cost-effectiveness of a participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders: design of a randomised controlled trial

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ABSTRACT

Background

Within the working population there is a vulnerable group: workers without an employment contract and workers with a flexible labour market arrangement, e.g. temporary agency workers. In most cases, when sick-listed, these workers have no workplace/employer to return to. Also, for these workers access to occupational health care is limited or even absent in many countries. For this vulnerable working population there is a need for tailor-made occupational health care, including the presence of an actual return-to-work perspective. Therefore, a participatory return-to-work program has been developed based on a successful return-to-work intervention for workers, sick-listed due to low back pain.

The objective of this paper is to describe the design of a randomised controlled trial to study the (cost-)effectiveness of this newly developed participatory return-to-work program adapted for temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders, compared to usual care.

Methods

The design of this study is a randomised controlled trial with one year of follow-up. The study population consists of temporary agency workers and unemployed workers sick-listed between 2 and 8 weeks due to musculoskeletal disorders. The new return-to-work program is a stepwise program aimed at making a consensus-based return-to-work implementation plan with the possibility of a (therapeutic) workplace to return-to-work. Outcomes are measured at baseline, 3, 6, 9 and 12 months. The primary outcome measure is duration of the sickness benefit period after the first day of reporting sick. Secondary outcome measures are: time until first return-to-work, total number of days of sickness benefit during follow-up; functional status; intensity of musculoskeletal pain; pain coping; and attitude, social influence and self-efficacy determinants. Cost-benefit is evaluated from an insurer's perspective. A process evaluation is part of this study.

Discussion

For sick-listed workers without an employment contract there can be gained a lot by improving occupational health care, including return-to-work guidance, and by minimising the 'labour market handicap' by creating a return-to-work perspective. In addition, reduction of sickness absence and work disability, i.e. a reduction of disability claims, may result in substantial benefits for the Dutch Social Security System.

Trial registration

Trial registration number: NTR1047.

BACKGROUND

Vulnerable working population

To date, most research regarding occupational health care and return-to-work (RTW) is aimed at sick-listed employees, i.e. workers with an employment contract, and the majority of developed occupational health care intervention programs is workplace-based or contain a workplace component[1-9]. However, within the working population there is a vulnerable group, namely workers without an employment contract and workers with flexible labour market arrangements, e.g. temporary agency workers. This vulnerable group consists of relatively younger persons, more (partly) occupationally disabled, and more immigrants. Furthermore, this group is characterised by a lower education, a lower socio-economic status, less job security, a greater distance to the labour market[10-13], and an increased risk for work disability[10,14,15].

In most cases, when sick-listed, these workers have no workplace/employer to return to[16,17]. Also, for these workers access to occupational health care is limited or even absent in many countries[18-20], and when available occupational health care and RTW guidance appears to be inadequate[11]. In addition, literature shows that work itself[21], creating a supportive work climate and, if necessary, (temporary) work(place) accommodations[22,23] are important factors in facilitating RTW.

Therefore, adequate, i.e. tailor-made, occupational health care for this group of workers with the presence of a workplace for (therapeutic) RTW seems to be an important factor in the recovery and (vocational) rehabilitation process[16].

The Dutch Social Security System

In the Netherlands the Sickness Benefit Act, carried out by the Social Security Agency (SSA), provides supportive income, i.e. sickness benefit, for workers without an employment contract who become sick-listed. After reporting sick, the worker is entitled to occupational health care by the SSA during his/her sickness benefit period. Vocational rehabilitation is carried out by a team of occupational health care professionals from the SSA, consisting of an insurance physician, a labour expert, and a case-manager. The insurance physician of the SSA guides the worker according to Dutch guidelines for occupational health care. In addition, there are general obligatory occupational health care interventions, as dictated by Dutch legislation, such as inviting to consulting hours, discussing and advising about RTW, and making of a RTW action plan. In principle, when the worker is 6 weeks sick-listed he/she is invited to visit the SSA for a medical assessment by the insurance physician. The aim of this first medical assessment is to certify sickness and thereby approving the sickness benefit claim, and a to make a (medical) problem analysis with advising about recovery, e.g. health promotion, and RTW options. The occupational health care by the SSA ends when the worker is no longer sick-listed and the sickness benefit ends. When the worker is still partially or fully work disabled after two years, he/she can apply for a long-term disability benefit. This is the same as for long-term sick-listed workers with an employment contract.

A participatory RTW intervention

The structured and stepwise process of development, implementation and evaluation of a theory and practise-based participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders (MSD) was recently published[16]. This intervention is based on the already developed and cost-effective RTW program for employees, sick-listed due to low back pain[24,25]. Intervention Mapping (IM)[26-28] was used to specifically tailor the new RTW

program taking into account the target group, the users and the context in which the RTW program is implemented. The IM protocol strongly supported obtaining input from different stakeholders (i.e. sick-listed temporary agency workers, sick-listed unemployed workers, occupational health care professionals from the SSA, temporary agencies, and vocational rehabilitation agencies) to ensure participation and involvement in all steps of program development and implementation.

To enhance the success of future implementation, focus groups were held with stakeholders about important factors for innovations, such as potential advantage, complexity of the new program, and compatibility with daily practise[29]. This resulted in important keystones to be incorporated in the RTW program, namely: the presence of a RTW perspective (i.e. creating a (therapeutic) workplace), an independent RTW coordinator who guides the process to achieve consensus, the most suitable moment to apply the protocol, and a structural communication link between all stakeholders. The newly developed RTW program consists of a stepwise process to identify and solve obstacles for RTW by the sick-listed temporary agency worker or sick-listed unemployed worker and his/her labour expert from the SSA, resulting in a consensus-based implementation plan to facilitate (therapeutic) RTW. Since there is (in most cases) no workplace to return to, agreements were made with four vocational rehabilitation agencies to offer temporary (therapeutic) workplaces.

Objective

The objective of this paper is to describe the design of a randomised controlled trial (RCT) to study the (cost-)effectiveness of this new participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD, compared to usual care.

METHODS

To describe the design of the RCT, the CONSORT statement[30,31] was followed. The goal of this checklist is to improve the quality of reporting of randomised controlled trials.

Organisation of the study

The study design is a randomised controlled trial with a follow-up of one year (see figure 1). An economic evaluation is conducted alongside the RCT. The RCT is conducted in collaboration with five front offices of the Social Security Agency (SSA) and four large Dutch vocational rehabilitation agencies (Olympia, Adeux, Capability, and Randstad Rentrée) in the eastern part of the Netherlands.

To monitor the conduct of the study, a project group is formed, consisting of the researchers, representatives of the SSA (e.g. staff, management and occupational health care professionals), and representatives of the participating vocational rehabilitation agencies. The most important task of this project group is to identify and solve barriers for implementation of the participatory RTW program and working with the program in daily practice.

The Medical Ethics Committee of the VU University Medical Centre (Amsterdam, the Netherlands) approved the study design, the protocols and procedures, and informed consent. Towards the stakeholders and participants, the RCT is entitled the STEP-UP study.

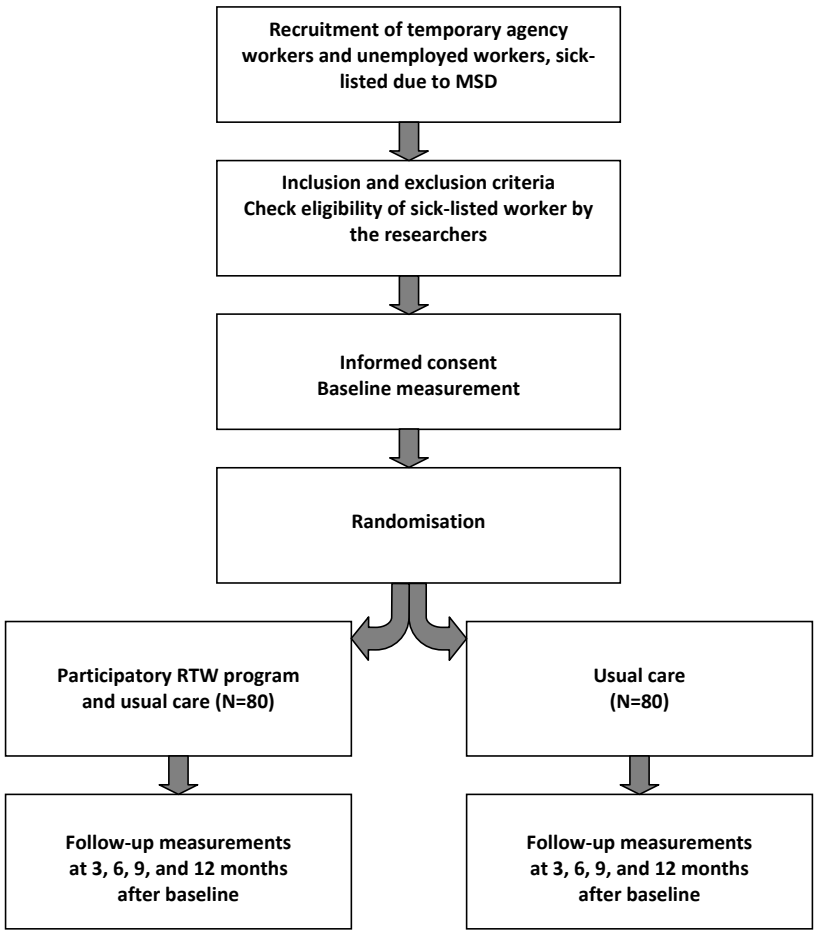

Figure 1. Design of the randomised controlled trial

Study population

The population in this study consists of temporary agency workers and unemployed workers, who live in the eastern part of the Netherlands and when sick-listed come under one of the five following front offices of the Social Security Agency: UWV Arnhem, UWV Apeldoorn, UWV Hengelo, UWV Nijmegen, or UWV Zwolle. The main inclusion criteria are: 1. being a temporary agency worker or unemployed worker; 2. being between 18 and 64 years of age; 3. being sick-listed between 2 and 8 weeks;

and 4. having MSD as main reason for a sickness benefit claim. The main exclusion criteria are: 1. an accepted sickness benefit claim and being sick-listed for more than 8 weeks; 2. not being able to complete questionnaires written in the Dutch language; 3. having a conflict with the SSA or the Dutch Institute for Benefit Schemes (UWV) regarding a sickness benefit claim or a long-term disability claim, respectively; 4. the presence of a legal conflict, e.g. an ongoing injury compensation claim; and 5. an episode of sickness absence due to MSD within one month before the current sickness benefit claim. After inclusion and randomisation the insurance physician of the SSA is asked to identify workers with severe co-morbidity; i.e. terminal disease, serious psychiatric disorders, or serious cardio-vascular disease, since these are contra-indications for receiving the participatory RTW program. These participants are prevented from starting with the participatory RTW program. However, following the intention-to-treat principle, they remain in the allocated study group (intervention or control). For an overview of all inclusion and exclusion criteria, see table 1.

Table 1. Overview of inclusion and exclusion criteria

Inclusion criteria
• temporary agency worker or unemployed worker • age between 18 and 64 years • sick-listed between 2 and 8 weeks • MSD complaints as main reason for reporting sick • able to complete questionnaires written in Dutch
Exclusion criteria
• sick-listed for more than 8 weeks • not able to complete questionnaires written in Dutch • a conflict with the SSA or UWV regarding a sickness benefit claim or a long term disability claim • a legal conflict, e.g. an injury compensation claim • episode of sickness absence due to MSD within one month before current sickness benefit claim • revision or ending of a disability benefit within one month before current sickness benefit claim • absence of work abilities due to medical reasons for at least three months • serious physical disease, e.g. cancer • serious psychiatric co-morbidity • serious cardiovascular co-morbidity • pregnancy until three months after delivery

Recruitment of participants

For the recruitment of participants the database of the SSA is used. When reporting sick not only personal data, but also the reason for this, i.e. the health problem, is registered (using codes) in a computerised client record system. Based on a weekly query of this record system, all temporary agency workers and unemployed workers who are sick-listed between one and two weeks due to MSD, and live in the eastern part of the Netherlands receive a letter from the insurance physician of the SSA, on behalf of the researchers. The aim of this letter is to give information about the study and to ask for their participation. In addition, they also receive an information flyer with more details about the study, a screening questionnaire, and a return envelope for the screening questionnaire. The reason for approaching potential participants in the second week of sick leave is the time period in which a RTW action plan has to be made, i.e. 8 weeks after the first day of reporting sick. This is obligated according to the Dutch Improved Gatekeeper Act. Furthermore, it has been shown that early RTW intervention is important to prevent long-term work disability[4,32-34].

Temporary agency workers and unemployed workers who return the questionnaire, and meet the criteria (being temporary agency worker or unemployed worker, and still sick-listed), and indicate that they are willing to participate are contacted by the researchers by telephone. In this telephone call additional information is given about the content of study and the implications of participation. Using the formulated inclusion and exclusion criteria, the eligibility of the worker is checked. If the temporary agency worker or unemployed worker meets all selection criteria and still wants to participate, an intake appointment with the research assistant is planned at one of the UWV front offices. The worker receives a confirmation of this appointment by postal mail, including a detailed information brochure about the study. During the meeting with the research assistant the worker gives informed consent, fills in the baseline questionnaire, and randomisation is performed.

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R34

The participatory RTW program

The aim of the new RTW program is to make a consensus-based RTW implementation plan. The three main stakeholders in this intervention are: the sick-listed worker himself/herself, the labour expert of the SSA who guides the worker with regard to vocational rehabilitation, and an independent RTW coordinator. The program starts with identifying obstacles for RTW, followed by a brainstorm session in which the sick-listed worker and the labour expert formulate solutions/possibilities for suitable (therapeutic) work. This process results in the making of a consensus-based RTW implementation plan. The RTW coordinator has a key role[35], not in the role of RTW expert, but he/she has to stimulate active involvement of both the sick-listed worker and the labour expert during the whole process and guide them towards consensus. In this study the RTW coordinator is an employee of the SSA with good process guiding skills, an independent position, and sufficient knowledge and experience regarding (vocational) rehabilitation. To guarantee the independence of the RTW coordinator he/she has no other involvement regarding vocational rehabilitation of the sick-listed worker concerned. Furthermore, to create an actual RTW perspective, a vocational rehabilitation agency is contracted to find a (therapeutic) workplace matching with the formulated RTW implementation plan and taking into account the worker's (functional) limitations. For an overview of the steps of the new participatory RTW program and the stakeholders involved, see figure 2.

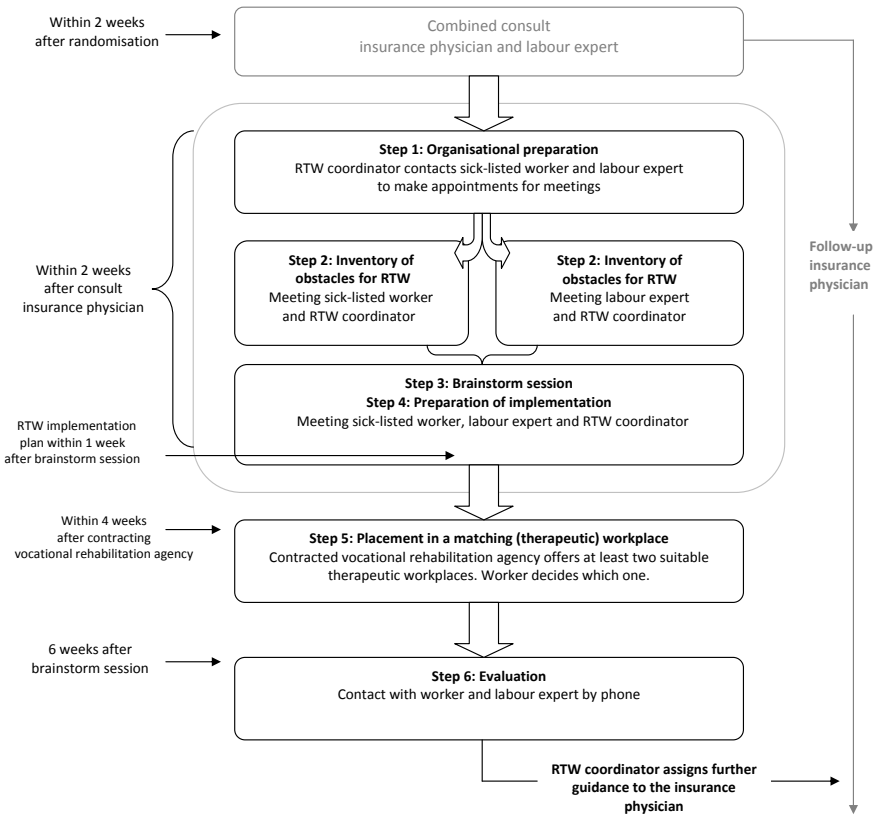

Figure 2. Content of the participatory return-to-work program

Combined consult insurance physician and labour expert

All participants receive usual care by the insurance physician of the SSA, i.e. treatment/guidance according to Dutch guidelines for occupational health care. The participants in the intervention group receive a home assignment from the insurance physician in the first consult. They are asked to make an inventory of RTW obstacles, whether it be work or non-work related, as starting-point for the first meeting with the RTW coordinator. To prevent conflicting advice about RTW the insurance physician sends a letter with an information brochure about the participatory RTW program to the general practitioner of the sick-listed worker. To ensure that the labour expert has sufficient information regarding the sick-listed worker before the

start of the RTW program, the sick-listed worker has a consult with the labour expert directly following the first consult with the insurance physician.

Organisation and preparation

The RTW coordinator checks if the worker has had the combined consult with the insurance physician and the labour expert. Next, he/she contacts the worker and the labour expert by telephone to plan meetings for the inventory of obstacles and the brainstorm session. These meetings have to take place within two weeks after the consult with the insurance physician.

Inventory of obstacles for RTW

The RTW coordinator explains to the sick-listed worker and the labour expert that the aim of the program is a consensus-based process to identify obstacles for RTW and to choose solutions, i.e. possibilities regarding type of work(place), work content and necessary preconditions (work or non-work related), to achieve RTW. Furthermore, the RTW coordinator explains that guiding the process with equal contribution by the sick-listed worker and the labour expert is his/her main goal.

In the meeting with the sick-listed worker the RTW-coordinator uses the inventory of obstacles for RTW (given to the worker in the first consult with the insurance physician) as a starting point. During the interview obstacles for RTW are identified. Next, these obstacles are prioritised based on frequency (how often do they occur?) and severity (how large is the impact on functioning in daily life and/or work?). Subsequently, the RTW coordinator has a meeting with the labour expert. The procedure is similar to the interview with the sick-listed worker and results in a selection of prioritised obstacles for RTW from the perspective of the labour expert. Finally, the RTW coordinator summarizes the results and formulates the prioritised barriers for RTW to be discussed in the brainstorm session.

Brainstorm session

At the start of the brainstorm session the RTW coordinator explains the summary of prioritised obstacles for RTW consisting of the three main obstacles identified by the sick-listed worker and the three main obstacles identified by the labour expert.

Next, the RTW coordinator explains the brainstorm procedure. Based on the nominal group technique[24] the sick-listed worker and the labour expert both have to think about solutions for all six prioritised obstacles. The proposed solutions are judged on the basis of availability, feasibility and ability to solve the barrier. The end goal of this session is to achieve consensus between the sick-listed worker and the labour expert about the most suitable and feasible solutions.

Preparation of implementation

Together, the sick-listed worker, the labour expert, and the RTW coordinator make a RTW implementation plan, describing who is responsible for implementation of each selected solution, including how this is going to be done and a time path. In addition, the RTW coordinator underlines the importance of own initiative of the worker to achieve RTW; i.e. while the contracted vocational rehabilitation agency is searching for a suitable temporary workplace, the worker himself/herself has the responsibility to look also for a suitable workplace based on the formulated work(place) profile. Next, the RTW coordinator makes a report in which the main items of the participatory RTW process are described: a summary of the prioritised obstacles for RTW, the consensus based solutions, and if possible a concrete work(place) profile. This report is then sent to the sick-listed worker, the labour expert, and the insurance physician. Finally, the RTW coordinator informs the case-manager of the contracted vocational rehabilitation agency.

Placement in a matching (therapeutic) workplace

Within two days after the brainstorm session the vocational rehabilitation agency is contracted by the RTW coordinator, who sends the formulated work(place) profile to the case-manager of the agency. Within four weeks after this initial contact, the vocational rehabilitation agency has to offer at least two therapeutic workplaces matching with the worker's functional limitations. Next, the sick-listed worker chooses one of these temporary workplaces. Placement in a temporary workplace is for a maximum of three months with ongoing supportive benefit by the SSA. If required, the case-manager of the vocational rehabilitation agency visits the workplace to instruct and advise/support the worker. And, if necessary, the case-manager of the

agency advises the supervisor at the workplace as to how to guide the worker in his/her new work situation.

Evaluation

Six weeks after the brainstorm session, the RTW coordinator contacts the worker and the case-manager of the vocational rehabilitation agency by telephone to inform whether placement in a temporary workplace has been successful and if everything is satisfactory. If there is still no placement in a temporary workplace, the RTW coordinator contacts the case-manager of the vocational rehabilitation agency to enquire whether and/or when this will be achieved, but stimulates also the worker to find suitable work himself/herself in the mean time. Next, the RTW coordinator makes a final report, describing the process and the outcome of the RTW implementation plan and assigns further guidance to the insurance physician.

The case-manager of the vocational rehabilitation agency is asked to make: 1. a report after the intake with the worker, including a description of the temporary workplaces offered to the worker, 2. a mid-term evaluation report six weeks after placement in a temporary workplace and 3. an end evaluation three months after placement in a temporary workplace. With these reports the case-manager of the agency informs the RTW coordinator, the labour expert and the insurance physician about the progress and (end) result of the placement in temporary (therapeutic) work; i.e. contribution to achieve a sustainable RTW.

Training of the OHC professionals

Instruction and coaching sessions are held for all involved OHC professionals, i.e. insurance physicians and labour experts of the SSA. They also receive a syllabus with detailed information about the participatory RTW program, the protocol, practical summaries and schemes, and practice material. The RTW coordinators receive an additional training, including a role playing and a practise with anonymous cases and reporting. All professionals are offered personal guidance with the first cases to facilitate applying the program. Next, two follow-up session are held with the professionals to discuss difficulties with working with the program and to practise with cases. Finally, to guarantee that the participatory program is carried out according to

the required time-path, each SSA front office forms at least two 'participatory RTW program' teams, i.e. 'STEP-UP teams', consisting of an insurance physician, a labour expert and a RTW coordinator.

OUTCOMES

Effect evaluation

The primary outcome measure in this study is: duration of the sickness benefit period from the first day of reporting sick until ending of the sickness benefit. Recurrence of sickness absence with an accepted sickness benefit claim within 4 weeks after ending of the previous sickness benefit is considered as belonging to the preceding sickness benefit period, on condition that it is due to the same (or related) MSD. Also, for calculation of the total duration of sickness benefit during the one-year follow-up awarded sickness benefit claims are only included when due to same (or related) MSD.

Secondary outcome measures are:

- RTW

When measuring the effect of a RTW intervention, it can be expected to take actual RTW as an important outcome measure. For sick-listed employees full RTW and ending of the sickness absence period coincides, in principle. However, for the sick-listed temporary agency worker and the sick-listed unemployed worker moving from being sick-listed to end of sickness benefit does not automatically also mean full RTW. Because in most cases these workers have no workplace/employer to return to, the worker can report being fully recovered from illness or the insurance physician of the SSA can establish full recovery of functional limitations (assessed with regard to last/previous work) without actual RTW of the worker. Therefore, RTW is measured as a separate outcome measure. RTW is defined as: duration from the first day of reporting sick until actual first RTW in any type of paid work or work resumption with ongoing benefits. Since for the majority of these workers there is no workplace to return to, working in the same or different type of work(place) is classified as RTW.

- Total number of days of sickness benefit

The total number of days of sickness benefit will be measured for the whole one-year follow-up period. For calculation of the total duration of sickness benefit awarded sickness benefit claims are only included when due to same (or related) MSD.

- Severity of MSD

Severity and changes in MSD are measured with the Dutch version of the Nordic Musculoskeletal Questionnaire (DMQ)[36]. In addition, musculoskeletal pain intensity is measured using the Von Korff[37].

- Functional status

Functional status, i.e. perceived functional impairments in daily life, is measured using the Dutch translation of the RAND-36[38,39].

- General health

General health is measured using the Dutch translation of the RAND-36. Quality of life is measured using the Dutch translation of the Euroquol questionnaire[40].

- Coping

Pain coping is measured using the Pain Coping Inventory Scale (PCI)[41].

- Attitude, Social Influence and self-Efficacy (ASE) determinants

In line with the development of a participatory RTW program for sick-listed employees with common mental disorders (CMD)[42], the Attitude-Social influence-self-Efficacy (ASE) model was chosen as underlying theoretical framework[43-45] for the development of the new participatory RTW program for sick-listed temporary agency workers and sick-listed unemployed workers. For the developed RTW intervention for CMDs questions about attitude, social influence, self-efficacy, barriers and facilitators were formulated and measured on bipolar five-point Likert scales[46]. This questionnaire is also used in this study.

- Direct and indirect costs

Direct costs are paid by the SSA for interventions regarding vocational rehabilitation support, e.g. training/education, for interventions aimed at health promotion , e.g. physical therapy (graded activity) and/or psychological help, or interventions aimed at RTW, e.g. searching for a (temporary) workplace by contracting a vocational rehabilitation agency or temporary placement in work with a willing employer and with an ongoing benefit. Information regarding direct costs is collected from the SSA database and the worker's files after one year of follow-up.

Indirect costs are related to costs due to paid sickness benefit for the sick-listed workers with MSD. When looking at sick-listed temporary agency workers and sick-listed unemployed workers, loss of productivity is not part of the indirect costs. When reporting sick the temporary agency workers immediately falls under the SSA for substituted income, i.e. the sickness benefit. The temporary agency replaces the sick-listed temporary agency worker with a healthy worker at the company/workplace concerned with no productivity loss as a result. Therefore, indirect costs with regard to sick-listed temporary agency workers are the sickness benefit costs paid by the SSA. However, this does not apply to unemployed workers. These workers have no work(place), i.e. there is no productivity. As a consequence, being sick-listed does not result in a productivity loss. Another important fact is that an unemployed worker receives an unemployment benefit. After reporting sick with acceptance of the sickness benefit claim by the SSA, the sick-listed unemployed worker receives a sickness benefit instead of an unemployment benefit. However, the amount of these benefits can differ as this is established using different income conditions. As a result, the sickness benefit can be more than the unemployment benefit. From this perspective, the additional benefit costs are considered indirect costs in this study. Data on paid benefits are collected from the SSA database after the one-year follow-up. Cost-benefit evaluation of the new RTW program is part of this study and will be discussed below.

An overview of the outcome measures and the measurement instruments used, including a time path for all measurements, is presented in table 2.

Table 2. Overview of measurements and time path

Measurement	Time path				
	Baseline (T0)	3 months (T1)	6 months (T2)	9 months (T3)	12 months (T4)
Prognostic measures					
- Demographic variables (e.g. age, gender)	X				
- Last work (function, hours)	X				
- Work status before reporting sick	X				
Primary outcome measure					
- Duration of sickness benefit	X	X	X	X	X
Secondary outcome measures					
- RTW	X	X	X	X	X
- Total number of days of sickness benefit	X	X	X	X	X
- Severity of complaints (DMQ)	X	X	X		X
- Pain intensity (Von Korff)	X	X	X		X
- Functional status (RAND-36)	X	X	X		X
- General health (RAND-36)	X	X	X		X
- Quality of life (Euroqol EQ-5D)	X	X	X		X
- Coping (PCI)	X				
- ASE determinants (ASE questionnaire)	X	X			
- Direct and indirect costs					X
- Patient satisfaction (PSOHSQ)*		X			

* patient satisfaction with occupational health services is only measured in the intervention group (as part of the process evaluation)

Data collection

Most outcome variables are measured using self-report questionnaires. At the intake appointment with the research assistant, after informed consent, the sick-listed worker fills in the baseline questionnaire. All participants are followed one year with measurements, i.e. questionnaires, at 3, 6, 9 and 12 months after baseline. These questionnaires are sent by postal mail. If the received questionnaire is incomplete or if anything is unclear, the researcher or research assistant contacts the participant to clarify and, if possible, to complete the questionnaire. Data on sickness benefit are registered by the SSA and are acquired from the SSA database after one-year follow-up. These data are checked with information regarding sickness benefit as registered

by the insurance physician of the SSA in the medical file of the sick-listed worker, and the self-reported information in the questionnaires. Data regarding diagnosis and occupational health care interventions are obtained from the SSA database and medical file of the worker at the SSA. Data regarding RTW are obtained from both the SSA database, including the workers' file, and the self-report questionnaires.

Prognostic measures

At baseline information is gathered regarding demographic variables, such as gender, age, and level of education. Also, information regarding last work, e.g. type of previous work and number of working hours, and the work status (working or not working) directly prior to the baseline measurement is collected. This is partly based on findings in the international literature[47-49], indicating that the work status before sickness absence is a prognostic factor for the duration of sick leave and work disability.

Cost-benefit evaluation

Cost-benefit is evaluated from the insurer's perspective. Direct and indirect costs are measured with data from the SSA database and the worker's files, as mentioned above. Direct costs are calculated from the amount of paid occupational health care interventions by the SSA. Indirect costs are calculated from the (additional) costs of paid sickness benefit.

Process evaluation

After implementation a process evaluation is conducted among the participants in the intervention group. Three months after inclusion a questionnaire is sent to the worker, the insurance physician, the labour expert, the RTW coordinator and the case-manager of the contracted vocational rehabilitation agency. For the participants, the process evaluation questions are included in the 3-months questionnaire and sent by postal mail. Questions are asked regarding applicability, compliance, satisfaction and barriers regarding (implementation of) the new RTW program in practice. Patient satisfaction is measured using the Patient Satisfaction with Occupational Health Services Questionnaire (PSOHQ)[50]. In addition, when all participants in the

intervention group have had the opportunity to receive the new RTW program, i.e. 3 months after inclusion of the last participant, focus group meetings are held among the staff, management and involved occupational health care professionals of the SSA, and the case-managers of the vocational rehabilitation agencies concerned. The content of these focus groups are based on the principles of context-analysis as proposed by Grol and Wensing[29].

Finally, standardised schemes are used to collect data regarding the identified barriers for RTW, the formulated solutions and the resulting consensus-based RTW implementation plan. The collected data will be analysed qualitatively and quantitatively. In addition, the identified barriers and solutions will be classified using the Ergonomic Abstracts scheme[51,52].

Sample size

In this study the primary outcome measure is duration of the sickness benefit period. Recurrence of sickness absence (due to the same or related MSD) with an accepted sickness benefit claim within 4 weeks after ending of the previous sickness benefit is considered as belonging to the preceding sickness benefit period. As a starting-point for calculating the sample size we assume that a Hazard Ratio (HR) of 2.0 is the minimal clinical and societal relevant ratio, indicating that temporary agency workers and unemployed workers in the intervention group end their sickness benefit period twice as quickly compared to the workers in the control group. This HR is based on comparable studies on sickness absence and RTW of short-term sick-listed employees[25,46,53-55]. Assuming that the sickness benefit will end for 2/3 of the participants during the one-year follow-up period, and based on a power of (1-b=) 0.80 and a two-sided significance level of 0.05 (a) a sample size of 100 participants (n= 2 x 50) is needed[56]. Since there is a continuous registration of sickness benefit duration by the SSA, a high loss to follow-up with regard to the primary outcome is not expected. However, based on comparable research[57,58] loss to follow-up of 10% is taken into account. This results in 110 participants (n= 2 x 55) to be included in the study. Next, potential clustering of cases assessed by the same insurance physician is taken into account, since the insurance physician plays a key role in acceptance of the sickness benefit claim and the assessment of (sufficient) recovery of functional

limitations. For this calculation an ICC of 0.05[25,46] is used and a minimal number of clusters of 10 (i.e. 5 front offices with at least 2 participating insurance physicians at each office). This results in 160 participants (n= 2 x 80) to be enrolled in the study.

Randomisation procedure

An independent statistician performs the randomisation, using computer-generated randomisation tables. To prevent unequal distribution of relevant prognostic baseline characteristics, before randomisation the sick-listed workers are pre-stratified based on two important prognostic factors, namely type of worker[47-49], i.e. temporary agency worker or unemployed worker, and degree of mental or physical work demands (light or heavy) in last work before current sickness absence[59,60]. Next, block randomisation (using blocks of four allocations) is applied to ensure equal group sizes within each stratum. A separate block randomisation table is generated for each of the five participating front offices of the SSA. Next, the researcher prepares for each stratum opaque sealed envelopes, containing either a referral to the new RTW program group or to the usual care group. After informed consent and completing the baseline questionnaire, the temporary agency worker or unemployed worker is asked to choose one of the two succeeding envelopes of the correct stratum. Then, the worker is asked to open the envelope and write down his/her name and date on the note with the randomisation result.

Blinding

Since the occupational health care professionals can be involved in guidance of participants of both the intervention group and the usual care group and because the new RTW program contains several new elements compared to usual care, i.e. a combined consult with the insurance physician and the labour expert, meetings with the RTW coordinator, and contracting of a vocational rehabilitation agency for finding a temporary (therapeutic) workplace, the occupational health care professionals cannot be blinded for the allocation. Furthermore, most outcome measures are self-reported, which also makes blinding for the participants not possible. However, the occupational health care professionals and RTW coordinators are not involved in the assessment of the outcomes. Moreover, since all follow-up questionnaires are sent

to the participants by postal mail, it is unlikely that direct influence of the researchers or occupational health care professionals will occur.

Since the registration of sickness benefit is done by the SSA, these measurements can be derived from the computerised SSA database. Therefore, bias due to a lack of blinding is prevented for this outcome. Blinding for the secondary outcomes is not possible, because these measurements are derived from self-reported data. After randomisation all participants receive a research code consisting of a unique consecutive number. All data will be put in the computer by a research assistant, using this research code, to guarantee that analyses of the data by the researcher will be blinded.

Co-interventions and compliance

Unfortunately, in this pragmatic RCT it is not possible to avoid co-interventions during the intervention period, because asking the temporary agency workers, the unemployed workers, and the occupational health care professionals of the SSA to stop or not start with other treatments will lead to less participation. To measure the compliance with the new RTW program, the participants, the occupational health care professionals, the RTW coordinators, and the case-managers of the vocational rehabilitation agencies are asked independently about all interventions applied. Also, both the intervention group and the control group are asked about co-interventions in each follow-up questionnaire. If necessary, we can adjust for co-interventions in the multivariate analysis.

Contamination

Since randomisation takes place at the workers level, the insurance physicians, the labour experts, and the RTW coordinators who are trained in the new RTW program can also be involved in RTW guidance of a sick-listed worker in the usual care group. Therefore, the occupational health care professionals are asked to avoid the use of (components of) the RTW program in the guidance of participants in the usual care group.

Statistical analyses

All statistical analyses will be performed at worker's level and according to the intention-to-treat principle, i.e. participants will remain in the group (intervention group or control group) to which they were allocated after randomisation at baseline. To check the success of the randomization procedure descriptive statistics will be used, comparing the baseline measurements of both groups. If necessary, analyses will be adjusted for prognostic dissimilarities. To asses the presence of bias due to protocol deviations, the results of the intention-to-treat-analyses will be compared to per-protocol analyses, including only those participants who were treated according to the intervention protocol.

Effect evaluation

In this study survival analysis will be used to analyse sickness benefit data with regard to the first period of sickness benefit. To describe the duration until ending of sickness benefit in both groups, the Kaplan Meier method will be used. In order to calculate hazard ratios the Cox proportional hazard model will be applied. If necessary, standard errors will be corrected for clustering. Differences in total days of sickness benefit during the one-year follow-up will be analysed with a general linear model. If necessary, the results will be adjusted for dissimilarities at baseline. Longitudinal random coefficient analyses will be used to assess differences in secondary outcome measures. Finally, intraclass correlation coefficients will be calculated at the level of the insurance physician, since the insurance physician plays a key role in acceptance of the sickness benefit claim and the assessment of (sufficient) recovery of functional limitations, i.e work ability, with ending of the sickness benefit.

Cost-benefit evaluation

Direct and indirect costs from the insurer's perspective will be calculated for each individual participant. Bootstrapping will be used for pair wise comparing of the group means to calculate mean differences in direct, indirect and total costs between both groups of workers. Confidence intervals (95%) will be computed by bias corrected and accelerated bootstrapping. The mean net monetary benefit (NMB) of the new RTW program compared to usual care will be calculated.

DISCUSSION

This study focuses on a vulnerable group within the working population, namely temporary agency workers and unemployed workers, sick-listed due to MSD. For this group of workers a new participatory RTW program has been developed[16] aimed at making a consensus-based RTW implementation plan, realising structural communication among important stakeholders involved in vocational rehabilitation of the sick-listed worker, and offering the possibility of a (therapeutic) workplace to RTW. This paper describes the design of a randomised controlled trial to investigate the effectiveness, the cost-benefit and feasibility of this new RTW program.

Strengths of the study

Strength of this study is the focus on a vulnerable group within the working population, i.e. workers without an employment contract or with a flexible labour arrangement. These workers have a greater distance to the labour market and an increased risk for (long-term) work disability. This is reflected in the absenteeism and RTW patterns[17]. For these workers there can be gained a lot by efforts that aim at improving occupational health care and by minimising the 'labour market handicap', i.e. creating an actual RTW perspective to reduce short- and long-term sickness absence and work disability[13,17].

Another strength of this study is the data collection from the SSA database. Duration of the sickness benefit period after the first day of reporting sick is the primary outcome measure in this study. Registration of awarded sickness benefit by the SSA provides reliable data because of socio-political and financial interests. In the Netherlands sickness benefit is paid from public means. Therefore the performance of the SSA is monitored by the Inspection Service for Work and Income on behalf of the Dutch Ministry of Social Affairs and Employment. As a result, loss of data of the primary outcome due to loss to follow-up is limited. However, because after ending of the sickness benefit the SSA has, in many cases, no longer data on RTW, data collection from the SSA database alone might underestimate RTW during the one-year follow-up. Therefore data on RTW are collected from both the self-report questionnaires and the SSA database.

A third strength of this study is that it includes a feasibility study. To gain more insight in the potential benefits, applicability and barriers of the new RTW program in daily practice. And, if possible, to identify elements of the RTW program that contribute to the effect.

Limitations of the study

A limitation in this study is the absence of blinding of both the sick-listed workers and the occupational health care professionals of the SSA for allocation to the usual care group or intervention group. However, this is not possible due to the nature of the participatory intervention program.

Secondly, because the insurance physician of the SSA has no role in the inclusion of participants, a limitation of this study is the possibility of bias due to self-selection of workers. On the other hand, introduction of bias due to selection of participants by the insurance physician is limited, since the selection procedure is done by the researchers using strict inclusion and exclusion criteria.

A third limitation is the fact that generalizing the results of this study to another context, e.g. other countries, should be done with caution. The new RTW program is specifically tailored to the Dutch context using the Intervention Mapping process[26-28]. Application of this intervention in a different setting should be preceded by tailoring of the program, taking into account the specific characteristics of the social, political and cultural context[26-29,61] in which the program will be implemented and used.

Impact of study findings

Flexible labour market arrangements have expanded enormously over the last decades[62-64]. However, workers with non-standard labour arrangements represent a vulnerable group within the working population. As mentioned earlier, these workers experience more health problems, have an increased risk for work disability[10,14,15], and access to vocational rehabilitation interventions[18-20] is in many countries not available or only limited for these workers. More should be done for them to achieve a sustainable contribution to the labour force. In addition, given the international trend of an ageing workforce, there is a need for active

labour-market policies[65]. From this perspective, it is not only important to improve participation of older workers[65,66], but to also utilise and strengthen present and potential vulnerable labour force sources. In line with this, more (tailor-made) RTW interventions should be aimed at the group of flexible workers, including workers without an employment contract. The results of this RCT can contribute to this need for tailor-made occupational health care.

Secondly, the absence of a workplace to return to when sick-listed has been identified as a major obstacle for these workers to successful (re-)enter the labour market[16,17]. Creating an actual RTW perspective can have a considerable impact. Positive results in this study may lead to implementation of the program in usual care in the Netherlands. In addition, this study is aimed at workers without an employment contract, sick-listed due to MSD. Results may offer perspective for the development of participatory RTW interventions for these workers, sick-listed with other health problems, e.g. common mental disorders.

Furthermore, sickness absence is considered a major public health and economic problem. The involved costs are enormous with a disproportionate contribution by long term work disability. Long term sickness absence can contribute up to 75% of absence costs[67]. In the Netherlands, the participatory RTW program already proved to be successful for sick-listed employees with low back pain with an average reduction of sickness absence of 27 days[25]. If a comparable reduction of sickness absence, i.e. duration of sickness benefit, can be achieved in this study, the benefits for the Dutch Social Security System will be substantial.

Finally, during the development of the participatory RTW program it became evident that there is a need for more uniformity with application of evidence-based interventions in occupational health care by the SSA[16]. The occupational health care professionals at the SSA can benefit from a structured approach to identify and discuss barriers for RTW and making of a consensus-based RTW action plan.

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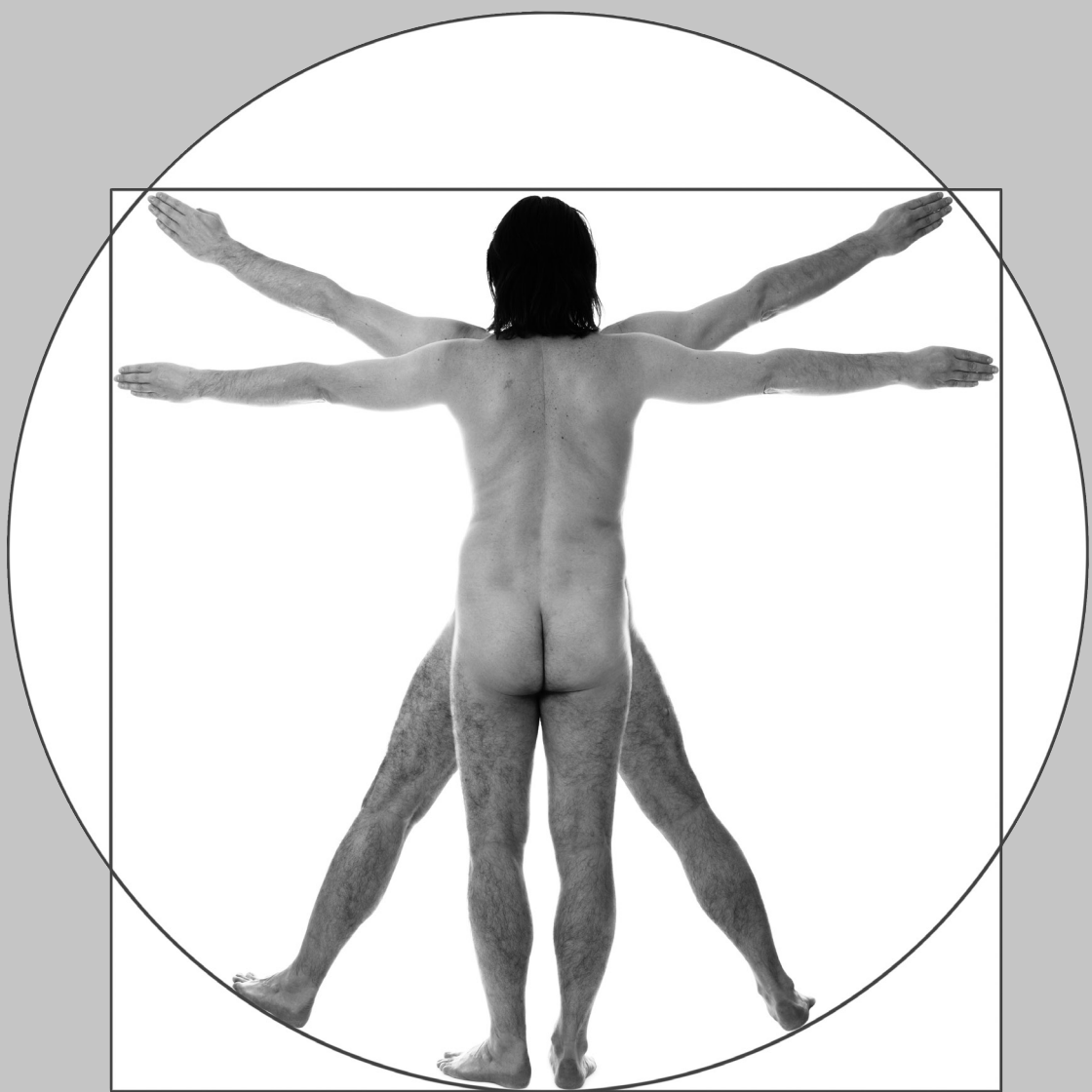

Chapter 5

A participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders: results of a randomized controlled trial

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ABSTRACT

Introduction

Within the labour force workers without an employment contract represent a vulnerable group. In most cases, when sick-listed, these workers have no workplace/ employer to return to. Therefore, the aim of this study was to evaluate the effectiveness on return-to-work of a participatory return-to-work program compared to usual care for unemployed workers and temporary agency workers, sick-listed due to musculoskeletal disorders.

Methods

The workers, sick-listed for 2-8 weeks due to musculoskeletal disorders, were randomly allocated to the participatory return-to-work program (n=79) or to usual care (n=84). The new program is a stepwise procedure aimed at making a consensus-based return-to-work plan, with the possibility of a temporary (therapeutic) workplace. Outcomes were measured at baseline, 3, 6, 9 and 12 months. The primary outcome measure was time to sustainable first return-to-work. Secondary outcome measures were duration of sickness benefit, functional status, pain intensity, and perceived health.

Results

The median duration until sustainable first return-to-work was 161 days in the intervention group, compared to 299 days in the usual care group. The new return-to-work program resulted in a non-significant delay in RTW during the first 90 days, followed by a significant advantage in RTW rate after 90 days (hazard ratio of 2.24 [95% confidence interval 1.28 to 3.94] p=0.005). No significant differences were found for the measured secondary outcomes.

Conclusions

The newly developed participatory return-to-work program seems to be a promising intervention to facilitate work resumption and reduce work disability among temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders.

Trial registration

The Netherlands Trial Register (NTR); NTR1047.

INTRODUCTION

Sickness absence and work disability are a common and substantial public health problem with major economical consequences worldwide[1, 2]. Given the fact that long-term sickness absence contributes largely to the total amount of annual work disability costs in Western countries[1], development of effective return-to-work (RTW) interventions are considered important public health (research) challenges[3]. To date, most RTW intervention research is aimed at sick-listed (established regular) employees, i.e. workers with relatively permanent employment relationships. In contrast, development of effective RTW interventions for sick-listed workers without an employment contract is lagging[4, 5]. However, in view of the growing international trend towards labour market flexibility[6], development of RTW interventions specifically aimed at sick-listed workers without an employment contract and sick-listed workers with a flexible labour arrangement, e.g. temporary agency workers, is of crucial importance. These workers represent a vulnerable group within the working population. Various studies show a poorer health status and an increased risk for (long-term) work disability among these workers, compared to regular employees[7-12]. In addition, they are burdened with a greater distance to the labour market[11, 13, 14]. When sick-listed, these workers have in most cases no workplace/employer to return to[15, 16]. Hence, tailor-made RTW interventions with the presence of a workplace for (therapeutic) RTW could be an important factor in the recovery and (vocational) rehabilitation process[15]. Therefore, a participatory RTW program was developed based on a successful RTW intervention for regular employees, sick-listed due to low back pain[17, 18]. This newly developed RTW program comprises of a stepwise communication process to identify and solve obstacles for RTW, resulting in a consensus-based plan to facilitate (therapeutic) RTW. The three main stakeholders in this intervention are: the sick-listed worker, the labour expert representing the Social Security Agency (SSA) who guides the worker with regard to vocational rehabilitation, and an independent RTW coordinator. The

role of the RTW coordinator is to stimulate a high degree of involvement of both the sick-listed worker and the labour expert, and to reach consensus about the RTW plan. To offer a workplace for (therapeutic) RTW, a vocational rehabilitation agency was contracted to find a suitable (therapeutic) workplace matching with the formulated RTW plan.

The aim of this study was to assess the effectiveness of the new participatory RTW program compared to usual care for unemployed workers and temporary agency workers, sick-listed due to musculoskeletal disorders (MSD). The primary outcome measure was time to sustainable first RTW. Duration of sickness benefit was secondary outcome measure.

METHODS

Study design and setting

The study is a randomized controlled trial carried out in collaboration with five front offices of the Dutch National Social Security Agency (SSA) and four large Dutch commercially operating vocational rehabilitation agencies (Olympia, Adeux, Capability, and Randstad Rentrée) in the eastern part of the Netherlands. The Medical Ethics Committee of the VU University Medical Centre (Amsterdam, the Netherlands) approved the study design, the protocols and procedures, and informed consent. The design of the study has been described in detail elsewhere[19].

Study population and recruitment

Between March 2007 and September 2008 all temporary agency workers and unemployed workers who were sick-listed between one and two weeks due to MSD and lived in the eastern part of the Netherlands received a letter with a screening questionnaire from the insurance physician of the SSA, on behalf of the researchers. The workers who returned the screening questionnaire indicating that they were still sick-listed and interested in participation, were contacted by the researchers by telephone to give additional information about the content of the study and to check eligibility. Temporary agency workers and unemployed workers sick-listed between 2 and 8 weeks with MSD as main health complaint for their sickness benefit claim were

included. The main exclusion criteria were: 1. being sick-listed for more than 8 weeks; 2. not being able to complete questionnaires written in the Dutch language; 3. having a conflict with the Social Security Agency regarding a sickness benefit claim or a long-term disability claim; 4. having a legal conflict, e.g. an ongoing injury compensation claim; and 5. having had an episode of sickness absence due to MSD within one month before the current sickness benefit claim.

The insurance physician of the SSA was responsible for the identification of severe co-morbidity among the included workers; i.e. having a terminal disease, having a serious psychiatric disorder, or having a serious cardio-vascular disease. These participants remained in the intervention group, but were excluded from the participatory RTW program.

Randomization and blinding

Before randomization, to prevent unequal distribution of relevant prognostic baseline characteristics, the sick-listed workers were pre-stratified based on two important prognostic factors, namely type of worker[20-22], i.e. temporary agency worker or unemployed worker, and degree of mental or physical work demands (light or heavy) in last job held before the current sickness benefit claim[23, 24]. Next, block randomization (using blocks of four allocations) was applied to ensure equal group sizes within each stratum. A separate block randomization table was generated for each of the five participating SSA front offices. Allocation to the intervention group or the usual care group was performed after informed consent and completion of the baseline questionnaire.

The participants and occupational health care professionals were not blinded to the allocation result. Data regarding work resumption and sickness benefit claim duration were collected from the SSA database. Data entry of the self-reported data was performed by a research assistant using a unique research code for each participant, to ensure that analyses of the data by the researcher was blinded.

Interventions

Usual care

In the Netherlands, workers who are sick-listed and who have no (longer) an employment contract, i.e. no employer/workplace to return to, are entitled to supportive income and occupational health care by the SSA during his/her sickness benefit period. Vocational rehabilitation is carried out by a team of occupational health care professionals from the SSA, consisting of an insurance physician, a labour expert, and a case-manager. The insurance physician of the SSA guides the worker according to the guidelines for occupational health care of the Netherlands Society of Occupational Medicine. He/she advises about recovery, e.g. health promotion and RTW options, and, if necessary, he/she can advise and refer to work disability oriented treatment/guidance, such as graded physical therapy or work-related psychological help. The labour expert is responsible for vocational rehabilitation support. Based on a personal examination of the work abilities of the worker (including the problem analysis performed by the insurance physician) and expert knowledge of the (regional) labour market, the labour expert advises the worker with respect to return-to-work options. When the chance of work resumption in regular work without additional vocational rehabilitation support is viewed as slim, interventions such as referral to a vocational rehabilitation agency, personal coaching or short-term education/training are offered to the worker. The case manager of the SSA monitors the vocational rehabilitation process and regularly keeps in contact with the worker to evaluate the progress. In case of an impeded (vocational) recovery/ rehabilitation process the case manager consults with, and if necessary refers to, the insurance physician or the labour expert to identify and tackle the cause of this stagnation. This can lead to alterations in the vocational rehabilitation guidance, for instance offering more intensive personal guidance or referral to a graded activity program. The occupational health care by the SSA ends when the sickness benefit ends, i.e. when full recovery of health is present and/or when full recovery of work ability is established by the insurance physician. Both can occur without actual RTW of the worker.

Participatory RTW program

The intervention group received usual care. This did not differ from the vocational rehabilitation guidance offered to the workers in the usual care group, i.e. the earlier described roles of the OHC professionals. However, in addition, these sick-listed workers were referred by their insurance physician to a RTW coordinator for the new participatory RTW program. The aim of this new program was to make a consensus-based RTW plan. In this study the RTW coordinator was an employee of the SSA, in most cases with a labour expert background, with experience in process guidance, with sufficient knowledge and experience regarding (vocational) rehabilitation, and no involvement in the usual care guidance of the sick-listed worker to guarantee independency. All RTW coordinators received training prior to the start of the study. The newly developed RTW program consisted of consecutive steps starting with a combined consult with the insurance physician and the labour expert of the SSA. Next, two structured meetings took place between the sick-listed worker and the RTW coordinator, and between the labour expert of the SSA and the RTW coordinator, respectively. In the meeting with the sick-listed worker the RTW coordinator used a structured interview to identify and prioritise obstacles for RTW. The ranking of identified obstacles for RTW was performed based on frequency (how often do they occur?) and severity (how large is the perceived impact on functioning in daily life and/or work?). The meeting between the RTW coordinator and the labour expert was carried out in a comparable manner and resulted in a selection of prioritised obstacles for RTW from the perspective of the labour expert. Next, the RTW coordinator, the sick-listed worker, and the labour expert brainstormed about solutions to address the prioritised obstacles. The proposed solutions were judged on the basis of availability, feasibility and ability to solve the barrier. The final step resulted in the making of a consensus-based RTW plan describing the prioritised obstacles for RTW, the consensus-based solutions, the person(s) responsible for implementation of each selected solution, and a time-path when it should be carried out. Furthermore, to create a possibility for therapeutic work resumption, a commercially operating vocational rehabilitation agency could be contracted to find a temporary (therapeutic) workplace matching with the formulated RTW plan and taking into account the worker's (functional) limitations. Six weeks after the

brainstorm session the RTW coordinator contacted the sick-listed worker and the labour expert by telephone to evaluate actual implementation of the solutions, including the progress regarding placement in temporary (therapeutic) work. A more detailed content of the structured meetings with the RTW coordinator is presented in table 1. The content of the entire new participatory RTW program has been described in detail elsewhere[15].

Table 1. Content of the structured meeting with the RTW coordinator.

Content of the structured meeting with the RTW coordinator
Introduction
• Check if the worker, the insurance physician and the labour expert agree with following the participatory program. • Explain the independent role of the RTW coordinator. • Explain that the main goal is to make a consensus based RTW plan.
Inventory of obstacles for RTW
Meeting with the worker
• Starting point is the inventory of obstacles for RTW given by the insurance physician as home assignment to the worker after the first consult. • Identify (perceived) work- and non-work related obstacles for RTW from the perspective of the worker. Use the following categories as a framework: personal factors, social factors, physical environment demands (e.g. ergonomic obstacles at the workplace), dynamic action demands (e.g. repetitive work), static posture demands, work experience, commuting, remaining factors (e.g. financial problems). • Rank the identified obstacles based on frequency and perceived severity.
Meeting with the labour expert
• Identify (perceived) work- and non-work related obstacles for RTW from the perspective of the labour expert. • Rank the identified obstacles based on frequency and perceived severity.
Brainstorm session with the worker and the labour expert
• The 3 top ranked obstacles for RTW from both the worker and the labour expert are the starting point. • Think of solutions for all 6 prioritised obstacles, e.g. reduction of physical workload, graded return-to-work, improving the commuting distance, short-term education, help with dept repayment. • Stimulate active involvement from the worker and the labour expert. • Choose solutions based on availability, feasibility and ability to solve the obstacle.

Making of the consensus-based RTW plan
• Give a summary of the prioritised obstacles for RTW, the chosen (consensus based) solutions, if possible a concrete work(place) profile, the person(s) responsible for implementation of the solution(s), and a time-path. • Underline the importance of own initiative of the worker to achieve RTW. • Sent the report to the worker, the labour expert, and the insurance physician. • If chosen for finding a suitable temporary (therapeutic) workplace, contact the case manager of the contracted vocational rehabilitation agency.

OUTCOME MEASURES

Data collection

Prior to randomization the baseline measurement was performed. Follow-up measurements took place at 3, 6, 9 and 12 months after baseline. Data regarding RTW were obtained from both the SSA database, including the workers' file, and the self-report questionnaires at 12-month follow-up. Data on sickness benefit were collected from the SSA database. Data regarding applied occupational health care interventions were obtained from the SSA database and the medical file of the worker at the SSA.

Primary outcome measure

The primary outcome measure in this study was sustainable first RTW, which was defined as the duration in calendar days from the day of randomization until first sustainable return-to-work, i.e. return-to-work in any type of paid work or work resumption with ongoing benefits for at least 28 consecutive (calendar) days.

Secondary outcome measures

Secondary outcome measures in the study were duration of sickness benefit, pain intensity, and functional status. Duration of sickness benefit was measured as a separate outcome measure because, contrary to regular employees, for sick-listed temporary agency workers and sick-listed unemployed workers recovery of health

and/or functional limitations with ending of the sickness benefit does not necessarily coincide with actual RTW. First sustainable ending of sickness benefit was defined as the duration in calendar days from the day of randomization until ending of sickness benefit for at least 28 days. Recurrence of sickness absence with an accepted sickness benefit claim within 28 days after ending of the previous sickness benefit was considered as belonging to the preceding sickness benefit period, on condition that it was due to the same (or related) MSD. The total number of days of sickness benefit during the entire 12-month follow-up period was also calculated. Musculoskeletal pain intensity was measured using the Von Korff questionnaire[25]. Functional status, i.e. perceived functional impairments in daily life, and general health were assessed with the Dutch translation of the SF-36[26, 27].

Prognostic measures

All covariates were measured at baseline. Type of previous work (light or heavy demanding) and work status (working or not working) directly prior to reporting sick, i.e. before the onset of work disability, were collected, since findings in the international literature indicate that both items might be prognostic factors for the duration of sickness absence and work disability[20-22, 24]. Furthermore, behavioural determinants were included in the baseline measurement. Pain coping was assessed with the Pain Coping Inventory Scale (PCI)[28]. Behavioural determinants for RTW consisted of the workers' attitude, social influence, and self-efficacy with regard to RTW, and the workers' intention to RTW despite symptoms due to MSD. The Attitude, Social Influence and self-Efficacy (ASE) determinants were assessed using a questionnaire developed earlier by Van Oostrom and colleagues[29].

Statistical analyses

All statistical analyses were carried out at workers' level and according to the intention-to-treat principle. To determine whether randomisation was performed successfully descriptive statistics were used to compare the baseline measurements of both groups. The results of the intention-to-treat analyses were compared to per-protocol analyses to assess the presence of bias due to protocol deviations.

The Kaplan-Meier method was used to describe the duration until sustainable RTW in

both groups. The Cox proportional hazard model was used to estimate hazard ratios (HR) for sustainable RTW and the corresponding 95% confidence intervals. First, unadjusted Cox regression analysis was carried out and, if necessary, adjusted Cox regression analysis was performed to adjust for prognostic dissimilarities at baseline, i.e. a confounder was added to the model when the regression coefficient changed by 10% or more. To account for clustering of participants within insurance physicians and within the couples of labour experts and RTW coordinators the shared-frailty procedure was used[30]. Linear mixed models were used to assess differences in pain intensity, functional status and perceived health, i.e. the interaction between treatment group and measurement time (baseline, 3, 6 and 12 months), adjusted for baseline differences, and taking into account clustering on the level of the insurance physician. Stata version 11.0 was used to test for clustering in the Cox regression analysis. All other analysis were performed with SPSS version 15.0. For all analyses a p-value of 0.05 (two-tailed) was considered statistically significant.

RESULTS

Recruitment of participants

Recruitment of participants took place between March 2007 and September 2008. The returned screening questionnaires resulted in 784 potentially eligible workers who were interested in participation. After telephone contact 191 workers refused participation and 327 workers did not meet the inclusion criteria, resulting in 266 workers for whom intake meetings were planned. During the intake meeting 103 workers were not included due to several reasons (see figure 1). Finally, 163 workers who met all inclusion criteria were enrolled in the study and randomised to the participatory RTW program (n=79) or usual care (n=84). An overview of the recruitment flow is presented in figure 1.

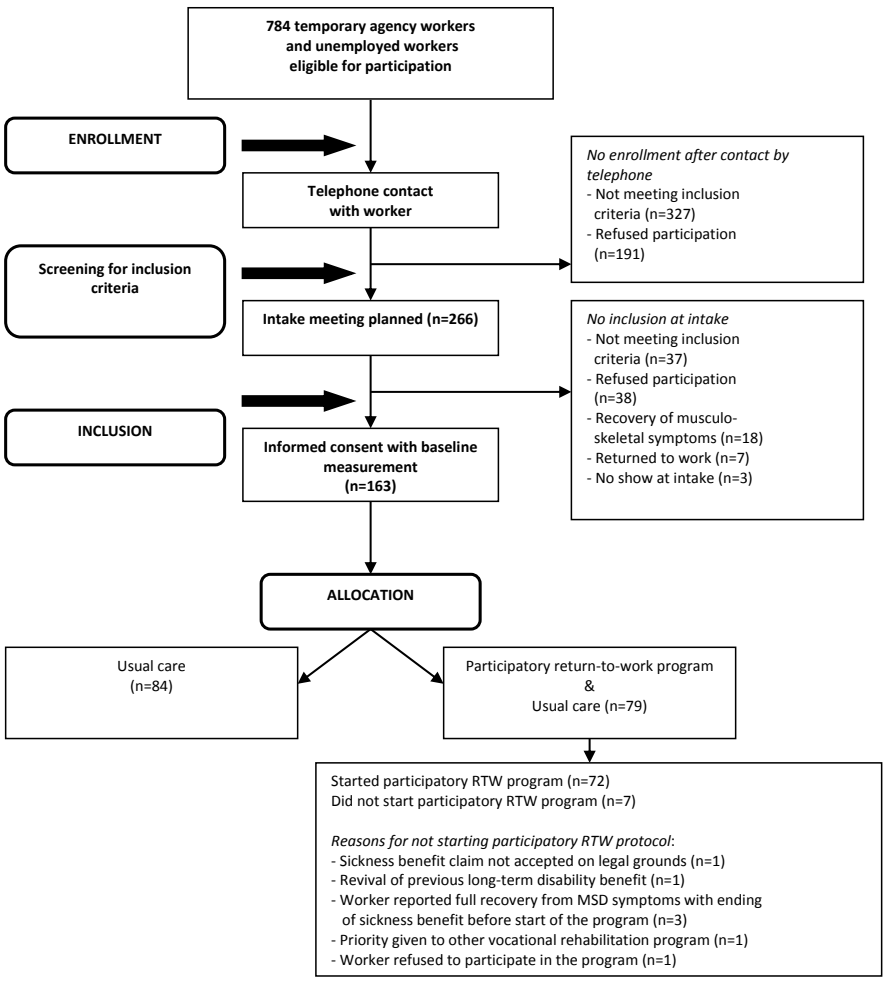

Figure 1. Flow of the workers in the study

Loss to follow-up

Data about RTW and sickness benefit were available for all workers for the whole 12-month follow-up period. The RTW data were collected from the SSA database, including the workers' file, and the self-report questionnaires. Data about sickness benefit were collected from the SSA database. For the self-reported secondary outcomes complete follow-up data were available for 116 participants (=71.2%).

Baseline characteristics

Table 2 presents a summary of the measured baseline characteristics of the participants in the participatory RTW program group and the usual care group. For most of the baseline characteristics (i.e. worker-related, pain-related, health-related, work-related, and behavioural determinants) there were no or only minor (non-significant) differences between the two groups. All participants were fully work disabled at the time of enrolment. Approximately half of the workers in both groups (usual care group 52.4% and intervention group 54.4%, respectively) worked prior to reporting sick, i.e. the onset of work disability. For the participants who did not work before reporting sick the median duration between end of last job and first day of reporting sick was 13.0 months (interquartile range (IQR) 6.3 – 45.3 months) in the usual care group and 13.5 months (IQR 6.0 – 43.5 months) in the participatory RTW program group. However, despite randomisation, prognostic dissimilarities were present at baseline with worse physical role functioning (p=0.052); more regular work schedule in last work (p=0.031); and less intention to RTW despite symptoms (p=0.024) in controls. If necessary, for these dissimilarities was adjusted in analyses.

Table 2. Baseline characteristics of the workers without employment contract, sick-listed due to musculoskeletal disorders (N=163)

	***Intervention group* (N=79)**	***Control group* (N=84)**
Age (mean ± sd)	44.0 ± 10.7	45.6 ± 9.0
Gender (% male)	57.0	63.1
Level of education (% low)	57.0	60.7
Pain intensity (1-10 score) (mean ± sd)		
Back pain	7.1 ± 2.0	6.8 ± 1.9
Neck pain	7.1 ± 1.7	6.7 ± 2.0
Other pain	6.5 ± 1.8	6.3 ± 1.9
Functional status (0-100 score) (mean ± sd)		
Physical functioning	46.0 ± 22.1	51.4 ± 21.3
Social functioning	49.4 ± 25.4	51.2 ± 27.5
Perceived health (0-100 score) (mean ± sd)	56.3 ± 21.8	60.0 ± 20.3
Type of worker (%)		
Temporary agency worker	51.9	52.4
Unemployed worker	48.1	47.6
Type of last work (% physically and/or mentally demanding)	74.7	75.0
Work schedule (% day work)	58.2	78.3
Worker's expectation regarding RTW at baseline (mean ± sd)	2.22 ± 1.15	2.14 ± 1.12
Intention to RTW despite symptoms (1-5) (mean ± sd)	3.46 ± 1.10	3.05 ± 1.19

Compliance

In the usual care group 7 workers did not receive usual care as they reported full recovery of health complaints with subsequent ending of sickness benefit shortly after randomisation. Also 7 workers in the participatory RTW program group did not receive the allocated intervention, i.e. the participatory RTW program was not followed, due to several reasons (see figure 1). The remaining 72 workers in the intervention group all had the first consult with the insurance physician. One worker reported full recovery of health with ending of sickness benefit before the meeting with the RTW coordinator. For 23 workers the insurance physician established full work ability with ending of sickness benefit, i.e. claim closure, during the first consult. In case of claim closure without actual RTW, these workers were, in accordance with the usual care policy of the SSA, not referred to the RTW coordinator for making a RTW action plan. In addition, following the protocol, 10 workers were not referred to the RTW coordinator as the insurance physician established absence of work ability on medical grounds for at least three months during the first consult. The remaining 38 workers in the intervention group had the meetings with the labour expert and the RTW coordinator with the making of a consensus based RTW plan. Referral to a vocational rehabilitation agency for finding a suitable temporary workplace took place for 30 workers. Placement in a temporary (therapeutic) workplace was successfully achieved for 22 workers. In addition, four workers found a suitable workplace on own initiative. The median duration of working in a temporary (therapeutic) workplace was 90 days (IQR 41 - 147 days). During the 12-month follow-up 12 of the 22 workers with therapeutic work resumption were offered an employment contract.

Usual care

Consults with the occupational health care professionals

In the participatory RTW program group 21 workers (total of 23 consults) had a consult with the case-manager of the SSA, compared to 41 workers (total of 49 consults) in the usual care group. However, the workers in the participatory RTW program group had more consults with the insurance physician (n=70; 157 consults) and the labour expert (n=36; 55 consults) of the SSA, compared to the usual care group, where 60 workers (total of 107 consults) reported a consult with the insurance physician and 19 workers (total of 26 consults) reported a consult with the labour expert.

Received occupational health care interventions

In the participatory RTW program group 25 workers received a usual care intervention (total of 28 interventions) during follow-up with a median duration of 6.4 months (IQR 3.0 – 12.4 months), compared to 30 workers in the usual care group (total of 32 interventions) with a median duration of 7.4 months (IQR 2.9 – 11.2 months). Three workers in the participatory RTW program group and two workers in the usual care group received two occupational health care interventions. The received usual care interventions consisted of: 1. offering (short-term) education/training (participatory RTW program group (PWP) n=11, usual care group (UC) n=5); 2. referral to a vocational rehabilitation agency (PWP n=4, UC n=9); 3. referral to an employment agency for employment-finding (PWP n=5, UC n=4); 4. personal coaching (PWP n=3, UC n=3); 5. interview training (including writing a job application letter) (PWP n=2, UC n=4); 6. placement in a temporary workplace (on trial) (PWP n=1, UC n=0); 7. searching for a sheltered workplace (PWP n=1, UC n=3), 8. on-the-job training (PWP n=1, UC n=1); 9. referral to a graded activity program (PWP n=0, UC n=2); and 10. type of intervention unknown (PWP n=0, UC n=1).

Return-to-work

The median time until sustainable first RTW was 161 days (IQR 88 – 365 days) in the participatory RTW program group and 299 days (IQR 71 – 365 days) in the usual care group (log rank test; p=0.12). The median total number of days at work during follow-up was 128 days (IQR 0 – 247 days) in the participatory RTW program group and 46 days (IQR 0 – 246 days) in the usual care group. In figure 2 the Kaplan Meier curves for time until sustainable first RTW are presented for both groups.

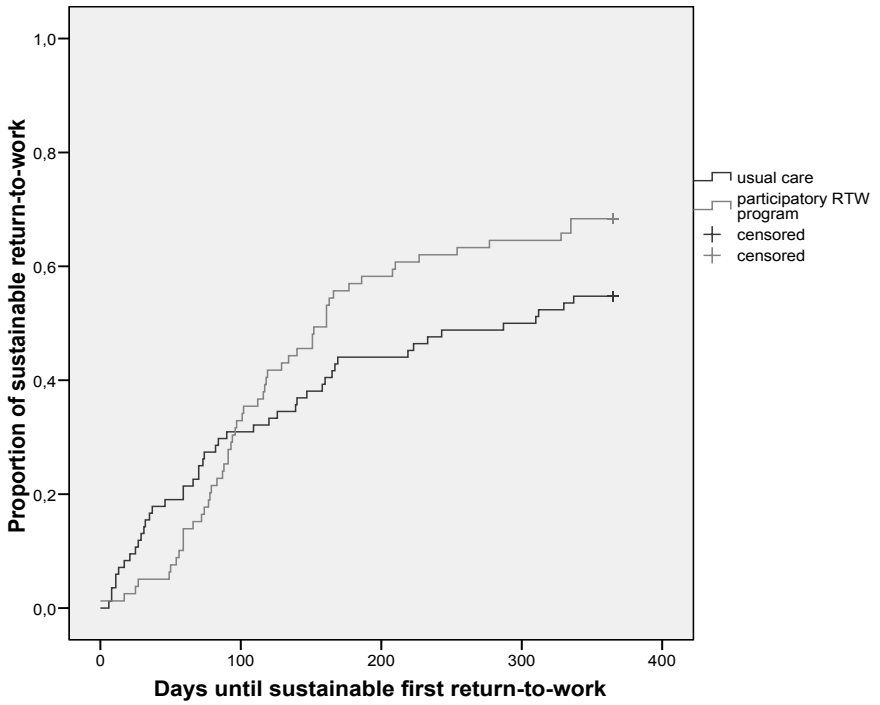

Figure 2. Kaplan-Meier curves for sustainable first return-to-work during the 12-month follow-up for the participatory return-to-work program group and the usual care group.

The crude Cox regression analysis showed a violation of the proportional hazard assumption with crossing of the survival curves at approximately 90 days follow-up. Therefore, a time-dependent covariate (T > 90 days) was added to the Cox proportional hazards model (p=0.011). To adjust for significant confounding, the baseline variables 'work schedule in last work' and 'intention to RTW despite symptoms' were included in the model (Table 2). The resulting adjusted HR (T ≤ 90 days) was 0.76 (95% CI 0.42 - 1.37; p=0.36), and the adjusted HR (T > 90 days) was 2.24 (95% CI 1.28 – 3.94; p=0.005). The per-protocol analysis showed an adjusted HR (T ≤ 90 days) of 0.93 (95% CI 0.49 – 1.87; p=0.83), and an adjusted HR (T > 90 days) of 2.25 (95% CI 1.28 – 3.98; p=0.005). In addition, the per-protocol analysis showed a median time until sustainable RTW of 157 days (IQR 89 – 365 days) in the

participatory RTW program group and 330 days (IQR 87 – 365 days) in the usual care group (log rank test; p=0.029). Significant clustering on the level of the insurance physicians and on the level of the couples of labour experts and RTW coordinators was not found in the analyses (Table 3).

Table 3. Differences in return-to-work (RTW) between the participatory RTW program group the and usual care group.

Cox proportional hazards models from the adjusted Cox regression analyses. Regression coefficients, standard errors (SE), p-values, hazard ratio's (HR) and 95% confidence intervals (CI) are presented.

Adjusted model[1]		Regression coefficient	SE	P-value	HR	95% CI Lower	Upper
Intervention	*T ≤ 90 days*	-0.29	0.30	0.34	0.75	0.42	1.34
	T > 90 days	0.78	0.28	0.01	2.19	1.26	3.80
Adjusted for work schedule	*T ≤ 90 days*	-0.23	0.30	0.44	0.79	0.44	1.43
	T >90 days	0.84	0.29	<0.005	2.32	1.32	4.10
Adjusted for intention to RTW despite symptoms	*T ≤ 90 days*	-0.33	0.30	0.27	0.72	0.40	1.29
	T > 90 days	0.74	0.28	0.01	2.10	1.20	3.66
Adjusted for work schedule + intention to RTW despite symptoms	*T ≤ 90 days*	-0.27	0.30	0.36	0.76	0.42	1.37
	T > 90 days	0.81	0.29	0.01	2.24	1.28	3.94
Clustering on level insurance physician	*T ≤ 90 days*	-0.30	0.28	0.42	0.74	0.35	1.55
	T > 90 days	0.74	0.47	<0.005	2.10	1.33	3.22
Clustering on level labour expert + RTW coordinator	*T ≤ 90 days*	-0.25	0.35	0.47	0.78	0.40	1.54
	T > 90 days	0.73	0.26	0.01	2.10	1.24	3.48

[1]Results of the crude Cox regression model are not presented, due to violation of the proportional hazard assumption, i.e. crossing of the survival curves at approximately 90 days follow-up.

Secondary outcome measures

Duration of sickness benefit

The median claim duration until first sustainable ending of sickness benefit was 160 days (IQR 39 – 365 days) in the participatory RTW program group and 91 days (IQR 33 – 344 days) in the usual care group (Mann Whitney U test; p=0.14). The per-protocol analysis results differed slightly and showed a median duration of 168 days (IQR 45 – 365 days) and 109 days (IQR 35 – 365 days), respectively (Mann Whitney U test; p=0.18).

Attitude, Social influence, and self-Efficacy (ASE) determinants

Table 4 presents the results of the mixed model analyses for the Attitude, Social influence, and self-Efficacy determinants, accounted for possible clustering on the level of the insurance physicians. After 3 months of follow-up both groups experienced more social influence to RTW, but developed a less positive attitude towards RTW compared to baseline. However, no statistically significant differences were found between both groups.

Health-related outcomes

Table 4 also presents the results on the effectiveness of the participatory RTW program on health-related outcomes, accounted for possible clustering on the level of the insurance physicians. No statistically significant differences were found between the improvements in functional status, pain intensity, and perceived health in the participatory RTW program group and the usual care group.

Table 4. Results of the mixed model analyses.
Differences in health-related outcomes, and the attitude, social influence, and self-efficacy determinants between the participatory RTW program group (PWP) and usual care group (UC), accounted for possible clustering on the level of the insurance physician.
Unless indicated otherwise the observed mean and standard deviation are presented.

	Group	Baseline	3 months	6 months[1]	12 months[1]	Group*Time p-value
Functional status (0-100 score) (RAND-36)						
Bodily pain	PWP	27.7 (15.9)	48.8 (20.2)	47.4 (21.4)	51.4 (23.9)	0.22
	UC	29.4 (15.4)	45.7 (23.0)	50.0 (23.0)	53.9 (25.4)	
Physical functioning	PWP	46.0 (22.1)	57.3 (23.4)	57.6 (23.2)	59.4 (23.6)	0.73
	UC	51.4 (21.3)	59.8 (25.2)	64.5 (24.2)	66.5 (26.2)	
Physical role functioning	PWP	10.4 (20.6)	29.7 (38.8)	31.6 (41.1)	46.8 (44.0)	0.13
	UC	5.1(13.3)	24.7 (36.7)	38.3 (41.7)	45.4 (43.6)	
Social functioning	PWP	49.4 (25.4)	62.9 (24.0)	66.6 (25.1)	65.9 (26.0)	0.72
	UC	51.2 (27.5)	58.9 (26.1)	66.1 (25.3)	63.7 (28.8)	
Health status (0-100 score) (RAND-36)						
Perceived present health	PWP	56.3 (21.8)	52.4 (20.1)	56.6 (22.1)	58.5 (21.5)	0.70
	UC	60.0 (20.3)	55.0 (23.3)	55.9 (24.2)	59.0 (24.1)	
Change in health	PWP	31.4 (25.6)	41.8 (26.0)	48.8 (28.3)	58.1 (29.6)	0.17
	UC	38.1 (25.3)	38.7 (30.3)	50.8 (28.4)	56.3 (31.3)	
Pain intensity (1-10 score) (Von Korff)						
Back pain	PWP	7.2 (1.9)	6.0 (2.2)	5.6 (2.3)	5.4 (2.6)	0.92
	UC	6.8 (2.0)	5.6 (2.5)	5.0 (2.8)	4.9 (2.8)	
Neck pain	PWP	7.5 (1.5)	5.3 (2.3)	4.4 (3.0)	4.4 (3.2)	0.52
	UC	6.5 (1.9)	5.3 (2.9)	4.0 (3.2)	4.2 (3.1)	
Other pain	PWP	6.7 (1.8)	6.0 (2.2)	5.0 (2.7)	4.9 (3.0)	0.89
	UC	6.2 (1.9)	5.7 (2.3)	5.1 (2.5)	4.7 (3.0)	
Attitude, social influence, self-efficacy determinants						
Attitude to RTW (-5 – 12)	PWP	5.13 (4.27)	3.41 (5.21)	-	-	0.18
	UC	4.87 (3.96)	1.92 (5.81)	-	-	
Social influence to RTW (-26-18)	PWP	- 5.16 (8.72)	-2.13 (9.26)	-	-	0.16
	UC	-3.39 (8.89)	-2.59 (9.20)	-	-	
Self-efficacy to RTW (-4 – 4)	PWP	0.42 (2.43)	0.44 (2.12)	-	-	0.79
	UC	0.06 (2.26)	0.19 (2.33)	-	-	
Intention to RTW despite symptoms *(1- 5)*	PWP	3.46 (1.10)	3.65 (1.24)	-	-	0.32
	UC	3.05 (1.19)	3.53 (1.39)	-	-	
Response rate questionnaires (%)		100	85.3	77.9	81.6	

DISCUSSION

Main findings

This paper presents the effects of a newly developed participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD, compared to usual care. The main findings of this study are a non-significant trend towards delayed RTW in the intervention group in the first 90 days, followed by a significant advantage in RTW rate after 90 days (hazard ratio of 2.24). In addition, the median duration until sustainable first RTW was 161 days in the participatory RTW program group, compared to 299 days in the usual care group. The initial delay in RTW found in the intervention group can be due to more intensive involvement after enrolment in the new participatory RTW program. A similar finding has been described by others[31, 32]. With regard to the considerable gain in RTW rate after 90 days, this is mostly due to significant more and earlier work resumption in the intervention group from 90 days onward until the end of the 12 month follow-up. Finally, no significant differences were found with regard to the measured secondary outcomes.

Strengths of this study

A strength of this study is the focus on a vulnerable group within the working population, namely sick-listed workers without an employment contract or with a flexible labour arrangement. These workers are burdened with a 'labour market handicap', with the absence of a workplace/employer to return to when sick-listed being a major RTW obstacle[15,16]. Therefore, creating an actual RTW perspective by offering the possibility of a temporary (therapeutic) workplace is also an important strength of this study.

Furthermore, our primary outcome measure, i.e. sustainable first RTW, should be considered a strength of this study. First RTW is commonly used as an outcome measure for RTW interventions, but does not include possible recurrences of sickness absence shortly after work resumption. By defining sustainable RTW as RTW for at least 28 days without relapse, the results in this study can be considered more robust[33].

Limitations of this study

A limitation of this pragmatic RCT is the absence of blinding of both the sick-listed workers and the occupational health care professionals of the SSA to the allocation outcome. Unfortunately, due to the nature of the participatory intervention program, blinding was not possible.

A second limitation is the duration of the follow-up period. The study population is characterised by a greater distance to the labour market and an increased risk for long-term work disability. To assess whether the beneficial effect of the participatory RTW program remains after the 12 months follow-up, an additional measurement after two years with RTW data collected from the SSA database could provide more insight and possibly increase the validity of the results found in this study.

A third limitation is the generalization of the results of this study to another context, e.g. other countries. The participatory RTW program was specifically tailored for our study population and the Dutch context in which it was implemented[15]. Application of this intervention in a different setting should be preceded by tailoring of the program, taking into account the specific characteristics of the population as well as the social, political and cultural context in which the program will be implemented and used.

Comparison with other studies

Findings in the international literature show that workplace-based interventions are effective in reducing sickness absence among workers with musculoskeletal disorders[34]. More specifically, participatory RTW interventions including a workplace component have shown to be effective on work-related outcomes for sick-listed employees with sub-acute low back pain, i.e. in the early stage of sickness absence[17,35], as well as for chronic back pain patients with an advanced phase of work disability[18]. However, while the above-mentioned studies focused on regular employees, i.e. those with relative permanent employment relationships, this study shows that a participatory RTW intervention with the possibility of a suitable (therapeutic) workplace is also effective on RTW for a more vulnerable group within the working population, i.e. sick-listed workers who have no (longer) an employer/ workplace to return to. In addition, our study findings show that the participatory

R1 RTW program can also be applied for workers with all types of MSD, not merely for
R2 workers with low back pain.
R3 The absence of beneficial or adverse effects on secondary health-related outcomes in
R4 this study is in line with recent findings of Lambeek and colleagues[18], and supports
R5 the work disability paradigm, i.e. recovery of health is not a necessary precondition
R6 for work resumption. The discrepancy between work-related outcomes and health
R7 outcomes has also been reported by others[34]. A possible explanation for this is
R8 the focus of the intervention on reducing barriers for RTW and not on symptomatic
R9 recovery from MSDs.
R10 In occupational health care research there is an increasing awareness of the
R11 importance of behavioural determinants in the field of RTW research and intervention
R12 development[36-38]. Work attitude, social support, self-efficacy, and intention to
R13 RTW all have been associated with time to RTW. In our study no statistically significant
R14 differences were found between both groups for changes in Attitude, Social support,
R15 and self-Efficacy (ASE) determinants. However, the ASE determinants were only
R16 measured at baseline and after 3 months of follow-up. In view of the significant gain
R17 in more rapid RTW after 90 days, it is possible that potentially favourable effects
R18 on behavioural determinants were present at a later stage during follow-up, but
R19 were not measured. Nevertheless, in line with the findings of van Oostrom and
R20 colleagues[38], the variable 'intention to RTW despite symptoms' showed to be a
R21 significant confounder for sustainable first RTW in the Cox regression analysis.
R22
R23 **Implications for practice**
R24 With an eminent earlier work resumption (intention-to-treat: median of 138 days;
R25 per-protocol: median of 173 days) during one-year of follow-up, the newly developed
R26 participatory RTW program seems to be a promising intervention to enhance work
R27 resumption and reduce work disability among temporary agency workers and
R28 unemployed workers, sick-listed due to MSD. However, although not statistically
R29 significant, the new RTW program had a negative impact on sickness benefit duration
R30 (intention-to-treat: median of 69 days; per-protocol: median of 59 days). This was
R31 mainly due to the fact that in most cases the therapeutic workplaces were offered with
R32 ongoing sickness benefit, i.e. the total number of days working in these temporary
R33
R34

workplaces represented 95% of the difference in total benefit duration between both groups. However, in our opinion, the gains in higher RTW rate and earlier RTW may counterbalance this added cost burden by enhancing social participation of vulnerable workers[39], and by generating an economic benefit in terms of productivity gain. Cost-effectiveness and cost-benefit analyses will be conducted to evaluate whether the effects indeed counterbalance the costs. Moreover, these results will be essential to convince policy makers that implementation of the new RTW program is a worthwhile and necessary investment to achieve a sustainable contribution of vulnerable workers to the labour force. This approach is supported by a recent study showing that application of work interventions and less strict compensation policies to be eligible for long-term benefits contributed to sustainable RTW[40]. Nevertheless, due to the relatively short follow-up in this study, our findings should be confirmed in future studies with a longer follow-up. Another possibility could be offering subsidised (temporary) workplaces. This kind of arrangement already exists in the Netherlands for young disabled workers[41]. One could argue that such temporary arrangements can be extended to other groups of vulnerable workers within the framework of an active labour market policy.

Furthermore, in our study the RTW coordinator played a key role to guarantee (perceived) safety and equality among all stakeholders and active involvement during the making of the consensus-based RTW plan. A systematic review also showed that an important key element in RTW interventions is the active involvement of an independent RTW coordinator[42]. For successful implementation we, therefore, recommend the use of a RTW coordinator competency profile, in line with the recommendation of Pransky and colleagues[43], who stated that identification of a core set of essential RTW coordinator competencies is essential.

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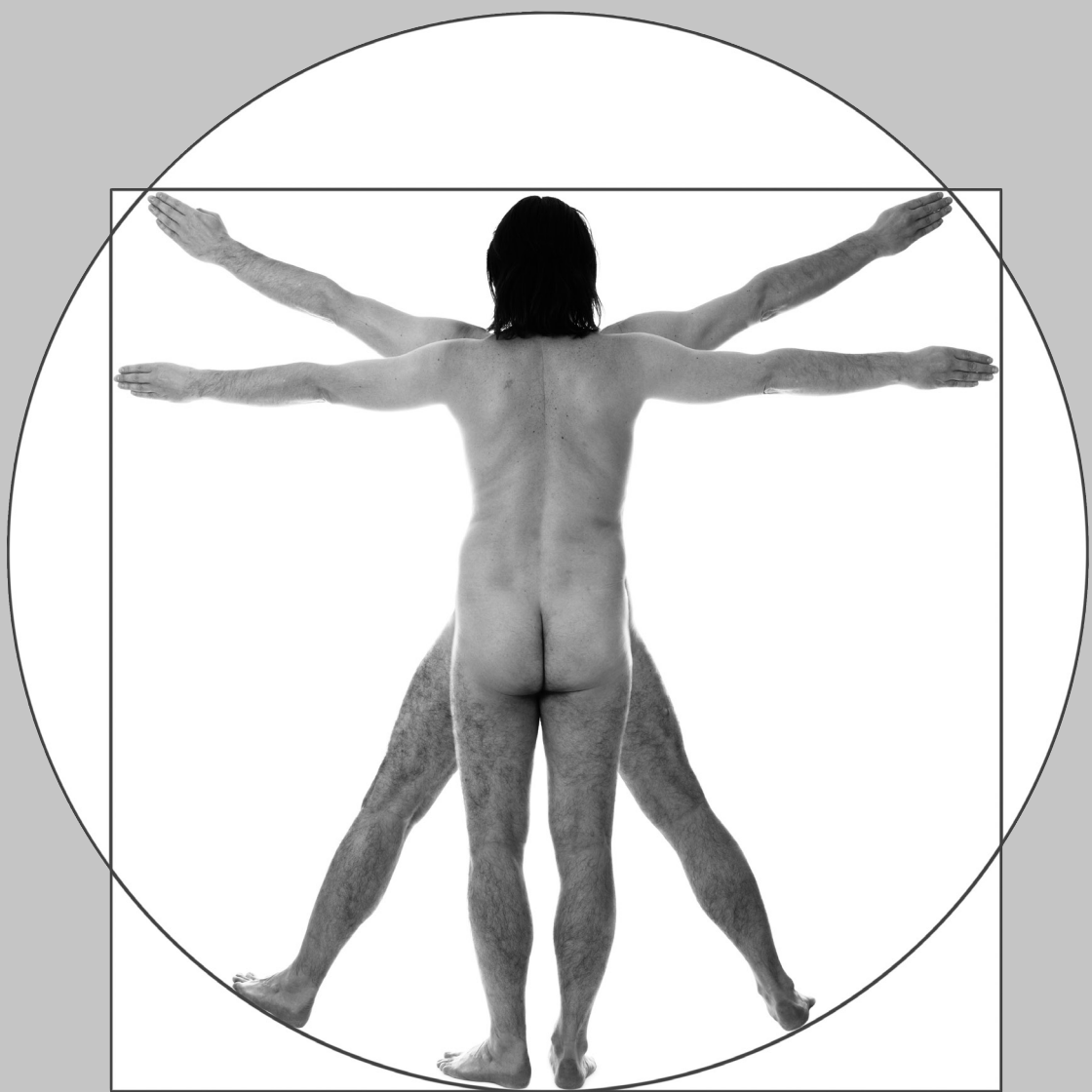

Chapter 6

A participatory return-to-work program for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders: a process evaluation alongside a randomized controlled trial

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ABSTRACT

Introduction

Beside (cost-)effectiveness, the feasibility of an intervention is important for successful implementation in daily practice. This study concerns the process evaluation of a newly developed participatory return-to-work (RTW) program for workers without an employment contract, sick-listed due to musculoskeletal disorders. The program consisted of a stepwise process, guided by an independent RTW coordinator, aimed at making a consensus-based RTW plan with the possibility of a temporary (therapeutic) workplace. The aims of this study were to describe the reach and extent of implementation of the new program, the satisfaction and experiences of all stakeholders, and the perceived barriers and facilitators for implementation of the program in daily practice.

Methods

Temporary agency workers and unemployed workers, sick-listed for 2 to 8 weeks due to musculoskeletal disorders were eligible for this study. Data were collected from the workers; their insurance physicians and labour experts at the Dutch Social Security Agency; RTW coordinators; and case managers from participating vocational rehabilitation agencies. Data collection took place using professionals' reports, standardized matrices, questionnaires at baseline and at three-month follow-up, and group interviews with the professionals.

Results

Of the 79 workers who were allocated to the participatory RTW program group, 72 workers actually started with the intervention. Overall, implementation of the program was performed according to protocol. However, offering of suitable temporary workplaces was delayed with 44.5 days. Results showed satisfaction with the RTW coordinator among the workers and three quarters of the labour experts experienced a minor or major contribution of the presence of the RTW coordinator. Several barriers for implementation were identified, such as the administrative time-investment, unclear information about the program, no timely offering of temporary

(therapeutic) workplaces, and the need for additional support in case of complex health problems.

Conclusions

This study indicates overall feasibility for implementation of the participatory RTW program in daily practice. However, to overcome important barriers, more attention should be paid to improve timely offering of suitable temporary workplaces, to describe more clearly the program goals and the professional's roles, and to offer additional support for workers suffering from complex multi-causal health problems.

INTRODUCTION

In the setting of occupational health care (OHC) research the (cost-)effectiveness of many interventions most often has been studied using a randomized controlled trial (RCT) without evaluating the feasibility of implementation of such an intervention in daily practice. However, success of an intervention does not only depend on the effectiveness of the intervention. Feasibility, i.e. how successfully and how easily the intervention can be implemented in daily practice, is also of crucial importance. The feasibility of successful implementation is determined by multiple factors that can be present on client level, OHC professional level, organisation level, population level, and/or public level [1-3]. The feasibility of an intervention can be evaluated with a process evaluation alongside an RCT [4].

Although, the number of feasibility studies alongside RCTs is still limited in OHC research, some feasibility studies were recently published [5, 6]. These studies demonstrate the importance and added value of investigating implementation and feasibility aspects of newly developed OHC interventions, for example adequate communication between (occupational) health care providers, required time investment, and timing of the start of the intervention.

The above-mentioned process evaluations in the OHC field focused on a (participatory) RTW program aimed at sick-listed employees, i.e. workers with relative permanent employment relationships. However, there is a more vulnerable group within the working population, namely workers without an employment contract and workers

with flexible labour agreements, e.g. temporary agency workers. These workers have an increased risk for (long-term) work disability [7, 8], and possibilities for RTW are limited, since in most cases they have no workplace to return to when sick-listed [8-10]. Furthermore, vocational rehabilitation and RTW guidance for this group is unsatisfactory [8]. Hence, the fact that their situation is different, compared to sick-listed regular employees, may have a different influence on the feasibility of an OHC intervention. For example, in the Netherlands an employer is obligated to support a sick-listed employee in his/her RTW process. However, there are no legislative mandates for employers to facilitate RTW of a sick-listed worker without an employment contract, e.g. offering a suitable workplace for (therapeutic) work resumption. Also, when looking at OHC, for sick-listed workers without an employment contract this is performed by an insurance physician of the Social Security Agency (SSA) who has no (direct) contact with an employer/workplace. In contrast, sick-listed employees are guided by an occupational physician who works in close contact with the employer/workplace. Furthermore, workers without an employment contract have a greater distance to the labour market due to a larger proportion of workers with lower credentials, lower income, more females, more (partly) occupationally disabled, and more immigrants [11-13].

This present paper describes the process evaluation of a newly developed participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders (MSD). This new participatory RTW program was based on a successful RTW intervention for sick-listed employees with low back pain [14, 15] and specifically tailored for the new target group using the Intervention Mapping (IM) protocol [8]. The newly developed participatory RTW program consisted of a stepwise process to identify and solve obstacles for RTW and was aimed at making a consensus-based RTW plan to facilitate (therapeutic) RTW. Because of this specific target group referral to a vocational rehabilitation agency for finding a temporary (therapeutic) workplace was added as an additional (optional) step to the RTW program, compared to the earlier developed participatory RTW programs [14, 16, 17].

The aims of this study were: 1) to describe the reach of the participatory RTW program, 2) to describe to which extent the RTW program was implemented as planned, i.e. performed according to the protocol, 3) to describe the identified obstacles and solutions for RTW, 4) to describe the satisfaction and experiences of the sick-listed workers, the OHC professionals, and the case managers of the contracted vocational rehabilitation agencies, and 5) to describe perceived barriers and facilitators for implementation of the participatory RTW program in daily practise.

METHODS

This process evaluation was carried out alongside a RCT on the cost-effectiveness of the newly developed participatory RTW program for temporary agency workers and unemployed workers sick-listed due to MSD, named the STEP-UP project [9]. The Medical Ethics Committee of the VU University Medical Centre (Amsterdam, the Netherlands) approved the study design and all participants signed informed consent.

This process evaluation was (partly) conducted based on the RE-AIM framework, which consists of five dimensions (Reach, Efficacy/Effectiveness, Adoption, Implementation, and Maintenance) to evaluate interventions [18]. The effectiveness of the participatory RTW program on RTW was not evaluated in this feasibility study; these results will be become available in the near future. Effects/outcomes perceived by the participants and health care professionals like perceived usefulness and impact and satisfaction regarding the participatory RTW program were however evaluated in this process evaluation.

Study population

The population in this study consisted of temporary agency workers and unemployed workers, sick-listed due to MSD, OHC professionals of the SSA (insurance physicians, labour experts, and RTW coordinators), and case managers of the contracted vocational rehabilitation agencies in the eastern part of the Netherlands.

Participants

Temporary agency workers and unemployed workers between 18 and 64 years of age, and sick-listed between 2 and 8 weeks with MSD as principal health complaint for the sickness benefit claim were eligible for participation. Sick-listed workers were excluded in case of: 1) an accepted sickness benefit claim and being sick-listed for more than 8 weeks, 2) not being able to complete questionnaires written in the Dutch language, 3) a conflict with the SSA regarding a sickness benefit claim or a long term disability claim, 4) a legal conflict, e.g. about an injury compensation claim, 5) an episode of sickness absence due to MSD within one month before the current sickness benefit claim, 6) a revision or ending of a long-term disability benefit within one month before the current sickness benefit claim, or 7) pregnancy until three months after delivery. The insurance physicians of the SSA prevented workers from starting with the participatory RTW program in case of a serious psychiatric disorder, a serious cardio-vascular disease, or a terminal disease. The recruitment procedure has been described in detail elsewhere [9].

Occupational health care professionals

The OHC professionals in this study were recruited from the five participating SSA front offices and consisted of insurance physicians, labour experts, and specifically for this study trained RTW coordinators. They all received purposely developed instruction and coaching sessions and were offered personal guidance with the first cases to facilitate working with the participatory RTW program. Next, each SSA front office was asked to form at least two 'participatory RTW program' teams, i.e. 'STEP-UP teams', consisting of an insurance physician, a labour expert, and a RTW coordinator. Furthermore, the involved staff and management of the SSA agreed to support and facilitate working with the newly developed participatory RTW program.

(Case managers of) vocational rehabilitation agencies

The vocational rehabilitation agencies were certified commercially operating agencies that agreed to support the participatory RTW program. Each agency appointed a case manager who had contact with the RTW coordinator.

Participatory RTW program

The participatory RTW program consisted of a step-by-step process to identify and solve obstacles for RTW, aimed at making a consensus-based implementation plan to facilitate (therapeutic) RTW. Involved in this stepwise process were the sick-listed worker, an insurance physician of the SSA, a labour expert of the SSA, and an independent RTW coordinator of the SSA who guided the stepwise process to achieve consensus and to guarantee equality between the sick-listed worker and the labour expert of the SSA. The first step consisted of a (combined) consult with the insurance physician (within 14 days after allocation) and the labour expert (within 14 days after the consult with the insurance physician) to check the eligibility of the sickness benefit claim, and to make a (medical) problem analysis with advising about (functional) limitations for RTW, including the prognosis regarding recovery of health and work ability. In the second step two separate meetings took place between the sick-listed worker and the RTW coordinator, and between the labour expert and the RTW coordinator, respectively, to identify and prioritize obstacles for RTW. This prioritizing of obstacles for RTW was based on frequency (how often do they occur?) and severity (how large is the perceived impact on functioning in daily life and/or work?). Next, in the third step, the sick-listed worker, the labour expert and the RTW coordinator had a joint meeting to brainstorm possible solutions for RTW. This resulted in the fourth step: making of a consensus-based RTW plan describing the prioritised obstacles for RTW, the consensus-based solutions, the person(s) responsible for implementation of each selected solution, and when it should be realized (within 21 days after the consult with the insurance physician). Next, step five was optional and consisted of offering the possibility of a temporary (therapeutic) workplace to create an actual RTW perspective. If chosen for this option, one of the participating vocational rehabilitation agencies was contracted by the RTW coordinator to find a (therapeutic) workplace matching with the formulated consensus-based RTW plan. The aim of this temporary (therapeutic) workplace was to create an opportunity to practice (new) work skills and get work experience. After contracting by the RTW coordinator, the vocational rehabilitation agency had 4 weeks to offer at least two suitable temporary (therapeutic) workplaces. Placement was for a maximum of three months. The vocational rehabilitation agencies were asked to use their existing network/contacts

with employers to find temporary (therapeutic) workplaces. If necessary, the case manager of the vocational rehabilitation agency offered support to the worker and/or the employer to facilitate working at the temporary workplace. The employers benefited financially because the sick-listed worker received on going supportive sickness benefit from the SSA during the placement in a temporary (therapeutic) workplace, i.e. the employer did not have to page wages. Otherwise, the employer had to make some time investment to guide the sick-listed worker in his/her new work environment and work tasks. If the primary contracted vocational rehabilitation agency did not succeed in offering a suitable temporary workplace within 28 days after referral the other participating vocational rehabilitation agencies could also be contracted. Furthermore, a financial reward was given by the SSA to the vocational rehabilitation agency for placement in a suitable temporary (therapeutic) workplace. Finally, in the sixth step, six weeks after the brainstorm session, the RTW coordinator evaluated actual realization of the RTW implementation plan, i.e. realization of the selected solutions, including the contribution to RTW [8, 9].

Data collection

The data for this study were collected using questionnaires (at baseline and three-month follow-up) and standardized matrices (resulting from the brainstorm session and consensus meeting with the RTW coordinator). In addition, data were also obtained from a computerized support system specially made for the involved SSA professionals in this study to facilitate following the participatory RTW protocol, from the client files at the SSA, and from the SSA database records after one-year follow-up. Finally, three months after allocation of the last sick-listed worker to the intervention group, i.e. after all 79 participants in the intervention group had had the opportunity to receive the participatory RTW program, group interviews were held with the insurance physicians, the labour experts, the RTW coordinators, management and staff members of the SSA, and representatives of the participating vocational rehabilitation agencies.

Outcome measures

Reach

Reach was addressed at participant's level and project level. At participant's level, reach was defined as the number of workers who participated in the research. The number of approached sick-listed workers for this study; the number of workers who were eligible for participation; and the number of workers who actually participated in the study were registered. All participants completed a baseline questionnaire, providing background information. At project level, reach was defined as the number of settings (SSA front offices and vocational rehabilitation agencies) and the representatives of these settings (OHC professionals and case managers, respectively) who participated in the research. The number of OHC professionals and the (case managers of the) vocational rehabilitation agencies who were eligible and actually participated in the study was registered. On both levels reasons for non-participation were registered.

Implementation of the participatory RTW program according to the protocol

- Timeline and content of the participatory RTW program

To determine whether the RTW program was implemented according to the protocol the content of the applied program (i.e. which steps were realized?) and the timeline (i.e. start and duration between the performed steps) was evaluated for each participant. This was primarily reported by the RTW coordinator using the questionnaire at three-month follow-up. The information given by the RTW coordinator was compared to and, if necessary, supplemented by information from the client files at the SSA and the SSA database records after one year of follow-up. Finally, if information was still missing additional data were collected from the professionals reports stored in the computerized support system designed for this study. In case of non-compliance the reason for this was registered in the questionnaire sent to the OHC professionals at three-month follow-up and in the reports in the computerized support system.

- Obstacles and solutions for RTW (step 2, 3 and 4)

The identified and prioritized obstacles for RTW, the proposed solutions, and the consensus-based RTW plan were registered in standardized matrices by the RTW coordinator. To classify the obstacles and solutions for RTW the Ergonomic Abstract classification scheme was used [5, 19, 20]. In accordance with this classification scheme the categories consisted of: workplace and equipment, work design and organization, environment, task-related factors, performance-related factors, economic impact of the system, and other fields.

- (Therapeutic) workplace (step 5)

The realisation of temporary (therapeutic) workplaces, including the type of work offered, was registered in the case manager reports of the vocational rehabilitation agencies. If placement in a temporary workplace was not realised, the case manager of the agency registered the reason for this.

Satisfaction, perceived usefulness, and impact of the participatory RTW program

Satisfaction, perceived usefulness, and the impact on RTW of the participatory RTW program were evaluated using questionnaires at three-month follow-up from all involved stakeholders, i.e. the worker, the insurance physician, the labour expert, the RTW coordinator, and, if applicable, the case-manager of the contracted vocational rehabilitation agency. Whether the workers felt that they were taken seriously by the insurance physician, the labour expert, and the RTW coordinator was evaluated using the short version of the Patient Satisfaction Occupational Health Services Questionnaire, based on a five-point scale ranging from no agreement to full agreement [21].

Barriers and facilitators for adoption and implementation of the participatory RTW program

In the three-month follow-up questionnaire the involved OHC professionals and case managers of the vocational rehabilitation agencies were asked about their experienced barriers and facilitators for implementation. In addition, when all participants in the intervention group had had the opportunity to receive the new

participatory RTW program, i.e. three months after inclusion of the last intervention group participant, group interviews were held among the staff, management and involved OHC professionals of the SSA, and the case managers of the vocational rehabilitation agencies. To ask their view on the applicability of the program in daily practise, focusing on important barriers and facilitators for implementation. The content of these group interviews was based on the principles of context analysis as proposed by Grol and Wensing [22, 23] and consisted of four themes: the innovation itself, the users, the target group, and the context.

Data analysis

The data were analyzed by means of descriptive statistics. SPSS 15 and Excel 2003 were used. The Ergonomic Abstract classification scheme [19, 20] was used to classify the obstacles and solutions for RTW as registered in the standardized matrices. Two researchers (KMB and SJV) performed the classification of the obstacles and solutions independently. Disagreements between the researchers were discussed to achieve consensus, and, if necessary, a third researcher (JRA) was consulted. The group interviews were tape-recorded and transcribed. All mentioned barriers and facilitators for implementation were extracted from the transcripts and coded. These coded snippets were classified by two researchers (KMB and SJV) independently based on the principles of context analysis [22, 23]. Disagreements between the researchers were discussed to achieve consensus and, if necessary, a third researcher (JRA) was consulted [24].

RESULTS

Reach

Participant's level

Figure 1 shows the flow diagram of the sick-listed workers in the study. Between February 2007 and July 2008, 3807 temporary agency workers and unemployed workers, sick-listed for 1 to 2 weeks due to MSD, received a letter with a screening questionnaire from the insurance physician of the SSA on behalf of the researchers. Based on the returned screeners, 784 sick-listed workers were eligible for participation.

They were contacted by telephone to provide additional information about the study and to check eligibility. The main reasons for non-participation were non-response on the screener (n = 2249), not interested in participation (n = 466), and not meeting the inclusion criteria (n = 308). After the telephone contact an intake meeting was planned with 266 sick-listed workers. The main reasons for not planning an intake were not meeting the inclusion criteria (n = 327) and not willing to participate (n = 191). Finally, 163 sick-listed workers were enrolled in the study. The remaining 103 workers were not enrolled due to several reasons (Figure 1).

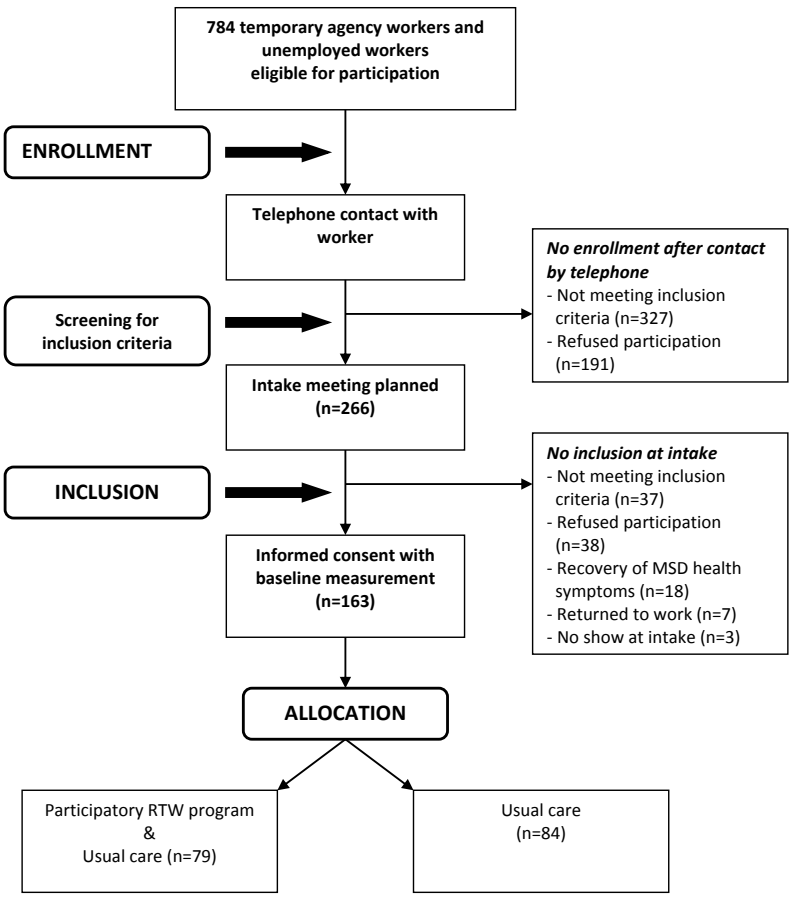

Figure 1. Flow diagram of sick-listed workers in the STEP-UP study.

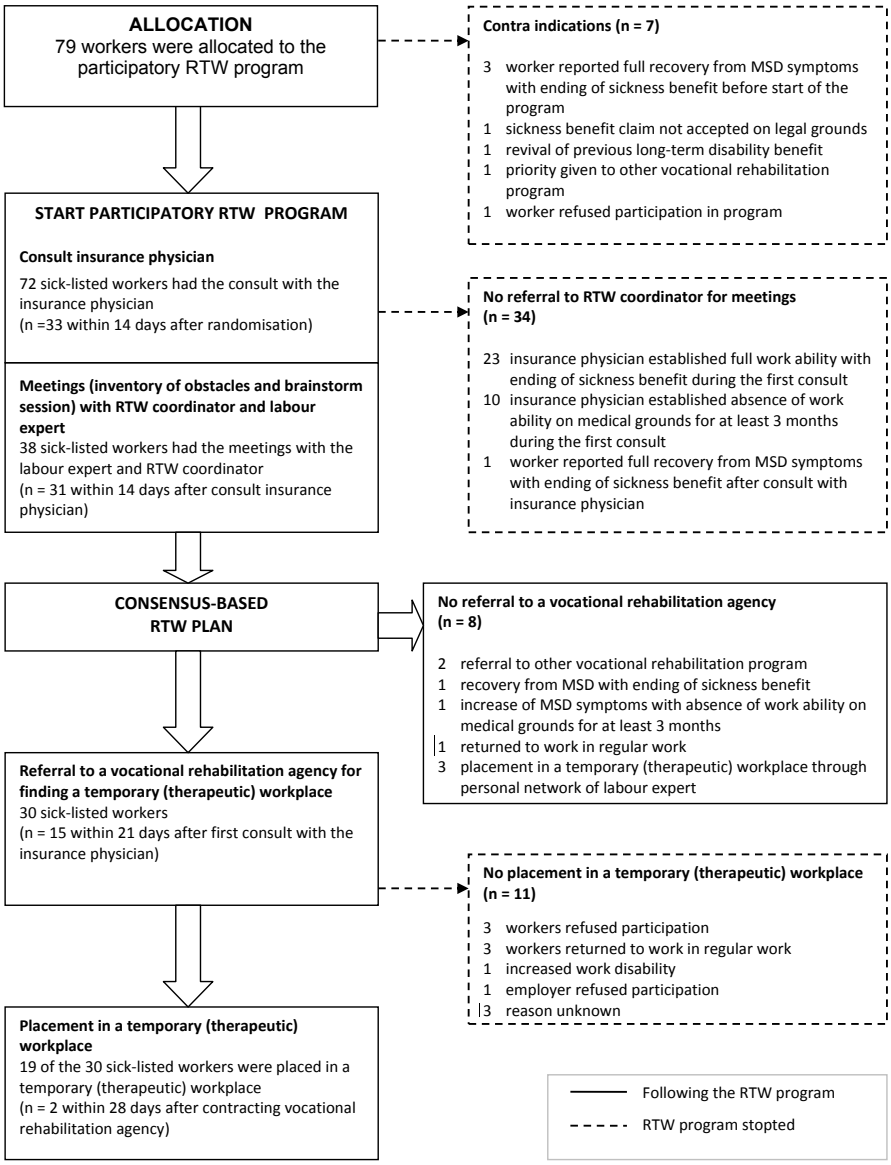

Figure 2. Flow diagram of sick-listed workers in the RTW program after allocation.

Randomization and allocation to the participatory RTW program group or usual care group was performed after informed consent and baseline measurement. Obviously, the present paper only reports on the participants allocated to the intervention group. Finally, after enrolment, seven sick-listed workers did not start with the participatory RTW program. The main reason for not starting was full recovery from MSD before start of the program (n = 3). Figure 2 shows the flow diagram of the sick-listed workers in the RTW program after allocation. The baseline characteristics of the participants who started with the participatory RTW program (n = 72) are shown in Table 1. These participants did not significantly differ from the sick-listed workers who did not start with the RTW program.

Table 1. Baseline characteristics of the workers without employment contract, sick-listed due to musculoskeletal disorders – Intervention group (N = 72).

Worker characteristics	
Age (mean ± sd)	44.3 ± 10.8
Gender (% male)	55.6
Level of education (%)	
Low	55.5
Intermediate	36.2
High	8.3
Pain-related characteristics	
Pain intensity (1-10 score) (mean ± sd)	
Back pain	7.2 ± 2.1
Neck pain	7.2 ± 1.8
Other pain	6.6 ± 1.8
Quality of life (0-1 score) (mean ± sd)	0.6 ± 0.3
Functional status (0-100 score) (mean ± sd)	
Bodily pain	27.1 ± 15.6
Physical functioning	45.3 ± 22.9
Physical role functioning	11.1 ± 21.3
Social functioning	49.1 ± 26.3
Pain coping (range 1–4) (mean ± sd)	
Active pain coping	2.3 ± 0.5
Passive pain coping	2.2 ± 0.4

Health-related characteristics	
Perceived health status (0-100 score) (mean ± sd)	57.1± 21.2
Change in health status (0-100 score) (mean ± sd)	
Health status compared to one year before	32.0 ± 25.8
Work-related characteristics	
Type of worker (%)	
Temporary agency worker	51.4
Unemployed worker	48.6
Type of last work (%)	
Physically and/or mentally demanding	73.6
Light physically and/or light mentally demanding	26.4
Work schedule (%)	
Day work	59.7
Irregular work/flexible schedules	16.7
Shift work	23.6
Work status before reporting sick	
Working before reporting sick (%)	52.8
Not working before reporting sick: duration of end of last work and first day of reporting sick (months) (median, IQR)	14.0 (5.3 – 42.8)
Number of working hours per week in last work (mean ± sd)	34.1 ± 8.7
Worker's expectation regarding RTW	
Perceived likelihood at baseline to RTW within 6 months after first day of reporting sick (mean ± sd) (range 1–5; 1: very unlikely; 5: very likely)	2.2 ± 1.2

Project level

The board of five front offices of the SSA in the eastern part of the Netherlands was approached for participation and responded positive. The OCH professionals from these SSA offices were invited for training in working with the participatory RTW program. In total, 29 insurance physicians, 24 labour experts, and 30 case managers from the five SSA front offices completed the instruction and coaching program. Next, each SSA office was asked to form two 'participatory RTW program' teams. Finally, 7 insurance physicians, 8 labour experts, and 9 RTW coordinators responded positively and formed 'STEP-UP' teams at the SSA offices. The main reason for not willing to participate in the study was the (perceived) time investment. During the study one

insurance physician and one labour expert started working elsewhere and were replaced by a new professional, who received a syllabus with detailed information about the participatory RTW program and was offered personal guidance with the first cases to facilitate working with the participatory RTW program.

The four commercially operating vocational rehabilitation agencies that participated were: Olympia, Adeux, Capability, and Randstad Rentrée. Each agency appointed a case manager for the participatory RTW program.

Implementation of the participatory RTW program according to the protocol

Timeline and content of the participatory RTW program

Table 2 shows the timeline of the RTW program. The first four steps of the RTW program were performed according to the timeline of the protocol. In the fifth step of the RTW program delay appeared. The median duration between contracting the primary vocational rehabilitation agency and placement in a matching (therapeutic) workplace was 72.5 days (IQR 46.3 – 96.0), compared to 28 days as dictated by the protocol. The most mentioned reasons for this delay were: 1) no results by the primary vocational rehabilitation agency within 28 days after referral whereupon the other vocational rehabilitation agencies were also contracted, and 2) the summer vacancies wherein professionals or participants were not available in time.

After the first consult with the insurance physician (step one), according to the protocol, participation in the RTW program stopped for 34 sick-listed workers because of: full work ability established by the insurance physician with ending of sickness benefit (claim closure) (n = 23), absence of work ability on medical grounds for at least three months (n = 10), and full recovery from MSD with ending of sickness benefit (claim closure) (n = 1). In total, 38 of the 72 sick-listed workers (53%) participated in the meetings with the RTW coordinator, i.e. the inventory of obstacles for RTW (step two), the brainstorm session to think about solutions (step three), and the making of a consensus-based RTW plan (step four). Figure 2 shows the flow diagram of the sick-listed workers in the RTW program after allocation.

Table 2. Timeline of the participatory RTW program.

	Duration of intervention (days) according to	
	protocol (max)	**study** (median [IQR])
Allocation - Consult IP	14	15.0 [8.0-21.0]
Consult IP - Meeting LE	14	0.0 [0.0-9.0]
Consult IP - Consensus-based RTW plan	21	13.0 [8.0-31.5]
Consult IP - Referral to vocational rehabilitation agency	21	22.0 [13.5-32.5]
Referral to vocational rehabilitation agency - Placement in temporary (therapeutic) workplace	28	72.5 [46.3-96.0]
Duration temporary (therapeutic) workplace	90	89.5 [40.5-146.8]

IP = insurance physician; LE = labour expert; RTW = return-to-work

Obstacles and solutions for RTW (step 2, 3 and 4)

In total, 98 obstacles for RTW were identified and prioritized. Most of these obstacles were related to the physical workload (27%), commuting (16%), low level of education and/or work (15%), job design (13%), and work schedule (8%). The most frequently mentioned solution in the brainstorm meetings was to find (other) physically less demanding work. Table 3 shows examples of identified obstacles for RTW and proposed solutions to achieve RTW.

The RTW coordinators reported that 65% of the sick-listed workers actively cooperated in the participatory RTW program, whereas 32% of the sick-listed workers were passively cooperative. Only one sick-listed worker did not cooperate. According to the RTW coordinators and the insurance physicians they mostly advised the sick-listed workers physically less demanding work and other less demanding tasks in previous work. The sick-listed workers reported they got advised mostly: decrease of physical workload, change of workplace, and other less demanding tasks in previous work.

The mean duration of a meeting with the RTW coordinator was 71 minutes and the mean number of meetings was 2.4 during the RTW program. The mean total time investment for performing the RTW program for the RTW coordinator was 3 hours and 54 minutes.

(Therapeutic) workplace (step 5)

In total, 30 sick-listed workers were referred to a vocational rehabilitation agency. Of these 30 workers, 15 were offered two (therapeutic) workplaces, 7 workers were offered three (therapeutic) workplaces, 7 workers were offered no workplace at all, and for one worker this remained unknown. The reasons for not offering a workplace were: sick-listed worker refused to participate (n=1), sick-listed worker found suitable work on own initiative (n=1), increased work disability (n=1), priority given to medical treatment of sick-listed worker (n=1), and unknown (n=3). Subsequently, 19 of the 30 sick-listed workers were actually placed in a temporary (therapeutic) workplace. Two vocational rehabilitation agencies were not able to offer suitable (therapeutic) workplaces. One agency placed one sick-listed worker in a (therapeutic) workplace and one agency (Olympia) placed 18 sick-listed workers in a temporary (therapeutic) workplace. In the view of the RTW coordinator almost all of the sick-listed workers (97%) had sufficient say in choosing a suitable temporary workplace. Table 4 shows the type of realised temporary (therapeutic) workplaces.

Furthermore, four sick-listed workers found a suitable workplace on own initiative and three workers were placed in a temporary (therapeutic) workplace through the personal network of their labour expert. In total, 26 of the 38 sick-listed workers who completed the consensus based RTW plan (68%) returned to work.

Table 3. Examples of obstacles for RTW and proposed solutions or suitable work.

Example	Type of obstacle for RTW based on the Ergonomic Abstract classification scheme	Obstacle(s) identified	Proposed solution(s) and/or proposed suitable workplaces
1	Physical workload (= task-related factor)	Lifting, standing, walking, climbing the stairs, pushing, pulling, working above shoulder height	Physically less demanding work, for example: • Office worker/ receptionist • Sales assistant • Call centre worker • Assembly worker • Forklift driver • Courier
2	Individual differences (= performance-related factor)	Commuting. Dependent on public transport and/or bike for commuting (not being able to drive a car)	Work that is: • Easy accessible by public transport of by bicycle. • Located close to domicile of worker (limited commuting distance)
3	Group factors (= performance-related factor)	Low level work	• Broadening work experience by working in a different work field. • Building a portfolio.
		Low level education or no education	• Short-term (practice-orientated) education/training
4	Job design (= workplace and equipment factor)	Physical workload due to design of workplace, machinery or equipment	Adaptation of equipment, for example: • Lift device • Stand up stool • Computer voice
5	Scheduling (= work design and organisation factor)	Shift work	• Regular working hours • Only day work
		Number of working hours	• Graded return-to-work (stepwise increase in working hours)

Table 4. Type of temporary (therapeutic) workplaces.

Type of work	Number of realized temporary (therapeutic) workplaces (n=19)
Receptionist/Administrative worker	4
Warehouse worker	2
Shop worker	2
Driver/Courier	2
Taxi driver	1
(Therapeutic) activities assistant	1
Catering worker	1
Draftsman	1
Manufacturing planner/calculator	1
Quality control engineer	1
Unknown	3

Satisfaction, perceived usefulness, and impact of the participatory RTW program

Meetings

The majority of the sick-listed workers felt taken seriously during the meetings with the OHC professionals. Figure 3 shows the extent to which the sick-listed worker felt taken seriously by the RTW coordinator. Three quarters of the labour experts experienced a minor or major contribution of the presence of the RTW coordinator in the meetings to the sense of security and the sense of support of the sick-listed worker, and the perceived equality between the sick-listed workers and the labour expert (Table 5).

The satisfaction score for the meeting with the insurance physician was 7.3 (sd 2.1) on a 1-10 scale. The majority of sick-listed workers were satisfied with the OHC professionals (63% with the insurance physician, 66% with the labour expert, and 72% with the RTW coordinator).

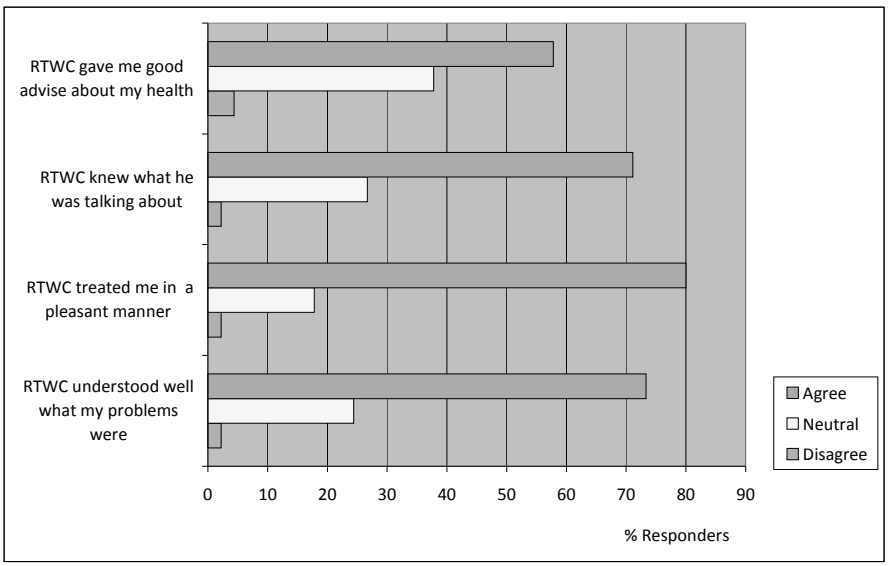

Figure 3. Taken seriously by the RTW coordinator (RTWC) during the meetings from the perspective of the worker (n = 47).

Table 5. Contribution of the presence of the RTW coordinator in the meetings with the labour expert according to the labour expert (n = 26).

		Labour experts (%)
Contribute to the sense of security	Major contribution	23.1
	Minor contribution	50.0
	No contribution	26.9
Contribute to the sense of support	Major contribution	46.1
	Minor contribution	30.8
	No contribution	23.1
Contribute to the perceived equality between sick-listed worker and labour expert	Major contribution	28.0
	Minor contribution	44.0
	No contribution	28.0

Consensus-based RTW plan, (therapeutic) workplace and computerized support system

Table 6 shows the satisfaction and the perceived usefulness with regard to the consensus-based RTW plan and the temporary (therapeutic) workplace, including the perceived impact on RTW. Approximately a third of the labour experts were dissatisfied with the resulting consensus-based RTW plan and the finding of temporary (therapeutic) workplaces. Most of the sick-listed workers and the labour experts had a positive or neutral opinion about their satisfaction with and the usefulness of the consensus-based RTW plan and the temporary (therapeutic) workplace, and the impact of those on RTW. Most of the case managers from the vocational rehabilitation agencies experienced a facilitating impact on RTW of both the consensus-based RTW plan (67%) and the offering of a (therapeutic) workplace (55%).

The majority of the OHC professionals (86% of the insurance physicians, 71% of the labour experts, and 90% of the RTW coordinators) used the computerized support system. Most OHC professionals were satisfied with the computerized support system with respect to the support in working with the RTW program and support in communication between all involved professionals.

Table 6. Satisfaction, usefulness and impact on RTW as perceived by the sick-listed workers and the labour experts.

		Consensus-based RTW plan		Offering or placement in (therapeutic) workplace	
		Sick-listed workers (%) (n = 43)	Labour experts (%) (n = 27)	Sick-listed workers (%) (n = 44)	Labour experts (%) (n = 23)
Satisfaction	Satisfied	42.5	22.2	26.8	21.7
	Neutral	57.5	48.1	53.7	39.1
	Dissatisfied	0	29.6	19.6	39.1
		(n = 44)		(n = 44)	
Usefulness	Useful	43.9	*	29.3	*
	Neutral	53.7	*	58.5	*
	Not useful	2.4	*	12.2	*
		(n = 41)	(n = 28)	(n = 41)	(n = 28)
Perceived impact on RTW	Facilitated	36.8	28.6	21.1	21.4
	Neutral	63.2	67.9	65.8	78.6
	Impeded	0	3.6	13.2	0

* Not asked in questionnaire labour expert

Barriers and facilitators for adaptation and implementation of the participatory RTW program

Questionnaires

After each participatory RTW program, the OHC professionals and, if applicable, the case manager of the vocational rehabilitation agency were asked to evaluate the process of implementation by assessing various factors as neutral, impeding, or facilitating.

The main facilitating factors were: time investment, expected effectiveness, confidence of the sick-listed worker in the professionals, commitment of the sick-listed worker and the RTW coordinator regarding the placement in a temporary workplace, sufficient say of the sick-listed worker and the labour expert regarding choosing a suitable temporary workplace, and possibility of a suitable temporary (therapeutic) workplace.

The main impeding factors were: insufficient disease insight of sick-listed workers according to the insurance physician, no timely offering of a suitable temporary (therapeutic) workplace, and commitment of the sick-listed worker regarding the temporary workplace.

Group interviews

Three months after inclusion of the last participant in the participatory RTW program group, representatives of the staff, management and involved OHC professionals of the SSA, and the case managers of the participating vocational rehabilitation agencies were asked to evaluate the overall implementation. In total 9 involved professionals took part in the group interviews. The following themes were discussed: the innovation itself, the users, the target group, and the context.

Examples of barriers mentioned at the innovation level were: the administrative burden, i.e. the time it took to fill in all the forms, difficulty to distinguish between the role of the RTW coordinator and the role of the labour expert, placement in a (therapeutic) workplace perceived as the main goal of the RTW program instead of making a consensus-based RTW plan, and no possibility to punish the sick-listed worker in case of noncompliance with the RTW action plan, e.g. imposing a benefit sanction. Examples of the mentioned facilitators at the innovation level were:

focus on early restoring of activities including RTW, much attention paid to active involvement of the sick-listed worker, and the possibility of a temporary workplace, i.e. the opportunity to attempt (therapeutic) work resumption.

At the user level examples of barriers were: unclear information about the main goals of the RTW program, perceived restriction of professional autonomy by following a protocol, and top down introduction of the program. Examples of the mentioned facilitators at the user level were: most SSA teams managed to plan the meetings in time, fast and mindful transfer of sick-listed workers between OHC professionals facilitated the focus on early restoring of activities including RTW, and using a computerized support system to ensure sufficient communication between the involved professionals.

At the target group level examples of barriers were: many sick-listed workers with complex, multi-causal health problems (e.g. not just MSD, but also psychosocial problems), and expectations of the sick-listed workers not always in accordance with the RTW program. An example of the mentioned facilitators at the target group level was that the sick-listed workers were positive about the presence of the RTW coordinator.

Examples of barriers at the context level were: less flexible consult planning opportunities at some of the SSA offices, and less support due to changes in management at the SSA during the study. An example of the mentioned facilitators at the context level was the financial incentive for both the participating vocational rehabilitation agencies and the employers to find and offer suitable (temporary) workplaces.

DISCUSSION

This paper aimed to describe the implementation process, satisfaction and experiences with a newly developed participatory RTW programs reported by temporary agency workers and unemployed workers, sick-listed due to MSD, their OHC professionals at the SSA, and their case managers of the participating vocational rehabilitation agencies. Overall, implementation of the program was performed according to protocol and the results showed satisfaction with the RTW coordinator

among workers. Three quarters of the labour experts experienced a minor or major contribution of the presence of the RTW coordinator. However, timely placement in a suitable temporary (therapeutic) workplace after referral to a vocational rehabilitation agency proved to be difficult.

Comparison with other studies

Comparison of the type of obstacles for RTW identified by workers on sick leave due to low back pain in previous studies shows that the obstacles related to physical workload and job design found in this study are comparable with earlier findings [6, 14]. However, in this study obstacles for RTW related to commuting and low level of education and/or work were also frequently mentioned. This difference could be associated with the different target group. Having a low level of education and/or work seems to be more common for temporary agency workers and unemployed workers than for workers with an employment contract. For example, the education level in the baseline characteristics found in a comparable study among employees on sick leave due to low back pain (21% low and 52% intermediate education) [25] was indeed higher than the education level found in this study (56% low and 36% intermediate education). These differences probably contribute to the finding that sick-listed workers without an employment contract encountered different obstacles in returning to work, compared to sick-listed employees.

The majority of the sick-listed workers were satisfied with the independent role of the RTW coordinator and three quarters of the labour experts experienced a minor or major contribution of the presence of the RTW coordinator in the meetings. However, a substantial number of the labour experts were dissatisfied with the resulting consensus-based RTW plan and the finding of suitable temporary workplaces. In addition, most professionals participating in the group interviews expressed difficulty to distinguish between the role of the RTW coordinator and the role of the labour expert. This limited satisfaction may be partly caused by the difficulties in finding and timely offering of suitable temporary workplaces. The unclear role of the RTW coordinator should be taken into account when implementing the participatory RTW program on a wider scale. It might be possible that the RTW coordinators in this study

did not have all competences required for this role [26, 27] or that the professional's roles and the program goals were not clearly enough described. This might affect the implementation of the program and can be improved when implementing the program on a wider scale.

In earlier studies a participatory RTW program seemed to be feasible for sick-listed workers with distress problems or with low back pain [5, 6, 14]. In the present study the OHC professionals and the case managers of the vocational rehabilitation agencies found the participatory RTW program less suitable for sick-listed workers with complex, multi-causal health problems. They preferred referral of workers with no co-morbidity. The combination of physical and psychosocial problems seemed to be difficult to handle. This might be caused by unclear information about the target group during the training of the OHC professionals. When implementing the RTW program in daily practice, attention should be paid to applying the RTW program to sick-listed workers with complex health problems. If necessary, additional support should be offered for workers suffering from these complex health problems.

The exclusion criteria in this study were comparable with the exclusion criteria used in earlier studies [5, 6, 14]. Sick-listed workers with a (legal) conflict regarding a sickness benefit claim, a long term disability claim or an injury compensation claim were excluded due to the fact that mediation in a (legal) conflict is not the aim of the participatory RTW program, i.e. instead of trying to reconcile between two contending parties the aim of the new RTW program is to reach consensus on how to achieve RTW. In addition, many of the sick-listed workers who participated in the study suffered from complex health problems, which is characteristic for this target group. Therefore, we believe that the sick-listed workers participating in this study are sufficiently representative with regard to the feasibility of the participatory RTW program in daily practice.

Strengths and limitations of this study

Since all stakeholders have different interests in the OHC field, a strength of this study is evaluating the experiences of all involved stakeholders (sick-listed workers,

OHC professionals, and the case managers of the vocational rehabilitation agencies) with the RTW program.

Another strength of this study is that the performance of the program according to the protocol was measured using multiple sources, i.e. 1) several questionnaires, 2) the SSA database records and client files, and 3) the reports in the for this study newly developed computerized support system at the SSA, with subsequent comparison of these data. In addition, satisfaction and experiences with the participatory RTW program were also measured using multiple sources and mixed methods (questionnaires and group interviews)

A methodological limitation of this study is that selection bias might have occurred, because only interested sick-listed workers and professionals participated in the study.

In this study the difficulties regarding the performance of the selected vocational rehabilitation agencies may have been underestimated, i.e. how the vocational rehabilitation agencies actually cope with finding and offering a (therapeutic) workplace. A possible solution for this might have been to perform a pilot study to establish the working procedures of the involved vocational rehabilitation agencies, including the network of (willing) employers for suitable temporary workplaces, prior to the start of the RCT.

Practical implications

This study indicates overall feasibility for implementation of the participatory RTW program in daily practice. However, the majority of the participating vocational rehabilitation agencies experienced difficulties in finding and timely offering of suitable (therapeutic) workplaces. The delay in finding suitable temporary workplaces might be due to the inexperience of the vocational rehabilitation agencies in working with the new RTW program and/or not having optimal working procedures for this. Therefore, more attention should be paid to improve the finding and timely offering of suitable temporary (therapeutic) workplaces. This could be improved by (more) stringent selection of the vocational rehabilitation agencies, by training the case managers of these agencies, and by creating a database of suitable temporary workplaces.

For broader implementation it also seems essential to pay more attention to describing more clearly the program goals and the professional's roles. Moreover, it should be made clear that the program is also suitable for sick-listed workers with complex health problems, for whom additional support should be arranged. Furthermore, limiting the administrative time-investment is recommended.

Finally, we believe that the feasibility of the participatory RTW program is not significantly more difficult if not limited to those who are willing to participate, i.e. willing to provide informed consent. The group interviews with the OHC professionals revealed that the voluntary nature of the study could interfere with the obligations of the sick-listed worker to cooperate with regard to his/her recovery, (vocational) rehabilitation and RTW (as dictated by the Dutch Improved Gatekeeper Act). For instance, they missed the possibility to impose a benefit sanction in case of noncompliance with the RTW action plan. Therefore, it might even be easier to implement the new participatory RTW program in daily practice compared to this study.

CONCLUSIONS

This study indicates overall feasibility for implementation of the participatory RTW program in daily practice. However, more attention should be paid to improve the timely offering of suitable temporary workplaces. In addition, for broader implementation it seems essential to pay more attention to describing more clearly the program goals and the professional's roles, and to offer additional support for workers suffering from complex health problems.

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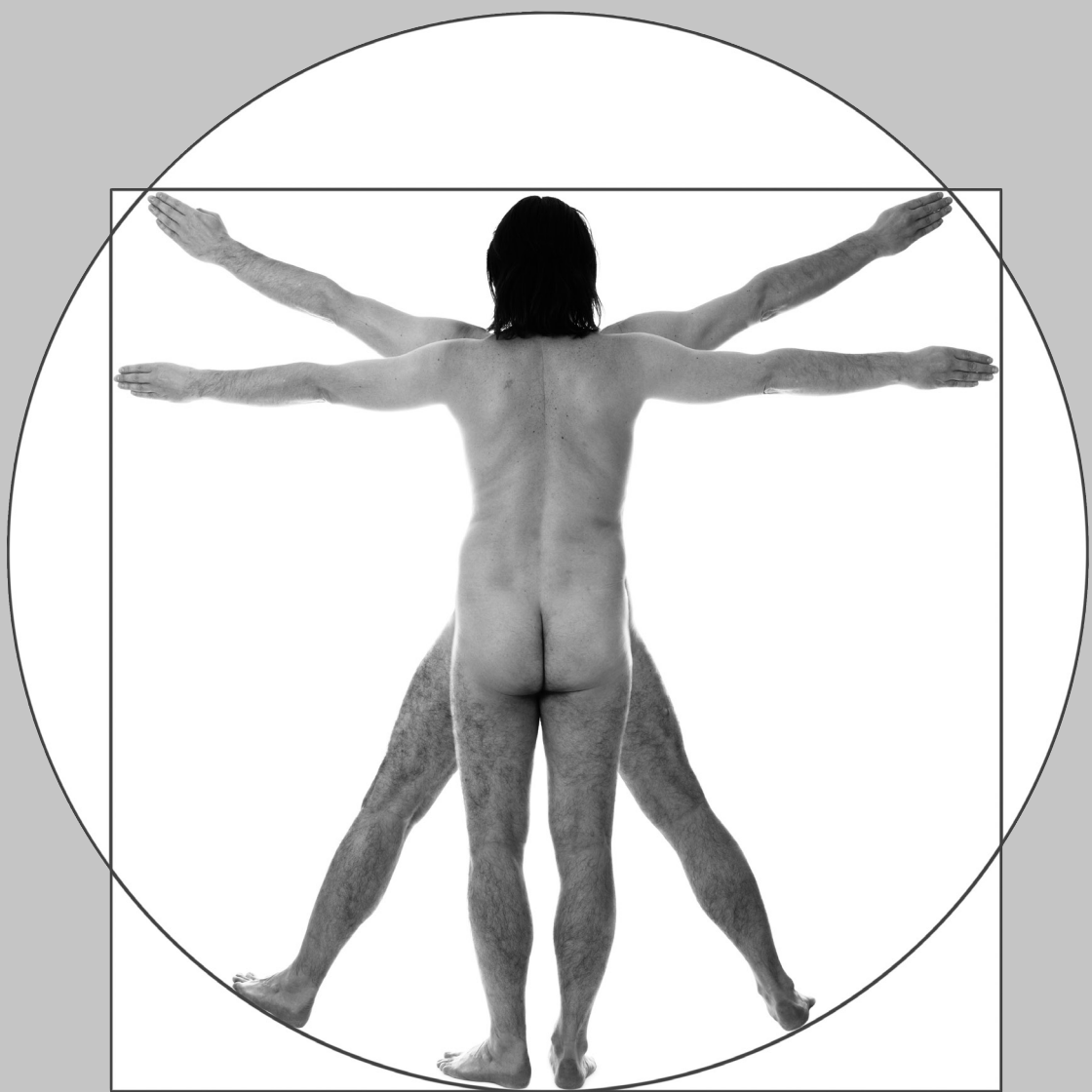

Chapter 7

Economic evaluation of a participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders

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Vermeulen SJ, Heymans HW, Anema JR, Schellart AJM, van Mechelen W, van der Beek AJ. Economic evaluation of a participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders.

ABSTRACT

Objectives

To evaluate the cost-effectiveness, cost-utility, and cost-benefit of a newly developed participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders.

Methods

An economic evaluation was conducted alongside a randomized controlled trial with a 12-month follow-up. Temporary agency workers and unemployed workers, sick-listed for 2 to 8 weeks due to musculoskeletal disorders, were randomized to the participatory RTW program group (n=79) or usual care group (n=84). The new RTW program was aimed at making a consensus-based RTW action plan with the possibility of a temporary (therapeutic) workplace. Effect outcomes were sustainable RTW and quality adjusted life years (QALYs). Health care utilization was measured from social insurer's perspective and societal perspective.

Results

Total health care costs in the participatory RTW program group (€10,189; SD 7,055) were statistically significantly higher compared to care as usual (€7,862; SD 7,394). The cost-effectiveness analyses showed that the new intervention was more effective but also more costly than usual care, i.e. to gain one day earlier RTW in the participatory RTW program group approximately 80 Euros needed to be invested. The net societal benefit of the participatory RTW program compared to care as usual was 2,073 Euros per worker.

Conclusions

The newly developed participatory RTW program was more effective but also more costly than usual care. The program enhanced work resumption and generated a net socioeconomic benefit. Hence, implementation of the participatory RTW program may have the potential to achieve a sustainable contribution of vulnerable workers to the labour force.

INTRODUCTION

The socioeconomic impact of musculoskeletal disorders (MSD) among the working population is significant. Findings in the international literature consistently have shown that MSD-related long-term sickness absence, i.e. chronic work disability, accounts for the majority of the societal costs.[1-5] Direct health care costs represent only a minor part of the economic burden.

To achieve evidence-based and efficient occupational health care it is essential to gain insight into the relationship between the input of financial resources and the achieved results. From this perspective, there is an upcoming demand for methodological high quality economic evaluation of occupational health care interventions.[6, 7] Key question is whether the beneficial effect(s) of a (newly developed) intervention is worth the (extra) costs, when comparing to, for instance, usual care. After all, provided the presence of substantial effects, an intervention with higher costs can still be cost-effective. Conversely, an intervention with the low costs is not necessarily the most cost-effective.

Within the field of occupational health care research, development of return-to-work (RTW) interventions for sick-listed workers with non-standard labour agreements, e.g. temporary agency workers and unemployed workers, is uncommon.[8] However, these workers represent a vulnerable group within the working population as they are characterised by a poorer health status, a greater distance to the labour market, and an increased risk for (long-term) work disability.[9] Therefore, a participatory RTW program was developed for temporary agency workers and unemployed workers, sick-listed due to MSD.[8] The newly developed participatory RTW program consists of a stepwise process to identify and solve obstacles for RTW, resulting in a consensus-based RTW plan to facilitate work resumption. An important goal of this program is to let the sick-listed worker (re)gain control over his/her RTW process. Moreover, the program is guided by an independent RTW coordinator to warrant equality and active participation during the process of both the sick-listed worker and the labour expert representing the Social Security Agency, who guides the worker with regard to vocational rehabilitation. To offer the possibility of work resumption in a temporary (therapeutic) workplace, agreements were made with commercially

operating vocational rehabilitation agencies to find suitable (therapeutic) workplaces matching with the formulated RTW plan.

The objective of this study was to conduct an economic evaluation of the participatory RTW program compared to usual care. Cost-effectiveness was evaluated from both the social insurers' perspective and the societal perspective. Cost-benefit was evaluated from the societal perspective.

METHODS

Study design

An economic evaluation from a social insurers' perspective and a societal perspective was conducted alongside a randomized controlled trial. The study was carried out in collaboration with five front offices of the Dutch Social Security Agency (a government funded agency that provides supportive income and occupational health care for this study population) and four large Dutch vocational rehabilitation agencies. The study design, protocol, and procedures were approved by the Medical Ethics Committee of the VU University Medical Center. All participants gave written informed consent. A detailed description of the study design has been presented elsewhere.[10] The study is listed in the Netherlands Trial Register (NTR) under NTR1047.

Study population

The study was performed between March 2007 and September 2009. Eligible participants were temporary agency workers and unemployed workers (18-64 years), 2 to 8 weeks sick-listed with MSD as main health complaint for their sickness benefit claim. An overview of the inclusion and exclusion criteria has been presented elsewhere.[10]

Randomization and blinding

Randomization was performed at worker level. Workers were pre-stratified by type of worker (temporary agency worker or unemployed worker) and type of last job (degree of physical/mental demands). Further details regarding the randomization procedure and blinding have been described elsewhere.[10, 11]

Interventions

Usual care group

In the Netherlands, sick-listed workers who have no (longer an) employment contract, i.e. no employer/workplace to return to, receive sickness benefit and occupational health care by the Social Security Agency for the duration of (established) work disability. The occupational health care is provided by an insurance physician, a labour expert, and a case manager. The content of occupational health care has been reported more thoroughly elsewhere.[11]

Participatory RTW program group

The intervention group also received usual care. In addition, they were referred by their insurance physician to an independent RTW coordinator for the new participatory RTW program. The detailed content of the new participatory RTW program has previously been presented elsewhere.[10, 11] The primary aim of the participatory RTW program was to enhance early (sustainable) work resumption as step up to durable contribution to the labour force.

Effects

Primary measure of effect was duration until sustainable RTW, defined as the duration in calendar days from the day of randomization until return to work in paid regular work or regular work with supportive sickness benefit for at least 28 consecutive calendar days. Secondary outcome was Quality Adjusted Life Years (QALYs). Health-related quality of life was measured using the EuroQol-5D.[12] The utility (on a scale of 0 to 1) of the reported health states was estimated using the Dutch tariff.[13] QALYs were calculated as utility multiplied by time spent in a particular health state. Transitions between health states were linearly interpolated.[14]

Costs resources and valuation

Health care costs

Data were collected using questionnaires at 3, 6, 9 and 12 months follow-up, measuring resource use with a 3 month recall period. The questionnaires included direct health care and direct non-health care costs. Direct health care costs included primary and secondary care visits, home care, and medication use. Direct non-health

care costs included alternative medical care, informal help and day care costs. Prices used for valuing resource utilization are presented in Table 1. Dutch standard cost prices were used.[15] Medication costs were valued with cost prices of the Royal Dutch Society for Pharmacy.[16] Data on occupational health care by the Social Security Agency were collected from the continuous database registration and the medical files at the Social Security Agency. The costs were calculated based on real cost prices. The (real) costs for applied occupational health care interventions, including costs for placement in therapeutic workplaces in the intervention group, were extracted from the database records. Costs of the participatory RTW program (excluding costs of placement in therapeutic workplaces) were calculated using a bottom-up approach (see Table 2). The index year for this study was 2008.

Sickness benefit costs

The costs of sickness benefits for the participants who did not return to paid work during follow-up were retrieved from the Social Security Agency database records. The total amount of paid sickness benefits was collected for each participant after the 12-month follow-up. These data consisted of real costs.

Productivity

Productivity loss during the sickness benefit period was not measured in this study. From a societal perspective, when reporting sick, a temporary agency worker immediately falls under the Social Security Agency for sickness benefit. Also, as soon as possible, the sick-listed worker is replaced with a healthy temporary agency worker at the user company. With regard to the sick-listed unemployed workers, when reporting sick these workers were already out-of-work and thus no productivity loss is present.

In this study, productivity gain during follow-up was measured. In case of work resumption in a temporary workplace, the Social Security Agency paid sickness benefit and the employer profited from the productivity of the worker. Productivity gain was, therefore, defined as the economic benefit (from a societal perspective) of the productivity of a worker during work resumption with ongoing sickness benefit. We assumed that in case of work resumption in regular work with ending of the

sickness benefit, there was no net productivity gain from a societal perspective. We also assumed that workers were 100% productive during the hours of work resumption in a temporary workplace. To calculate the productivity gain during work resumption with ongoing sickness benefit the total number of working hours (with ongoing sickness benefit) during the 12-month follow-up were multiplied by the estimated price of productivity per hour based on age and gender. Level of education was not part of the proxy for estimation of productivity gain, because, at baseline, the level of education was higher in the intervention group. This would have resulted in higher productivity estimates in favour of the intervention group.

Data analysis

The economic evaluation was performed according to the intention-to-treat principle. Discounting of costs was not applied because the follow-up was one year. [17] Data on RTW and paid benefits were collected for all participants from the Social Security Agency database. With regard to the self-reported resource use (consisting of direct health care and direct non-health care utilization), a complete follow-up was available for 116 participants (=71.2%).

Missing cost data were completed by means of the Multivariate Imputation by Chained Equations (MICE) procedure.[18] To prevent that extreme high cost values were used to substitute missing values during the imputation process an alternative MICE procedure was used.[19] This method consisted of the following steps: 1) for each cost variable separately, cost values at the 90th percentile and higher were replaced by the total group mean; 2) an imputation model was composed containing complete cost information assessed at all follow-up moments in combination with important baseline demographic and prognostic variables such as gender, type of work, and functional disability; 3) this imputation model was used to create 10 multiple imputed datasets; 4) before the data entered the main analysis, the original cost data that were replaced by the mean cost value in the first step were set back to the original value in all 10 datasets. These steps were done separately in the intervention and control group data and afterwards datasets were merged. To pool effects and costs from these 10 complete datasets Rubin's rules were used.[20]

For the cost-effectiveness analyses, incremental cost-effectiveness ratios (ICERs)

were calculated by dividing the incremental costs (DC) by the incremental effects (DE). The ICER represents the additional costs needed to gain one extra unit of effect in the intervention group compared to the usual care group. For the cost-utility analyses (CUA), the ICUR was calculated by the difference in total costs (all health care costs and sickness benefit costs) divided by the difference in QALYs. The cost-benefit analysis (CBA) was conducted from a societal perspective and calculated the net monetary benefit by subtracting the difference in total costs between the intervention group and the usual care group from the difference in productivity gain between the two groups. Additionally, a return on investment, in which the monetary benefit is expressed as a percentage of the cost of the investment was calculated by dividing the incremental benefit (gain minus cost) by the incremental costs of the investment.[21]

Uncertainty surrounding the incremental costs were estimated using non-parametric bootstrapping with 5000 replications.[22] The 95% confidence intervals around the mean cost differences were estimated using the Approximate Bootstrap Confidence (ABC) algorithm.[23] Bootstrapped cost-effect pairs were plotted on a cost-effectiveness plane and a cost-effectiveness acceptability curve was estimated if the ICER was located in the north-east quadrant.[24]

A sensitivity analysis for the CBA was conducted to assess the effect of reduced productivity during placement in a temporary workplace with ongoing sickness benefit. We repeated the CBA assuming 75% productivity during therapeutic work resumption. Data processing was performed in SPSS 17.0. Calculation of confidence intervals, and CEA and CUA analyses were conducted in R version 2.12.[25] For all analyses a p-value of 0.05 (two-tailed) was considered statistically significant.

RESULTS

Participants

Based on the returned screening questionnaires 784 potentially eligible workers were identified. Of those, 163 workers were enrolled in the study, signed informed consent and were randomized to the participatory RTW program (n=79) or to usual care (n=84). The recruitment flow and baseline characteristics have been reported in detail elsewhere.[11] Statistically significant differences in baseline characteristics

between participants with and without complete follow-up were present with younger persons (p=0.002), more men (p=0.02), more temporary agency workers (p=0.01), and more participants who had worked until the first day of reporting sick (p=0.001) in the group without a complete follow-up.

Effects on RTW and QALYs

The median duration until sustainable first RTW was 161 days (interquartile range (IQR) 88 – 365 days) in the participatory RTW program group and 299 days (IQR 71 – 365 days) in the usual care group (p=0.10). The mean QALY (on a scale of 0 to 1) in the participatory RTW program group was 0.63 (SD=0.22) and 0.58 (SD=0.26) in the usual care group (p=0.35).

Health care utilization

There were some non-significant differences in the use of (non-occupational) health care between both groups (see Table 1). With respect to the received occupational health care, participants in the participatory RTW program group had significantly more consults with the insurance physician (p=0.001) and the labour expert (p=0.002), whereas controls had significantly more meetings with the case-manager at the Social Security Agency (p=0.000).

Costs

The total costs of the participatory RTW program were 735 Euros per worker (Table 2). These costs consisted of 1. the mean costs of training per worker (200 Euros), including trainer costs, training attendance costs for the occupational health care professionals, and additional training costs; and 2. the mean occupational health care professional costs per worker (535 Euros), representing the costs for the additional time investment by the insurance physician, the labour expert, and the RTW coordinator. Table 3 shows the total health care costs in both groups during the 12-month follow-up. The costs for occupational health care and the total Social Security Agency costs were statistically significantly higher in the participatory RTW program group. Direct health care and non-health care costs did not statistically differ between the two groups. Total health care costs were statistically significantly higher in the intervention group, mostly due to the higher Social Security Agency costs.

Table 1. Health care resource use, cost prices used, and means and standard deviations of health care utilization per group (based on the crude, non-imputed, cost data).

Type of health care	Cost price per unit (€)	Mean costs (SD)	
		Participatory RTW program	**Usual care**
Occupational health care			
Insurance physician	53[b]	108.8 (81.8)	70.9 (62.4)
Labour expert	41[b]	32.1 (43.6)	14.0 (28.9)
Case manager	29[b]	16.7 (21.2)	35.5 (33.9)
Missing value range (0%)		0	0
Primary care			
General practitioner	22[a]	31.0 (85.9)	23.7 (46.1)
Physical therapist	25[a]	261.5 (478.8)	253.8 (434.8)
Caesar therapist	25[a]	12.9 (114.7)	25.2 (122.9)
Manual therapist	34[a]	70.6 (389.1)	87.0 (392.3)
Alternative therapist[1]	Range 10-78[a,b]	40.1 (146.3)	16.5 (84.7)
Other care practitioners[2]	Range 8-500[a,b]	140.1 (546.9)	36.5 (104.7)
Outpatient care			
Medical specialist	74[a]	175.9 (465.4)	126.9 (269.4)
X-ray photo	45[a]	26.5 (46.5)	39.8 (83.5)
MRI scan	179[a]	54.4 (119.4)	53.3 (117.2)
X-ray computed tomography (CT scan)	147[a]	13.0 (53.4)	12.2 (46.7)
Lumbar puncture	47[a]	0.6 (5.3)	7.2 (43.9)
Blood tests	23[a]	10.5 (27.2)	12.4 (26.5)
Other diagnostic tests[3]	Range 36-1308[a,b]	7.1 (23.6)	21.2 (143.0)
Hospitalization	439[a]	61.2 (279.0)	88.9 (346.2)
Medication use	Range 0.1-271[c]	169.3 (523.1)	227.7 (1103.1)
Informal care costs	Range 6-29[a]	848.0 (1610.1)	795.4 (1810.5)
Missing value range (%)		19.0 – 22.8	14.3 – 21.4

[1]Consisting of 14 different alternative therapists; [2] Consisting of 17 different care practitioners; [3] Consisting of 13 different diagnostic tests. Cost price sources: [a] Price according to Dutch guidelines for costing studies; [b] Price according to professional organization or health care provider; [c] Price according to the Royal Dutch Society for Pharmacy.

Table 2. Overview of costs (Euros) of the participatory RTW program.

Resources	Description	Aggregated costs
Costs for training insurance physicians, labour experts and RTW coordinators		
Trainer costs	Training sessions; 3 trainers, 12-16 hours, 70-106 Euros per hour. Preparation training: 2 trainers, 2-8 hours, 106 Euros per hour	4226
Attendance costs insurance physicians, labour experts, and RTW coordinators	Primary and follow-up training of insurance physicians and labour experts: 5-7 insurance physicians, 6-8 labour experts, 7 hours, 81-106 Euros per hour. Primary and follow-up training of RTW coordinators: 6-9 RTW coordinators, 10 hours, 81 Euros per hour.	14635
Additional costs training	Rent for training location, refreshments, and study materials.	1118
Total training costs	Sum of trainer costs, attendance costs, and additional costs.	19979
Training costs per worker	Assumption: minimum of 20 workers at each SSA front office can receive the RTW program.	200
Costs for carrying out the participatory RTW program		
Costs of time investment insurance physician	Mean extra time investment of the insurance physician for referral of 38 workers to the RTW coordinator, 0.25 hour per worker, 106 Euros per hour.	1005
Costs of time investment labour expert	Mean extra time investment of the labour expert was 2.4 hours per worker, 81 Euros per hour, 38 workers had the meetings with the labour expert and the RTW coordinator.	7287
Costs of time investment RTW coordinator	Mean time investment of the RTW coordinator was 3.9 hours per worker, 81 Euros per hour, 38 workers.	12043
Professional costs per worker referred to the RTW coordinator		535
Total costs per worker		
Total costs per worker not referred to the RTW coordinator	Constitutes of the training costs per worker	200
Total costs per worker referred to the RTW coordinator	Sum of training costs per worker and costs of time investment of the insurance physician, the labour expert, and the RTW coordinator (200+535)	735

Table 3. Total mean effects and costs and differences in mean total effects and costs during 12-month follow-up (where applicable pooled effects and costs are presented).

	Mean total effect (SD)		Mean effect difference (95% CI)
	Participatory RTW program (N=79)	**Usual care group (N=84)**	
Effects			
Days until sustainable RTW	199 (128)	227 (145)	-28 (-71; 14)
QALY (pooled)	0.63 (0.22)	0.58 (0.26)	0.05 (-0.04; 0.13)
Costs	**Mean total costs (SD)**		**Mean cost difference (95% CI)**
OHC by the SSA[1]	1904 (1856)	930 (1512)	975 (448; 1500)
Paid sickness benefit	6151 (5943)	4995 (6265)	1156 (-735; 3046)
Total SSA costs[2]	8056 (6413)	5925 (6486)	2131 (216; 4211)
Total primary care costs (pooled)	610 (884)	480 (696)	130 (-108; 384)
Total outpatient care costs (pooled)	382 (645)	384 (751)	-2 (-235; 196)
Informal care costs (pooled)	954 (1598)	834 (1802)	120 (-429; 614)
Medication costs (pooled)	186 (521)	238 (1102)	-52 (-484; 125)
Total health care costs[3] (pooled)	10189 (7055)	7862 (7394)	2327 (51; 4465)

[1] Calculated by adding participatory RTW program costs, OHC professional costs, and applied OHC interventions costs (this included the costs for placement in a temporary workplace in the intervention group).

[2] Calculated by adding sickness benefit costs and OHC costs.

[3] Calculated by adding total SSA costs, primary care costs, outpatient care costs, informal care costs, and medication costs.

Cost-effectiveness analyses

The cost-effectiveness analysis (CEA) from the social insurer's perspective showed an ICER of -76 for sustainable RTW, meaning that an additional 76 Euros was needed in the participatory RTW program group for one day earlier RTW, compared to care as usual. The cost-effectiveness plane (Figure 1a) shows that 89% of the bootstrap cost-effect pairs were located in the north-east quadrant, indicating that the participatory RTW program was more effective and associated with higher costs than usual care. The cost-effectiveness acceptability curve (Figure 1b) showed a 0.80 probability of the participatory RTW program being cost-effective compared to usual care if one is willing to pay 200 Euros for one day earlier RTW.

The CEA from a societal perspective differed slightly with an ICER of -82, meaning that an additional 82 Euros needs to be invested in the participatory RTW program to achieve one day earlier RTW, compared to care as usual. Additionally, the cost-effectiveness plane (Figure 2a) showed that 88% of the bootstrap cost-effect pairs were located in the north-east quadrant. The cost-effectiveness acceptability curve (Figure 2b) showed a 0.75 probability of the participatory RTW program being cost-effective compared to usual care if one is willing to pay 200 Euros for one day earlier RTW.

Cost-utility analyses

There was a small non-significant difference in QALYs gained over 12 months (0.05 on a scale of 0 to 1) in favour of the participatory RTW program group (Table 3), and the cost difference was 2327 Euros resulting in a large positive ICUR of 46,540 (2327 / 0.05). This means that 46,540 Euros needs to be invested in the participatory RTW program to gain one QALY per worker. Furthermore, the majority of the pooled cost-QALY pairs, i.e. 85%, were located in the north-east quadrant of the cost-utility plane (not shown) indicating that the new intervention was more effective and more costly, compared to care as usual.

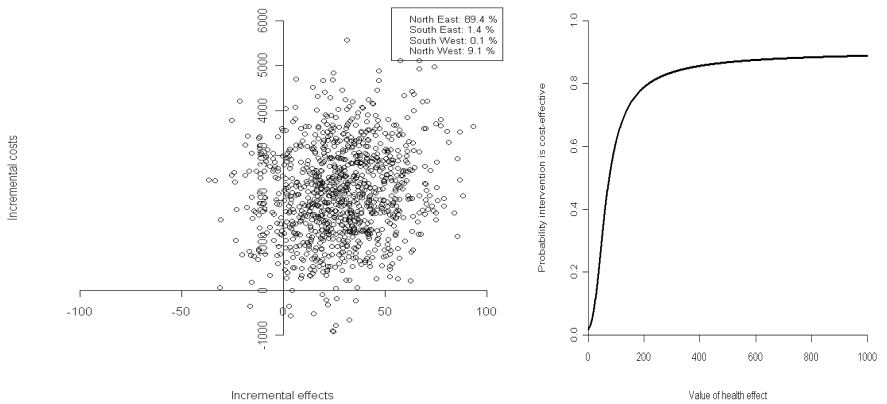

Figure 1a and 1b. Cost-effectiveness plane and cost-effectiveness acceptability curve for the difference in RTW after 12 months from social insurer's perspective.

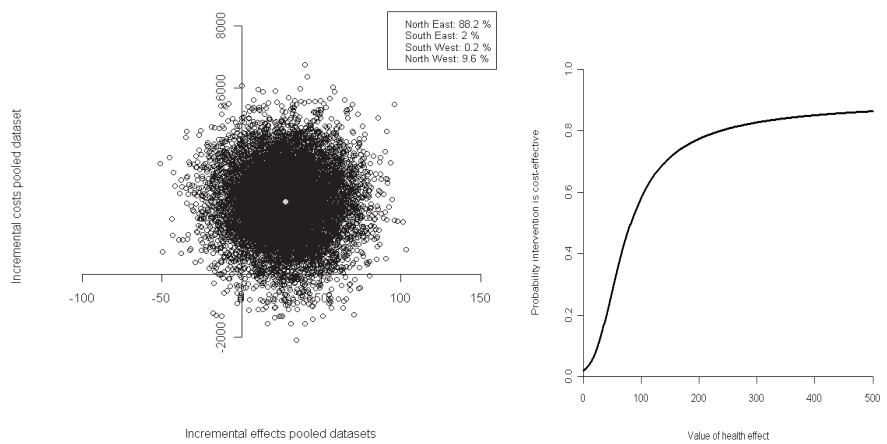

Figure 2a and 2b. Cost-effectiveness plane and cost-effectiveness acceptability curve for the difference in RTW after 12 months from societal perspective.

Cost-benefit analyses

The cost-benefit analyses from a societal perspective showed that the mean difference in total health care costs was 2327 Euros (95% CI €42 to €4465) in favour of the usual care group. The benefit (difference in productivity yield) was 4400 Euros (95% CI €1969 to €7499) per worker in favour of the participatory RTW program

group. The return-on-investment from a societal perspective was 89% ([€4400 - €2327 / €2327]*100); i.e. every Euro invested in the new intervention yielded 0.89 Euro profit. The net societal benefit of the participatory RTW program compared to care as usual was 2073 Euros (€4400 - €2327) per worker.

The results from the sensitivity cost-benefit analysis (assuming 75% productivity during work resumption with supportive sickness benefit) showed a monetary benefit of 3300 Euros (95% CI €1607- €5736) in favour of the participatory RTW program group and a net societal benefit, compared to care as usual, of 973 Euros (€3300 - €2327) per worker.

DISCUSSION

Main findings

The participatory RTW program was more effective, but also more costly than usual care. The total Social Security Agency costs (occupational health care and sickness benefit) and the total societal costs (all health care and sickness benefit) were statistically significantly higher in the participatory RTW program group. This was mainly due to higher costs associated with the new intervention. However, from a societal perspective, the new intervention resulted in a net economic benefit of 2073 Euros per worker, compared to care as usual.

Strengths of this study

In this study several main strengths can be identified. First, an important strength of this study was the pragmatic RCT design, i.e. the study was conducted in real-life Dutch occupational health care practice. Second, an important strength was the use of both the social insurer's and the societal perspective for the economic evaluation. Since the existence of the Dutch Social Security Agency is closely linked with, even embedded within, the Dutch Society and its Social Security system, monetizing the program costs from both perspectives provides the most comprehensive economic evaluation. Next, a third strength was the use of the Social Security Agency database for the collection of RTW data and sickness benefit data. And, subsequently, checking these data with other sources, namely (1) the client files at the Social Security Agency,

(2) the reports in the for this study newly developed computerized support system, and (3) the self-report questionnaires. Finally, a fourth strength in this study was the collection of the occupational health care costs. Two recent cost-effectiveness studies on participatory RTW interventions in the Netherlands did not register costs for work adaptations resulting from the consensus-based RTW plan.[21, 26] This may have resulted in an underestimation of RTW program costs. In our study we not only collected the costs for usual care in both groups, but we also registered the additional costs (based on real prices) for sociomedical guidance and applied interventions as part of the new participatory RTW program.

Limitations of this study

Several methodological limitations should be acknowledged. First, the use of retrospective questionnaires may have biased the data. A possible alternative could have been prospective data collection using cost diaries. However, we believe that the influence of recall bias may be limited since findings in the literature show that recall information for 3 months is valid.[27] Second, net cumulative working hours were used as a proxy for productivity. Reduced productivity during work resumption, i.e. so-called presenteeism,[28] was not measured in this study. However, evidence suggests that productivity may be decreased ranging from 5% to 16% as a result of production loss due to health problems.[29, 30] Nonetheless, we believe that overestimation of productivity in our study was limited. Offering the possibility of a gradual return-to-work with a stepwise increase of working hours (and a subsequent increase in productivity) was part of the new RTW program. Furthermore, to take into account the possibility of a reduced productivity after RTW, we performed a sensitivity analysis assuming 75% productivity during work resumption. In our opinion, in view of the aforementioned literature findings, this might be a conservative approach. Third, a limitation in our study was related to the relatively high degree of loss to follow-up for the self-reported questionnaires. Long-term follow-up is essential to critically evaluate the outcome of a newly developed intervention. However, it is known that loss of participants to follow-up can affect the final conclusions of an outcome study.[31] By incorporating the 29% participants with partial cost data in the analysis the results can be considered more robust. To limit the presence of

biased estimates of the self-reported health care utilization, we used the Multivariate Imputation by Chained Equations (MICE) methodology.[18] The MICE methodology assumes a normal distribution for each variable.[19, 32] Simulation studies showed that in general MICE performs well in non-normally distributed data.[32] Handling non-normally distributed continuous data, which is characteristic of cost data, can, however, require an alternative MICE procedure.[19] In our dataset we noticed that the highest cost values, which could be attributed to some workers who were sick-listed for a long time (cost drivers), were also used to impute the missing values. To prevent overestimation of group mean values we applied an alternative MICE procedure. Before the imputations started we replaced the cost values who were at the 90th percentile or higher, by their group mean. The strength of this procedure is that the imputation model is more or less corrected for patients with extreme high values, i.e. missing values are estimated by using data from all "normal" workers and not determined by workers who are responsible for the highest costs. This generated more plausible and representative cost data in our trial. A fourth limitation was the use of first RTW as outcome measure instead of full RTW, because the workers in our study had no own work to return to. However, earlier sustainable full RTW as a measure of successful removal of all RTW limitations could have increased the impact of our study findings. In addition, the use of full RTW as primary outcome measure could have made it easier to compare our results with similar studies who investigated participatory RTW interventions for other worker groups.[21, 26]

Finally, caution is needed when generalizing the results of this study to another context, e.g. to other countries. The participatory RTW program was specifically tailored for our study population and the Dutch context in which it was implemented. When using the participatory RTW program in a different setting, the population characteristics and the (social, political and cultural) context in which the program will be implemented and used need to be taken into account.

Comparison with other studies

The importance of applying RTW interventions closely linked to a workplace has been emphasized by several authors.[33, 34] In addition, RTW interventions focusing on consensus-based work-related adaptations, e.g. a change in working hours or

work design, with active involvement of important stakeholders can reduce work disability duration and associated costs.[34, 35] However, to our knowledge, cost-effectiveness studies investigating comparable RTW interventions on work-related outcomes for workers without (relative) permanent employment relationships are, to date, not available. Up to now, there are only a few available economic evaluations of participatory RTW interventions aimed at sick-listed regular employees.[21, 27, 36, 37] These studies showed that a participatory RTW intervention was cost-effective and cost-beneficial in sick-listed employees with (acute or chronic) low back pain.[21, 36, 37] For employees with stress-related mental disorders no overall cost-effectiveness was found,[26] but for the subgroup of employees with baseline intentions to RTW despite their symptoms, the workplace intervention was significantly more effective and less costly.

In this study the costs of the workplace intervention itself (training and additional time-investment by the occupational health care professionals) were in line with earlier developed participatory RTW interventions for sick-listed employees in the Netherlands.[21, 26] However, although the aforementioned studies also showed that, compared to care as usual, additional (direct) costs are needed to perform a participatory RTW intervention, application of the intervention in sick-listed employees with low back pain resulted in earlier RTW against substantial lower total health care costs, i.e. a substantial lower ICER was reported, in comparison with our study findings. A possible explanation for this is the fact that, in contrast to regular employees, in our study the sick-listed workers had no workplace to return to. To find suitable temporary workplaces vocational rehabilitation agencies were contracted and offered a financial reward for their services. In addition, as incentive for employers, the worker was placed in a temporary workplace with ongoing supportive benefit from the Social Security Agency. Hence, additional costs were needed to realize earlier RTW.

Study implications

Economic evaluations carried out alongside pragmatic randomised trials are increasingly common in occupational health care research because it is important to assess costs and cost-effectiveness apart from work-related and health-related

outcomes. Moreover, the results of these economic evaluations are essential to convince policymakers that implementation of a new RTW intervention is a worthwhile and necessary investment. In this study sustainable RTW was enhanced by making a consensus-based RTW action plan (with a key role for the independent RTW coordinator) and by offering the possibility of a suitable temporary workplace. From a societal perspective, the RTW program increased social participation of vulnerable workers, and generated a net economic benefit due to productivity gain. Hence, from a general perspective, implementation of the participatory RTW program may potentially enhance a productive contribution of vulnerable workers to the labour force. However, investments were on the part of the Social Security Agency (and thus from public money) and benefits were on the part of the employers. This division in costs and benefits will, very likely, make implementation more challenging. From this perspective, several possibilities should be taken into account. Firstly, it is important to emphasize the importance of using community money to enhance social participation of vulnerable working populations in order to increase their contribution to the labour market. In addition, given the international trend of an ageing workforce, there is a need for active labour market policies[38] in order to utilise and strengthen present and potential labour force sources. Moreover, within the framework of an active labour market policy, it may be possible to extend already existing Dutch arrangements for subsidised (temporary) workplaces for young disabled workers to other groups of vulnerable workers, e.g. sick-listed unemployed workers. By realising subsidised (temporary) workplaces costs and benefits can be shared between the Social Security Agency and the employers. Secondly, a potential solution could be to increase the responsibilities of employers with regard to facilitation of RTW of sick-listed workers without an employment contract. From this perspective, it can be recommended to asses the possibilities to make temporary agencies more responsible for RTW of sick-listed temporary agency workers, i.e. offering a suitable workplace for (therapeutic) RTW and having financial responsibilities with regard to vocational rehabilitation costs. Finally, creating a network of potential (temporary) workplaces and not having to contract commercially operating vocational rehabilitation agencies could reduce the costs for applying the new RTW program.

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CONCLUSIONS

The newly developed participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD, was more effective but also more costly, compared to care as usual. To gain one day earlier RTW by using the participatory RTW program approximately 80 Euros needed to be invested. However, from a societal perspective, there was a net monetary benefit after 12 months. Every Euro invested yielded a net profit of 0.89 Euro due to gain in productivity. In our opinion, implementation of the new RTW program might be a worthwhile investment as it has potential to achieve a sustainable and productive contribution of vulnerable workers to the labour force.

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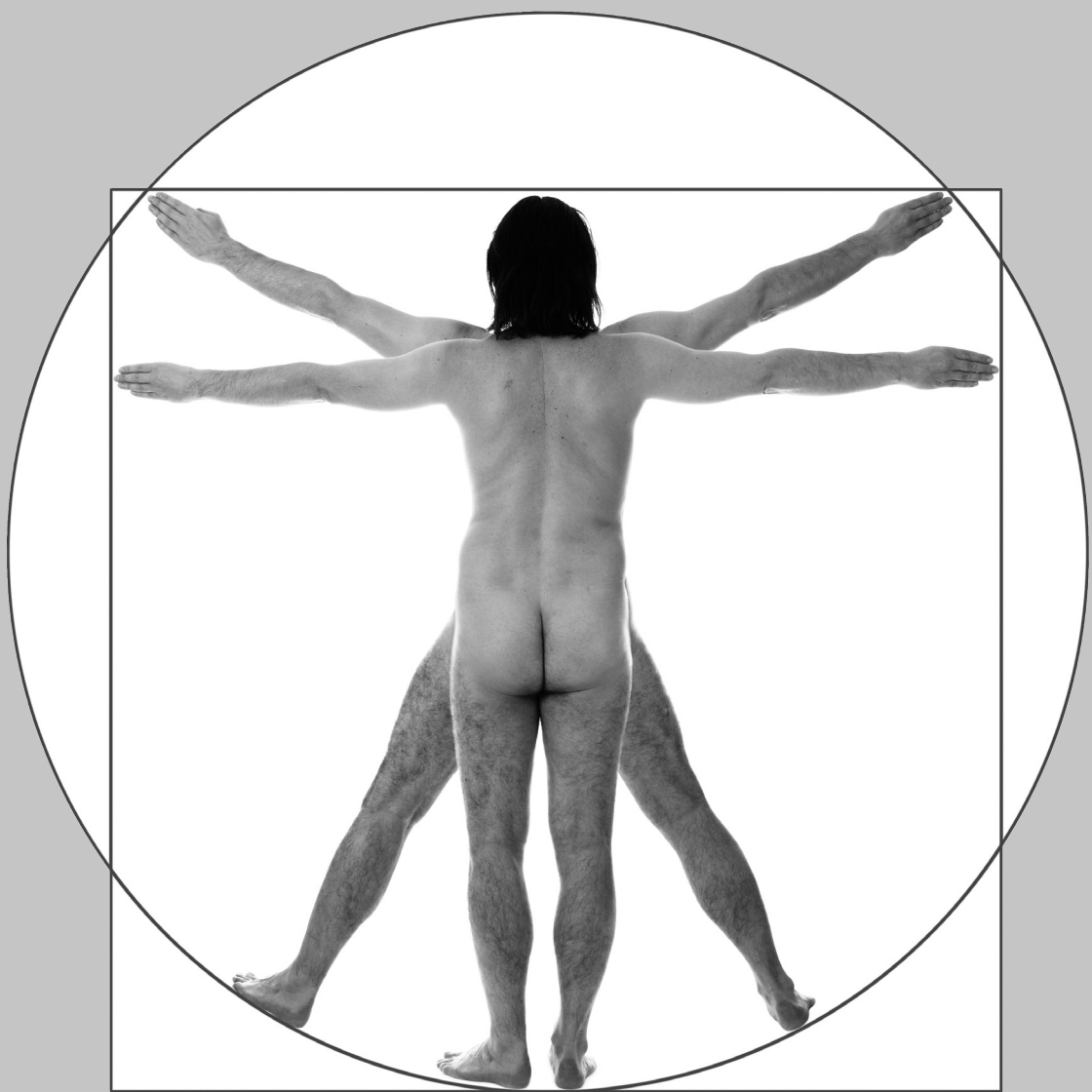

Chapter 8

General discussion

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The main aims of this thesis were to develop a participatory return-to-work (RTW) program for temporary agency workers and unemployed workers, sick-listed due to a musculoskeletal disorder (MSD), and to investigate the feasibility, the effectiveness, and the cost-effectiveness of this newly developed participatory RTW program. First, based on a successful RTW intervention for regular employees, sick-listed due to low back pain, the Intervention Mapping (IM) protocol was used. To develop a tailor-made RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. Next, a randomized controlled trial was carried out to evaluate the feasibility, the effectiveness, and the cost-effectiveness of the new RTW program. This chapter will start with a summary of the main findings and key messages from this thesis, followed by a comparison of the study findings with the current literature. Furthermore, challenges in achieving an effective and healthy labour force and developments regarding work disability and return-to-work as part of an integrated health care approach will be discussed. Next, methodological aspects, i.e. limitations and considerations, of this study will be discussed. Thereafter, implications for implementation of the newly developed participatory RTW program in daily practice will be presented from the perspective of important stakeholders and placed within the developed conceptual framework for work disability and RTW for a worker without an employment contract (Chapter 1). Finally, implications of the study findings with regard to future research and occupational health care (OHC) practice will be discussed.

A summary of the main findings from this thesis

Examining current OHC practice for sick-listed workers without an employment contract in the Netherlands

Cross-sectional data analyses of a large cohort of sick-listed workers without an employment contract who were, at baseline, at least 13 weeks sick-listed, showed that, 7-9 months after reporting sick, only 19% of these workers had partially (7%) or completely (12%) returned to work. In about half of all cases RTW was not discussed by their OHC professional (46%) and three out of every four reported that no RTW action plan was made and discussed (74%). Moreover, both interventions,

i.e. discussing RTW and the making of a RTW action plan, proved to be positively associated with RTW (Chapter 2).

Development of a new participatory RTW program

The Intervention Mapping (IM) protocol was used to develop a structured stepwise RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. This new RTW program was aimed at making a consensus-based RTW plan with the possibility of a temporary (therapeutic) workplace. Following the IM protocol ensured the identification of important preconditions for successful implementation of the participatory RTW program, such as explicit appointments with management at the Social Security Agency (SSA) regarding the time needed for the OHC professionals to use the program and the development of a computerised support system for applying the stepwise program (Chapter 3).

Feasibility of the new participatory RTW program

Overall, adherence to the participatory RTW program was in accordance with the protocol. The majority of the sick-listed workers felt taken seriously during the meetings with the OHC professionals and the workers were satisfied with the presence of the RTW coordinator. Although overall feasibility for implementation of the participatory RTW program in daily practice was found, timely offering of suitable temporary workplaces proved to be difficult (median delay of 44.5 days). Furthermore, several other barriers for implementation were identified, such as insufficiently clear description of the program goals and the professional's roles, and insufficient support for workers suffering from complex multi-causal health problems (Chapter 5).

Effectiveness of the participatory RTW program

The participatory RTW program resulted in a non-significant delay in RTW in the first 90 days of follow-up, followed by a considerable gain in RTW rate after 90 days. The median duration until sustainable first RTW was 161 days in the participatory RTW program group, compared to 299 days in the usual care group. No statistically significant effect of the participatory RTW program was found on the measured

secondary outcomes, i.e. sickness benefit duration, pain intensity, perceived health, and functional status (Chapter 6).

Cost-effectiveness of the participatory RTW program

Cost-effectiveness evaluation from both the social insurer's (SSA) and the societal perspective, showed that the newly developed participatory RTW program was more effective but also more costly, compared to care as usual. To gain one day earlier sustainable RTW in the participatory RTW program group €76 or €82 needed to be invested by the SSA or society, respectively. However, it was estimated that, from a societal perspective, there was a net monetary benefit after 12 months of €2,073 per worker due to productivity gain (Chapter 7).

Key messages and recommendations

The results of thesis lead to the following key messages and recommendations:

1. Workers without an employment contract represent a vulnerable group within the working population. They have an increased risk for long-term work disability. Moreover, the greater distance to the labour market is reflected in a substantially lower RTW rate. Also, current occupational health care for this group of workers is unsatisfactory. Hence, there is a need for the development of adequate, i.e. tailor-made, occupational health care, including the presence of a (therapeutic) workplace, to optimize vocational rehabilitation and RTW of sick-listed workers without an employment contract (based on Chapter 2).
2. The overall feasibility of the newly developed participatory RTW program is good. Nonetheless, for future use of the new RTW program, it is recommended to ensure timely offering of therapeutic workplaces, to provide clear communication with regard to the program content, and to offer additional support for workers suffering from complex multi-causal health problems (based on Chapter 6).
3. The participatory RTW program seems to be a promising intervention to facilitate work resumption and reduce work disability among

temporary agency workers and unemployed workers, sick-listed due to musculoskeletal disorders. From a societal perspective, the gains in higher RTW rate and earlier RTW outweigh the added cost burden by enhancing social participation and by generating a net economic benefit in terms of productivity. Hence, from a societal perspective, implementation of the new RTW program may be a worthwhile investment as it has potential to achieve a productive contribution of vulnerable workers to the labour force (based on Chapter 5 and 7). However, investments were on the part of the SSA (and thus from public money) and benefits were on the part of the employers. It is recommended to find solutions to minimize this division in social insurer's (SSA) investments and employer's benefits to increase the chance of successful implementation nationwide (Chapter 7).

Comparison with other studies

Addressing the multicausality of work disability

Findings in the international literature show that the best-documented return-to-work (RTW) rehabilitation programs concern workers with musculoskeletal disorders (MSD)[1,2]. Additionally, it shows that a global perspective has been adopted to address the multicausality of work disability proposing that RTW interventions should address the following three central elements: 1. individual factors, 2. work(place) factors, and 3. involvement of the various stakeholders[1]. Also, studies indicate that RTW interventions should be carried out close to the workplace[3-5]. The newly developed RTW program in our study encompassed the three aforementioned essential intervention elements, namely: (1) work disability management tailored to the needs of the sick-listed worker to remove the (individual) barriers to return to work, i.e. the making of a tailor-made consensus-based RTW action plan, (2) addressing work factors by offering the possibility of a suitable temporary (therapeutic) workplace for RTW, and (3) stimulating strong involvement of the different stakeholders involved in the RTW process of the worker. The importance of a strong focus on actual RTW, i.e. creating an actual RTW perspective by offering the possibility of a suitable temporary (therapeutic) workplace, was also underlined by recent findings of Schuring and

colleagues[6]. Their study focused on sick-listed unemployed workers receiving Social Security benefits in Rotterdam, The Netherlands. No beneficial effect was found of a health promotion program on work resumption in regular work. Their explanation was the absence of a clear focus on actual RTW and the lack of a strong integration of the intervention program into regular vocational rehabilitation practice. In our study, the use of a comprehensive and systematic approach, i.e. the Intervention Mapping (IM) protocol, in the design of the new RTW program helped us to identify and incorporate important keystones in the new RTW program. For example, making arrangements with selected vocational rehabilitation agencies prior to the start of the study to facilitate the finding of temporary (therapeutic) workplaces. Although the IM approach has been used extensively in the design of complex community health programs for over 20 years[7], it is more novel in the occupational setting[8-10].

Cost-effectiveness of participatory RTW interventions

A Cochrane review of van Oostrom and colleagues (2009) showed that there is moderate-quality evidence to support the use of workplace interventions to reduce sickness absence among regular employees with MSD[11]. Moreover, a recent Dutch study on best-practices in the field of vocational rehabilitation programs showed that there is substantial evidence that work-related rehabilitation programs for people with musculoskeletal health complaints are effective in achieving earlier RTW and have a positive cost-benefit balance[12]. The extra costs of the studied intervention programs (varying from several hundred Euros to 7000 Euros) were earned back within several months to one and a half year. Furthermore, participatory RTW interventions including a workplace component have shown to be cost-effective on work-related outcomes for regular employees sick-listed due to sub acute low back pain, i.e. in the early stage of sickness absence[13-15], as well as for chronic back pain patients with an advanced phase of work disability[16]. In addition, Loisel and colleagues showed that an early investment in a participatory RTW intervention for employees with sub acute low back pain was also cost-effective in the long-term (mean follow-up of 6.4 years) with a mean cost-saving of 18,585 US dollars per employee[14].

However, while the aforementioned studies on participatory RTW interventions focused on regular employees, i.e. those with relative permanent employment

relationships, this study showed that a participatory RTW intervention with the possibility of a suitable (therapeutic) workplace was also effective on RTW for a more vulnerable group within the working population, i.e. sick-listed workers who have no (longer an) employer/workplace to return to.

However, when comparing our new participatory RTW program with similar participatory RTW programs for sick-listed employees sick-listed due to low back pain in the Netherlands[17,18], the cost-effectiveness results in this study showed a substantially higher ICER, i.e. more costs were needed in order to achieve earlier RTW, compared to care as usual. A possible explanation for this is the fact that, in contrast to regular employees, in this study the sick-listed workers had no workplace to return to. To find suitable (therapeutic) temporary workplaces commercially operating vocational rehabilitation agencies were contracted and offered a financial reward for their services. In addition, as incentive for willing employers, the worker was placed in a temporary workplace with ongoing supportive benefit from the SSA. Hence, additional costs were needed to realize RTW.

Supportive RTW interventions within the Social Security Context

Our study was performed within the Dutch Social Security context. For employers in the Netherlands, employing a worker with a disability can present a financial risk. Once a worker is employed and the workers productivity is not meeting the requirements, it can be difficult for an employer to end the employment contract. In our study, to find employers who were willing to offer suitable temporary workplace, incentives were provided (not having to pay wages and not being obliged to offer an employment contract). The Dutch Social Security System is illustrative for a *Social-democratic* policy model. It is characterised by a high level of job protection, a low entry threshold for a (partial) disability benefit, and a highly accessible integration policy package with a strong focus on vocational rehabilitation[19]. It provides support for those who can and want to work. However, as in our study, by ensuring that it pays for employers to help sick workers to return to work it also potentially expensive.

In comparison, implementation of supported employment interventions, to help integrate people with disability into the regular labour market, has been successful

in countries with a *Liberal* disability policy model, e.g. the US[20]. To illustrate, in the US supported employment interventions for people with psychiatric disability are robustly validated RTW interventions. It helps people with psychiatric disabilities to obtain and succeed in competitive employment[21-23]. A Liberal disability policy setup is characterized by very strong work incentives, a higher threshold to get onto benefits, and lower benefit levels. On the other hand, they are also characterized by a less developed integration policy focus. Employment policies (e.g. prevention of unemployment and provision of an adequate minimum living wage) are on a lower level. In addition, vocational rehabilitation is relatively underdeveloped. As a result, the effect of the stronger inbuilt work incentives resulting from less generous benefits are only partially harvested in terms of labour force participation[19]. To illustrate, literature findings from an international study on work incapacity and reintegration showed a high number of workers in the US (73%) who did not receive benefit and who did not resume working two years after reporting sick due to chronic low back pain[24] .

Returning to the *Social-democratic* model, an example of a successful supported employment intervention is the Danish Flex-jobs Scheme, i.e. offering subsidised jobs for disabled workers with partial work capacity. Flex-jobs are associated with special working conditions, e.g. reduced working hours, adapted working conditions, and restricted job demands. A permanent wage subsidy is paid to employers to compensate for the workers' reduced work capacity, while flex-job workers receive a standard wage. The subsidy is unlimited in duration, existing as long as the worker retains the flex-job. A substantial, positive employment effect of the scheme was found for the target group, i.e. employment probability for people with partial work capacities was raised by 33 pct. points[25]. However, compared to the Dutch Social Security System with its (relative) high level of job protection, Denmark is the foremost real-life life example of flexicurity. The Danish system combines easy hiring and firing, a generous social welfare system, and an active labour market policy. Contrary, in the Netherlands current subsidised workplace arrangements are limited in duration, i.e. only possible on a temporary basis as a step-up towards obtaining competitive employment[19].

Challenges and developments in achieving an effective and healthy labour force

Contemporary western society is affected by profound labour market transformations. The global integration of economies worldwide has led to a strong demand to make labour markets, employment and work organisation more flexible. A broad variety of new or non-standard forms of employment relationships have emerged, including part-time work, temporary agency-based work, fixed-term work, and new forms of self-employment[26]. Moreover, many organizations see advantages in the move towards developing an ever more flexible workforce, with a number of staff on temporary or fixed-term contracts. However, at the same time, an equally strong demand exists for providing security to employees, especially vulnerable groups, and for maintaining social cohesion in our societies. As a result, it remains a topic for debate whether non-standard work increases job insecurity and subsequently is harmful for the welfare of individuals as well as public health or increases social welfare by providing the opportunity to tailor jobs to the needs and wishes of workers[27]. On the one hand, the new forms of work might help to facilitate access to jobs or entry and re-entry to the labour market of vulnerable workers. For example, the upcoming of part-time work has facilitated the large-scale entry of women into the Dutch paid workforce. On the other hand, flexibility has a downside as it can present being in a more precarious, less secure state which in its turn leads to stress. In line with this, a growing number of studies have suggested that non-standard work is associated with a negative impact on workers' health and well being[28-31]. Contrary, a recent study failed to find support for the assumption that exposure to non-standard (i.e., part-time and/or fixed term) labour contracts would give rise to adverse health effects[32]. However, they did find support for the presence of several key aspects of work-related precariousness and related adverse health consequences. Exposure to low earnings, no annual increase in earnings, substantial unpaid overtime hours, benefits inadequacy in the form of an absence of pension coverage, and manual work increased the risk of reporting poor health outcomes. However, as aforementioned, ongoing globalization of the economy increases the demand for 'flexible' employment practice. But what is the cost? Development of adverse health effects as a result of exposure to work-related precariousness is not

merely a workers' problem, it also affects their families, and, ultimately, society as a whole. For instance, it can lead to an increased pressure in the health care sector due to an increase in morbidity in the short term, but also development of long-term degenerative disease[27]. It seems likely that investing in social participation by creating supportive networks and by social institutions that serve the interest of the working population are more beneficial to public health[27]. While developing jobs that increase the social participation of disabled people is perhaps the most difficult work organization challenge, it highlights the principles of human capability development. From this perspective, the aforementioned Danish system of subsidised "flex-jobs" can be viewed as a promising example. The Danish labour policy encompasses two key elements, namely *activation* and *corporate social responsibility* measures to enhance inclusion of vulnerable groups into the labour force[25]. By offering subsidised jobs for disabled people with partial work disability, the scheme aims to improve social inclusion, to improve self-supportiveness of disabled workers, and to improve their health and well being. Despite a very small positive net social benefit, flex-jobs have been incorporated into the Danish labour market reform policy[25]. Furthermore, as stated by the Danish government, strengthening the labour supply and a continued strengthening of measures targeting integration of vulnerable workers is viewed of vital importance for the welfare of the Danish society in the coming years[33]. The Danish perspective can be used to look at the cost-effectiveness results of our study. Economical evaluation was performed from both the social insurer's and the societal perspective. For the Social Security Agency the new intervention led to higher costs (occupational health care costs and sickness benefit costs). From a societal perspective, however, the benefits due to productivity gain outweighed the extra costs. In addition, improved social participation and improved perceived health can also be viewed as a non-monetary gain. Although not statistically significant, there was a positive trend towards health improvement. The difference in mean utility between the baseline measurement and 12 months was 0.12 points gained (on a 0 to 1 scale) in the participatory RTW program group, compared to 0.02 points in controls. The mean utilities for the participatory RTW program group at baseline, 3, 6 and 12 months were 0.55 (SD=0.27), 0.59 (SD=0.30), 0.64 (SD=0.28), and 0.67 (SD=0.29), respectively. For the usual care group the mean

utilities were 0.58 (SD=0.24), 0.55 (SD=0.32), 0.60 (SD=0.31), and 0.60 (SD=0.34), respectively. Hence, promotion of labour integration of vulnerable workers within Dutch society can be a worthwhile investment from a public health perspective. Still, an important system barrier for using the participatory RTW program in daily practice is the division in costs for the Social Security Agency and productivity benefits for the employers. This separation may result in, on the one hand, the Social Security Agency not willing to implement a RTW program that is more costly than usual care, and, on the other hand, employers who are not interested in paying for RTW of vulnerable sick workers without an employment contract.

Furthermore, in view of the international trend of an ageing workforce, there is a need for active labour-market policies[34]. Development of such policies is of great importance to maintain the welfare and competitiveness of Dutch society and other Western countries. From this perspective, it is not only important to improve participation of older workers[34,35], but also to utilise and strengthen present and potential vulnerable labour force sources, for instance workers with partial work disability[36].

Work disability and return-to-work as part of an integrated health care approach

Traditionally, health care comprises the diagnosis, treatment, and prevention of disease, illness, or injury. Therapeutic interventions are offered to cure or control disease. Up to recent years recovery of functional abilities was viewed as directly linked to recovery of health complaints. The introduction of the International Classification of Functioning, Disability and Health (ICF)[37], marked a new way of thinking. Functioning of humans is now viewed as the result of a dynamic interactive process, i.e. disease can lead to impairment in bodily functions, and subsequent development of functional limitations can lead to restrictions at the participation level (all within the context of medical, personal, and external factors). From this perspective, recovery of functioning is equally important as regain of health. Notably, although functioning in work is an essential part of adult's working and social life, health care by general practitioners and medical specialists still seems to be primarily directed at diagnosis and treatment of health-related problems[38,39]. However,

health problems leading to an inability to work can have substantial consequences. Prolonged work disability may lead to poorer quality of life, loss of social identity, and long-term or even permanent exclusion from work. From a health care perspective broadening the medical scope from the patient in the consulting room towards the patient in his/her personal and social context is essential. Recognition of the importance of interweaving treatment of disease with rehabilitation aimed at patients' functioning in daily life is the first step. For example, this integration of disease management and improvement of (personal, social, and occupational) participation is taking shape in the treatment of patients with chronic disease[39,40]. In the Netherlands, treatment of health complaints, socio-medical guidance in case of sickness absence, and assessment of (long-term) work disability are all part of disability management for patients who experience health-related work limitations. In daily medical practice, however, the separate care elements are provided by different physicians, e.g. a general practitioner for disease management, an occupational physician for sickness absence guidance, and an insurance physician for the assessment of work disability. In addition, co-ordination of care between the different physicians involved is poor[41]. There is a need for more coherent disability management, i.e. an integrated care approach[42]. As part of such integrated disability management, the added value of an insurance physician is to a lesser extent related to patient care per se (as opposed to, for instance, a general practitioner and an occupational physician). The expertise of an insurance physician is to place the course of health complaints, diagnosis and treatment, the recovery process, and RTW efforts, in the context of relevant medical, personal and external factors. By applying the aforementioned ICF model to an individual patient the insurance physician can indentify medical and non-medical causes of persistent (personal, social, and work) dysfunctioning. In addition, if stagnation of the recovery process is established an inventory of possible causes is performed. Hence, to incorporate work disability management and RTW as part of an integrated health care approach, an insurance physician can play a key role in network building. By forming a link between primary and secondary care, and occupational health medical practice, the insurance physician can contribute to improvement of communication between all health care professionals involved in (occupational) health care guidance of the sick worker.

Methodological considerations

With regard to the overall quality of the study, we believe our study met most of the CONSORT Statement requirements for high quality trials[43-45], i.e. an evidence-based, minimum set of recommendations for reporting randomized controlled trials. However, our view should be confirmed by independent researchers by performing a quality assessment of our study. Furthermore, several methodological aspects should be acknowledged. First of all, the inclusion of participants was performed within 18 months, as planned, wherein 163 workers were enrolled in the study. Comparable studies[46-48] experienced more difficulty in selecting workers, i.e. their recruitment was more time-consuming. Two possible explanations for this can be 1. the method of recruitment of participants (recruitment via physicians versus using the SSA database that records sick leave and diagnosis) and 2. the number of potentially eligible workers willing to participate. As to the latter, in our study 784 (=50.3%) workers could be contacted by phone after receiving the screening questionnaire. On the other hand, in view of the relative large number of immigrants among workers without an employment contract, it is fair to conclude that in our study only a part of the target group was reached. Although we used broad inclusion criteria to resemble current practice as good as possible, sufficient proficiency of the Dutch language was a necessary inclusion criterion for filling in the questionnaires and taking part in the meetings with the RTW coordinator. However, for applying the program in daily practice, the presence of an interpreter should be considered, while taking into account that this will, very likely, make implementation of the RTW program more complex and more costly. Secondly, the contribution of the intended target group with regard to the development of the new RTW program was relatively modest. Due to the fact that the new RTW program had to be carried out by the OHC professionals of the SSA, the majority of the stakeholders involved in the Intervention Mapping process (Chapter 3) were from the SSA. On the one hand, in addition to the results of a large cohort study among sick-listed workers without an employment contract (Chapter 2), the use of focus group meetings could have given us direct input and feedback from the workers of the intended target group. On the other hand, the new RTW program contained several important

elements to fulfil the need of this vulnerable group of workers for (more) tailor-made RTW interventions, namely: more contact with the OHC professionals of the SSA, the making of a consensus based RTW implementation plan, the possibility of a temporary (therapeutic) workplace to RTW, and structural communication between all parties involved in the RTW process. For implementation of the new participatory RTW program in daily practice we, however, recommend active involvement of the workers. The participatory approach should not only be used as a key element in the RTW program, but also as an important implementation strategy to create support among all important stakeholders. Thirdly, during the execution of the STEP-UP study we changed the secondary outcome measure sustainable first RTW into the primary outcome measure. Duration of the sickness benefit period became secondary outcome measure. We decided on changing the primary outcome measure based on advanced insight. Complete RTW follow-up data for all participants proved possible by using the register-based data from the continuous RTW registration in the SSA database and the client files at the SSA, instead of using only self-report questionnaires for RTW data collection. Beforehand, we thought that these register-based data would not be available for us. Literature findings show moderate to reasonable agreement (ranging from 58% to 74%) between self-reported sickness absence versus register-based data collection[49-51]. Hence, the use of good quality registers, when available, is recommended[52]. Furthermore, the aim of the new RTW program was to enhance (work) participation (and indirectly perceived health) of sick workers, i.e. to achieve earlier sustainable RTW, compared to care as usual. From this perspective sustainable first RTW is not only a logical choice, but also a commonly used primary outcome measure in RTW intervention research. In addition, duration of sickness benefit as primary outcome measure would entail that ending of sickness benefit could occur without actual work participation of the worker. Hence, all in all, we had several scientific and pragmatic arguments in favour of changing the primary and secondary outcome measures. Fourthly, participation of the workers in our study was on a voluntary basis. As a result, our study findings may be biased due to the presence of merely motivated workers. The question of whether the new program is also effective for sick-listed workers who did not want to participate in this study cannot be answered. A fifth limitation is related to the

measurements instruments used in this study. Data on RTW and sickness benefit were collected from the continuous registration database at the SSA. Database registration by the SSA is monitored by the Inspection Service for Work and Income on behalf of the Dutch Ministry of Social Affairs and Employment. It provided good quality register-based data collection with complete follow-up for all participants. With regard to the secondary health-related outcomes, these were measured using self-report questionnaires. Self-report can lead to over- or underestimation of outcomes. However, in our opinion, the use of validated and internationally accepted questionnaires provided scientifically acceptable measurements for perceived health, pain intensity, and functional disability. A final methodological aspect that we want to address is the fact that our study findings may be valid in the Netherlands only. The pragmatic RCT design and the broad inclusion criteria are reflective for current practice at the Dutch SSA that, as regulated in the Dutch Sickness Benefits Act, provides supportive income and vocational rehabilitation support for workers without an employment contract who become sick-listed. These so-called 'social security safety netters', are, for instance, sick-listed temporary agency workers and sick-listed unemployed workers. Although, from an international perspective, social security systems differ greatly, aspects of our study results may be generalizable to other social insurance systems and worker groups, for instance the possibility of a suitable temporary workplace as a step-up for vulnerable sick-listed workers who experience a great distance to the labour market. Nonetheless, application of this intervention in a different setting should be preceded by tailoring of the program, taking into account the specific characteristics of the population as well as the social, political and cultural context in which the program will be implemented and used.

Implications for implementation

Implementation of study results is a challenging but important capstone in RTW research[53,54]. Development of a (cost-)effective RTW intervention does not automatically result in successful implementation in daily practice due to the complexity of work disability, i.e. implementation is subject to multiple legal, administrative, social, political, and cultural challenges. Hence, a thorough

insight into the characteristics of the new intervention, the target group, relevant stakeholders, and the (social, cultural, and political) setting is essential. The process evaluation in our study (Chapter 6) showed barriers and facilitators related to the intervention, the users, the target group, and the context. In the next part important barriers for future implementation on a national scale will be discussed. In addition, the identified barriers will be placed within the developed conceptual framework for work disability and RTW for a worker without an employment contract (Chapter 1).

Medical care

- Occupational health care

The RTW coordinator plays a key role in the participatory RTW program. Among researchers in the field of OHC there is a shared acknowledgement of the importance of an independent RTW coordinator[55,56]. However, in our study the OHC professionals experienced difficulty in distinguishing between the role of the RTW coordinator and the role of the labour expert. We believe a possible solution for this could be a clearer introduction of the RTW coordinator during training of the OHC professionals. For instance, to focus (more) on similar competencies such as RTW focus and attitude, and RTW facilitation skills; and distinguishing competencies such as process guidance skills and specific consensus competencies. In addition, the role of the RTW coordinator can be (more clearly) underlined by incorporating the participatory RTW method in current OHC guidelines[57]. Furthermore, to avoid confusion of roles and questionability with regard to the independence of the RTW coordinator, we believe it is desirable that the RTW coordinator is not a close colleague of the labour expert.

- Co-operation between health care professionals

Firstly, an important barrier related to current Dutch health care practice is the segregation between curative health care and occupational health care. As a result, despite the fact that work is an essential part of adult life, in general practice the focus is mainly on diagnosis and treatment of health-related problems and rarely on work-related factors and work resumption[38]. To achieve a stronger co-operation between curative care professionals and OHC professionals we recommend improving the communication between the health care professionals involved.

Comparable initiatives are already present in Belgium[58]. Moreover, in line with the recently developed integrated care program for patients with chronic low back pain, improving the coordination of disability management can have a substantial impact on reduction of work absenteeism and improvement of the perceived quality of life[16,18]. In our study, to prevent conflicting advice about RTW, the worker's general practitioner received a letter with information about the study and the allocation of their patient to either the intervention group or the control group, and a communication form in case the general practitioner wanted to consult the insurance physician. In addition, the general practitioner was asked to adhere to his/her professional guidelines for MSD. Instead of using this somewhat open-ended approach, to optimize communication and alignment of treatment goals, we recommend periodic contact between the health care professionals involved, for instance by organizing a conference call.

Secondly, stronger cooperation between physicians who work in the field of occupational health is desirable[59]. An essential difference between an occupational physician and an insurance physician is close contact with employers/workplaces. The absence of a workplace/employer to return to is not merely an important obstacle for the sick-listed worker, but also for the insurance physician at the SSA who guides the worker. From this perspective, structural contact and cooperation between insurance physicians and occupational physicians may help to cross the essential workplace gap. More specifically, occupational physicians can help to find suitable therapeutic workplaces for RTW of sick-listed workers who have no employment contract.

ASE (Intention to RTW & RTW behaviour)

- Sick-listed worker

A possible barrier for implementation is the (predominant) focus of the worker on reducing his/her health complaint(s) and not on restoration of functional capacities. By following a two-track approach early on the goal setting can be directed towards both recovery of health and work resumption in suitable work taking into account the worker's functional limitations. Most of the workers in our study complied with the participatory RTW program, i.e. complied with the two-track approach. Moreover, this change of goal setting towards not only recovery of health but also towards function

restoration already has been adopted in current Dutch OHC guidelines as formulated by the Netherlands Society of Occupational Medicine (NVAB). However, to be able to implement the new intervention in OHC practice for sick-listed workers without an employment contract successfully, the realization of (temporary) workplaces for (therapeutic) work resumption is an essential precondition. Besides the essential change of focus towards work ability, this can provide the required bonding with work to facilitate a sustainable return to the labour market.

- Incentives for RTW

According to the Dutch Improved Gatekeeper Act, on the one hand, an employee might lose employment protection if he/she puts too little effort in vocational rehabilitation. On the other hand, if Dutch employers do not satisfy all reintegration steps, they are faced with a financial penalty, i.e. prolongation of paying wages up to one additional year. An unemployed worker or a temporary agency worker, when sick-listed, has no employment contract. Hence, other (financial) incentives are needed. The overall compliance of the participants in our study was good. However, the OHC professionals missed the possibility to impose a benefit sanction in case of noncompliance with the RTW action plan (Chapter 6). For application of the participatory RTW program in daily practice, we, therefore, recommend making agreements with the worker with regard to the effort expected from the worker to achieve RTW and to inform the worker regarding possible benefit sanctions in case of unsatisfactory compliance. This can be added to the agreements made in the RTW action plan. Notably, a similar arrangement already exists for young disabled workers as regulated in the New Disablement Assistance Act for Handicapped Young Persons (nWajong).

Perceived work disability

- Dutch Social Security System

In the Dutch Social Security System a worker without an employment contract can receive sickness benefit in case of work disability, i.e. functional limitations, with regard to the last job prior to reporting sick. Notably, even if there are functional abilities to perform other work (tasks) the worker is still entitled to sickness benefit on the ground of an established inability regarding the last job before reporting sick.

As a result, awarding sickness benefit despite the presence of work ability for other work can reinforce the perceived work disability by the worker and be a barrier for RTW. Hence, when applying the participatory RTW program it is important to change the focus from work disability to functional abilities in an early stage. Moreover, this focus on early recovery of activities, including RTW, was in our study identified as a facilitator for implementation (Chapter 6). In addition, to shift the focus towards perceived work ability, offering a temporary workplace for therapeutic RTW is, in our opinion, an important element to let the worker experience that work resumption in suitable work is possible.

- Sick-listed worker

Many of the workers in our study experienced complex multi-causal health problems, e.g. not just MSD but also psychosocial problems. This was earlier found to be a characteristic for our target group[60]. Moreover, it is commonly known that both work and non-work related factors can contribute to the perceived work disability of a worker. However, compared to regular employees, sick-listed workers without an employment contract experience more difficulty in returning to work due to a larger influence of non-medical social problems and demographic factors, such as level of education and marital status[61]. Hence, to increase the self-control of the worker in the early phase of sickness absence we recommend, in line with the developed participatory RTW program in our study, the use of the inventory of work- and non-work-related obstacles for RTW as home assignment after the first consult with the insurance physician. To stimulate the worker to take this first step to (re)gain control and to improve adherence to the vocational rehabilitation guidance we want to emphasize the importance of giving explanation by the insurance physician on how to perform this inventory at home. Moreover, to actually change the focus of the worker towards work ability, it is essential to warrant a short-term appointment with the RTW coordinator after the first consult with the insurance physician. Finally, when implementing the RTW program in daily practice, more attention should be paid to applying the RTW program to sick-listed workers with complex health problems (Chapter 6). If necessary, additional (medical and non-medical) support should be offered for these workers, e.g. referral to a graded activity program, offering short-term education, or help with debt repayment. Hence, in order to achieve

successful implementation, we recommend incorporating the use of the program for workers with complex health problems as a separate topic in the training for OHC professionals.

Threshold for return-to-work

- Workplace/employers

In the Netherlands there are no legislative mandates for employers to facilitate RTW of workers without an employment contract when they become sick-listed. Since 2003 there is an official covenant between the SSA and the Dutch association of temporary work agencies (ABU), in which responsibilities for RTW of sick-listed temporary agency workers have been stated. Major themes are attention for the sick-listed temporary agency worker, offering a perspective regarding RTW, and reducing sickness absence. However, although the introduction of the covenant resulted in a substantial decrease of (long-term) sickness absence[62], in daily practice temporary agency staff are still judged on turnover, not on time-consuming rehabilitation support (Chapter 3). Hence, offering the possibility for therapeutic work resumption as stepping stone to a sustainable return to the labour market is, to date, no common practice at temporary agencies. An additional barrier is the fact that the worker has a labour agreement with the temporary agency and performs his/her work at the user company. The user company, in its turn, is not obliged to offer adapted work tasks. The realization of a shared societal (and legal) responsibility (including penalties) between the temporary agency and the user company to facilitate RTW of sick-listed workers without a (relative) permanent employment relationship, e.g. by offering a suitable workplace for RTW, could decrease the threshold for RTW. Moreover, introducing corporate social responsibility measures for employers, e.g. by offering financial incentives, can help to lower the threshold for RTW of vulnerable sick-listed workers.

- Dutch Social Security System

Another possible barrier is the level of job protection in the Netherlands. The Dutch Social Security system is built upon the “solidarity principle”, which means that all people in the community will be cared for. As a result, for employers in the Netherlands, offering a workplace for a worker with a disability can present a risk.

If a worker is employed and the worker's performance is unsatisfactory, then the employer can have a difficult time attempting to fire this worker. However, one could argue that this "solidarity principle" of the current Dutch Social Security system provides more safety for workers with a chronic disease to remain or re-enter in the labour force[63]. Furthermore, in line with the experiences in Denmark with the Flex-Jobs Scheme, offering the possibility of subsidised workplaces can make employers less hesitant in employing workers with functional limitations. And, subsequently, make it easier for vulnerable workers to (re-)enter the labour market. Therefore, in my opinion, the existence of a 'social security safety net' with the possibility of therapeutic work resumption as well as offering (financial) incentives for employers to hire workers with functional limitations can increase participation of the most vulnerable workers within the working population.

- Consultation at the Social Security Agency

As aforementioned, to actually change the focus of the worker towards work ability, it is essential to warrant a short-term appointment with the RTW coordinator after the first consult with the insurance physician. This requires flexible consult planning opportunities, which may prove challenging at the SSA front offices (Chapter 6). A possible solution for this can be to weekly reserve time in the scheduling of consultation hours. If no consult with the RTW coordinator is requested, then other last-minute appointments can be made to fill the gap.

- Sick-listed worker

A possible barrier for implementation is the fact that workers with disabilities who are dependent on Social Security benefits may risk falling into the "benefit trap" and may be faced with financial disincentives when returning to work. It is, therefore, important to make no RTW less attractive. This can, for instance, be realized by benefit sanctions in case of not cooperating to achieve RTW or by financially rewarding workers with disabilities who (partially) RTW in accordance with their functional abilities, e.g. by supplementing the difference between income (wages or supportive sickness benefit) and full wages in last work. This agreement already exists for workers who receive a long-term disability benefit according to the 'Dutch Work and Income according to Labour Capacity Act (WIA)'.

Follow-up on the case description

To further illustrate, taking into account the aforedescribed implications for implementation, the case as described earlier in Chapter 1 can be presented in a modified version as follows:

A 48-year old female worker with a low level education has been working in several jobs as a temporary agency worker for the past two years. Since her divorce, approximately two years ago, she needs additional income as her alimony is not sufficient for household maintenance. For the past three months she has been working fulltime as a factory worker in a food factory. This is physically demanding work with frequent lifting and carrying of heavy boxes. She would like to work as a shop assistant. However, due to her lack of work experience and the presence of a national economical crisis, it is difficult to find work, let alone finding suitable work that she wants to do. Since approximately two weeks she has a severe pain in the lower region of her back without radiation. Her general practitioner diagnoses her complaints as non-specific lower back pain. He prescribes pain medication and refers her to a physical therapist. Additionally, in view of the heavy work demands, he advises her to report sick. She is not happy with her work in the factory and she has already thought about reporting sick. Being a temporary agency worker, she feels like an outsider at the factory. One week after visiting the general practitioner, the severe low back pain is still present and hinders her in all daily activities. Therefore, although she has two waiting days before she can receive sickness benefit, she decides to report sick at the Dutch Social Security Agency (SSA). Because she is a temporary agency worker, the temporary agency and the user company, i.e. the food factory where she worked, have no legislative responsibilities to continue payment of wages during sick leave. However, in line with the national covenant between Dutch temporary agencies and the SSA, her consultant at the temporary agency contacts her the day after reporting sick to inform why she has reported sick, to ask how she is doing, and to inquire whether she has any idea when she will be able to RTW. She lets the consultant know that she is unsure if short-term RTW is possible but she hopes that the pain medication and physiotherapy will soon have effect. The consultant reassures her that, in case of short-term sickness absence, she will be able to return to the food

factory where she worked. Additionally, an appointment is made for telephone contact in two weeks time in case of no RTW. To approve her sickness benefit claim, she is invited to the consultation hour of the insurance physician at the SSA. During this consult she explains that the low back pain is still present. The prescribed pain medication and physical therapy have not (yet) helped to (sufficiently) relieve her back pain. Activities such as bending and lifting remain very painful. She explains to the insurance physician, that she is not able to do her work. In line with the guidelines for OHC the insurance physician follows a two-track approach. Medical examination rules out the presence of severe underlying pathology and the insurance physician confirms the diagnosis non-specific low back pain. He reassures her and advises her to stay active and to continue the physical therapy. In addition, he explains that work resumption in suitable work taking into account her functional limitations is not harmful. Furthermore, he refers her to the RTW coordinator for the making of a RTW action plan and, as a preparation for the meeting with the RTW coordinator, he gives her a home assignment to identify work- and non-work-related obstacles for RTW and explains how to perform this inventory of RTW obstacles. To align the treatment goals and to prevent conflicting advice with regard to vocational rehabilitation and RTW the insurance physician contacts the general practitioner. They agree to periodically have contact in order to evaluate the (vocational) recovery process. In addition, the general practitioner adheres to his professional guidelines for MSD. Immediately after the consult with the insurance physician, she has a meeting with the labour expert. Based on a personal examination of her work abilities and expert knowledge of the (regional) labour market, the labour expert assesses her distance to the labour market. One week later she returns to the SSA for the meetings with the RTW coordinator and the labour expert. During the meetings she feels the RTW coordinator understands well what her problems are and she is actively involved, which gives her the confidence that she can achieve RTW in suitable work. The resulting consensus-based RTW action plan consists of the following items: following a short-term job application training, coordination with the general practitioner and the treating physiotherapist to evaluate recovery of occupational functioning capacity, searching for a temporary (therapeutic) workplace as a shop assistant by the UWV Werkbedrijf, directly after placement in a temporary workplace short-term

guidance by a co-worker at the workplace with regard to how to perform the shop assistant tasks, and a gradual RTW, i.e. starting with half days and weekly increase working hours with one hour per day. Six weeks later, she returns to see the insurance physician. The back pain has improved and she has been able to resume working in a temporary workplace as a shop assistant in a drugstore. She was offered two suitable temporary workplaces and she has choosen this workplace. Furthermore, one week before the consulting hour she was contacted by the consultant of the temporary agency to ask how she is doing and they have made agreements to search for a job as a shop assistant following on the temporary workplace. The insurance physician is satisfied with the (vocational) recovery process and establishes full recovery of work ability. Three months after reporting sick the temporary workplace ends and the sickness benefit stops and she is offered an employment contract by the manager at the drugstore. She fits in well with the team of colleagues and the manager is satisfied with her work performance. She accepts the job offer and lets the consultant at the temporary agency know she now is having an employment contract. She is happy to have work she likes to do and to be no longer an outsider at the workplace.

Recommendations for future research

· *Studies with longer follow-up*

The findings of our study indicate that it is important to, on the one hand, stimulate active involvement of and input from the sick-listed worker with the making of a consensus based RTW action plan, and, on the other hand, to create the necessary work immersion experience by offering the possibility of a temporary (therapeutic) workplace. Nonetheless, we recommend future studies with longer follow-up. Placement in a temporary workplace can be seen as a step-up to achieve sustainable competitive employment. It would be interesting to investigate the RTW patterns after one year to see whether the trend of more sustainable RTW continuous.

· *Exploration of long-term disability benefit patterns*

In addition, given the fact that sick-listed workers without an employment contract have an increased risk for long-term work disability, we recommend to explore the

long-term disability benefit patterns, i.e. the number of applications and awarded benefit claims according to the 'Work and Income according to Labour Capacity Act (WIA)' after two-year follow-up. To see if an earlier sustainable return to the labour market in the first year (and possibly also after the first year) results in a decrease of (awarded) long-term disability benefit claims after two years. This can subsequently convince policymakers that implementation of the new participatory RTW program is a worthwhile and necessary investment to achieve a sustainable contribution of vulnerable workers to the labour force.

· *Insight into effectiveness of the separate RTW program elements*

Furthermore, because the participatory RTW program was offered as a combined intervention, our study design was not suitable to answer the question with regard to the effectiveness of the separate elements, i.e. the participatory process with the making of a RTW action plan and the possibility of a temporary (therapeutic) workplace. To gain insight into their contribution to the overall effectiveness, i.e. the effectiveness of both elements separately, new research with a factorial study design can be used.

· *Performance of exploratory subgroup analyses*

The current study results showed effectiveness of the participatory RTW program on first sustainable RTW, but is the effect found in our study the same for the entire study population? Examining the heterogeneity of effect sizes within the population in our study can lead to information on the (cost) effectiveness of the intervention in subgroups of workers[64]. To uncover what works best for whom (and at what cost) we, therefore, recommend exploratory subgroup analyses. These results can then be incorporated in OHC guidelines, e.g. by making a selection instrument for assignment to the participatory RTW program.

· *Application of the RTW program for other target groups*

Another recommendation is to investigate if the participatory RTW program is also (cost-)effective for other groups of sick-listed workers without an employment contract, for instance workers with chronic MSD or workers with mental health

disorders. In line with earlier findings[15,16], which have shown that the participatory workplace intervention is effective for sick-listed regular employees with acute as well as chronic low back pain, it seems worthwhile to investigate whether the participatory RTW program is also effective for sick-listed workers without an employment contract who experience chronic MSD with prolonged work disability. Furthermore, the importance of developing (cost-)effective RTW interventions for workers with mental health complaints is underlined by the fact that in the Netherlands 19% of all sickness absence can be ascribed to mental health problems[65] and about one-third of all paid work disability benefits by the Dutch Institute for Employee Benefit Schemes (UWV) are related to mental health[66,67]. In addition, we believe a promising development can be to adapt the participatory RTW program in order to (further) improve the coherence of clinical and primary care practice and occupational health care practice. Therefore, in our opinion, it would be interesting to investigate an integrated care approach, i.e. to combine the participatory RTW program with integrated care-management[16,68], by forming a structural link between curative health care practice and occupational health medical practice[39,69,70]. The importance of the development of a transdisciplinary health care infrastructure for people with mental health disorders, which encompasses for instance medical care, practical support and (vocational) rehabilitation, has been recently emphasized by the Health Council of the Netherlands[42].

Recommendations for practice and policy

· *Fundamental change in policy for sick-listed workers without an employment contract*

The risk of becoming long-term work disabled (> 18 months) with application for a disability benefit is three times higher for sick-listed worker without an employment contract, compared to sick-listed employees[71]. Also, vocational rehabilitation and RTW guidance for this group is unsatisfactory[60,71]. Hence, in our opinion, a fundamental change in Dutch policy is needed to improve labour participation of sick-listed workers without an employment contract. On the one hand, our study findings show that from a societal perspective earlier RTW contributed to social

participation and generated a net economic benefit in terms of productivity gain. On the other hand, investments were on the part of the SSA and thus from public money. This division in costs and benefits will, very likely, make implementation more challenging. However, in line with the aforementioned Danish labour market policy, we believe that it is important to emphasize the importance of using community money to enhance social participation of vulnerable working populations in order to increase their contribution to the labour market[72]. For instance, the use of community money for realization of subsidised temporary workplaces. By realising subsidised (temporary) workplaces costs and benefits can be shared between the SSA and the employers. Furthermore, we believe that strengthening the responsibilities of temporary agencies to offer suitable workplaces for RTW can be an important step towards successful vocational rehabilitation. We, therefore, want to recommend to asses the possibilities to make temporary agencies more responsible for RTW of sick-listed temporary agency workers, i.e. offering a suitable workplace for (therapeutic) RTW and having financial responsibilities with regard to vocational rehabilitation costs. It is desirable to embed this responsibility in the national covenant between the SSA and the Dutch temporary agencies.

· *Incorporation of study findings in health care guidelines*

Next, we want to recommend to incorporate our study findings in guidelines for occupational health care for sick-listed workers without (relative) permanent employment relationships. In the Netherlands this means incorporating the participatory RTW program in vocational rehabilitation practice at the SSA. In addition, to achieve effective implementation of our study findings at the SSA, we believe that it is of great importance to seek connection as much as possible with current organisational, political, and social developments regarding the tightening of the Dutch Sickness Benefit rules. However, in our opinion, the participatory RTW program fits in well with the announced measures by the Dutch Ministry of Social Affairs to activate (more) workers who receive Sickness Benefit to RTW. Furthermore, to improve the co-operation between curative health care, occupational health care, and social insurance medical practice we believe incorporating our findings in multidisciplinary guidelines for MSD is equally important. This can contribute to

more focus on work-related factors and improve coordinated care between all health care professionals involved and subsequently decrease unnecessary long-term work disability.

· *Revision of sickness benefit criteria*

We also want to recommend a revision of the sickness benefit criteria for establishing full work ability. The current sickness benefit criteria make it difficult to end sickness benefit in case of work resumption in other work with equal earnings if the worker still has functional limitations, i.e. is (partially) work disabled, with regard to the last job before reporting sick. In line with the already existing work disability regulation for regular employees, implementation of the participatory RTW program could be facilitated if it would be possible to establish full work ability on the ground of RTW in suitable other work with equal earnings. Moreover, this can help the worker to change the focus towards work ability and possibilities for RTW.

· *Utilization of existing expertise/networks to improve availability of temporary workplaces*

We also want to recommend creation of a network/database of available temporary workplaces. As a result of a decrease in public reintegration budgets, there is an upcoming of in-house vocational rehabilitation guidance at Dutch government funded institutes such UWV Werkbedrijf and Municipalities with subsequent less outsourcing to commercially operating agencies[73]. In our opinion, UWV Werkbedrijf can play an essential role in the finding and offering of suitable temporary workplaces for sick-listed workers who receive sickness benefit from the SSA. This way, already existing expert knowledge of the labour market with the presence of regional job/employer networks can be utilised, and, also important, no contracting of commercially operating (costly) vocational rehabilitation agencies is needed.

· *Stringent selection of skilled RTW coordinators*

Another recommendation is related to the role of the RTW coordinator, being an essential element in the participatory RTW program. We advise to use a clear defined competency profile to select RTW coordinators. Moreover, we want to emphasize

that the role of the RTW coordinator requires certain key competencies, such as interpersonal skills, process guidance skills, specific consensus competencies, and specific skills related to coordinating among all stakeholders involved with the RTW process. Hence, to achieve successful application of the participatory RTW program a good selection procedure at the SSA is important.

· *Use of a computerised support system*

Finally, we advise the use of a computerised (web-based) support system to strengthen the coordination and collaboration between all stakeholders involved in the RTW process, i.e. to be able to document all data related to the vocational rehabilitation process and to have this data accessible to all stakeholders involved in the RTW process of the worker. However, a necessary precondition for such a web-based system is adequate protection of personal and medical information. The results of the group interviews with the involved stakeholders in the STEP-UP study, e.g. insurance physicians, labour experts, RTW coordinators, case managers of vocational rehabilitation agencies, showed that the presence of a computerised support system is an important facilitator for implementation as it ensures sufficient communication between the professionals involved.

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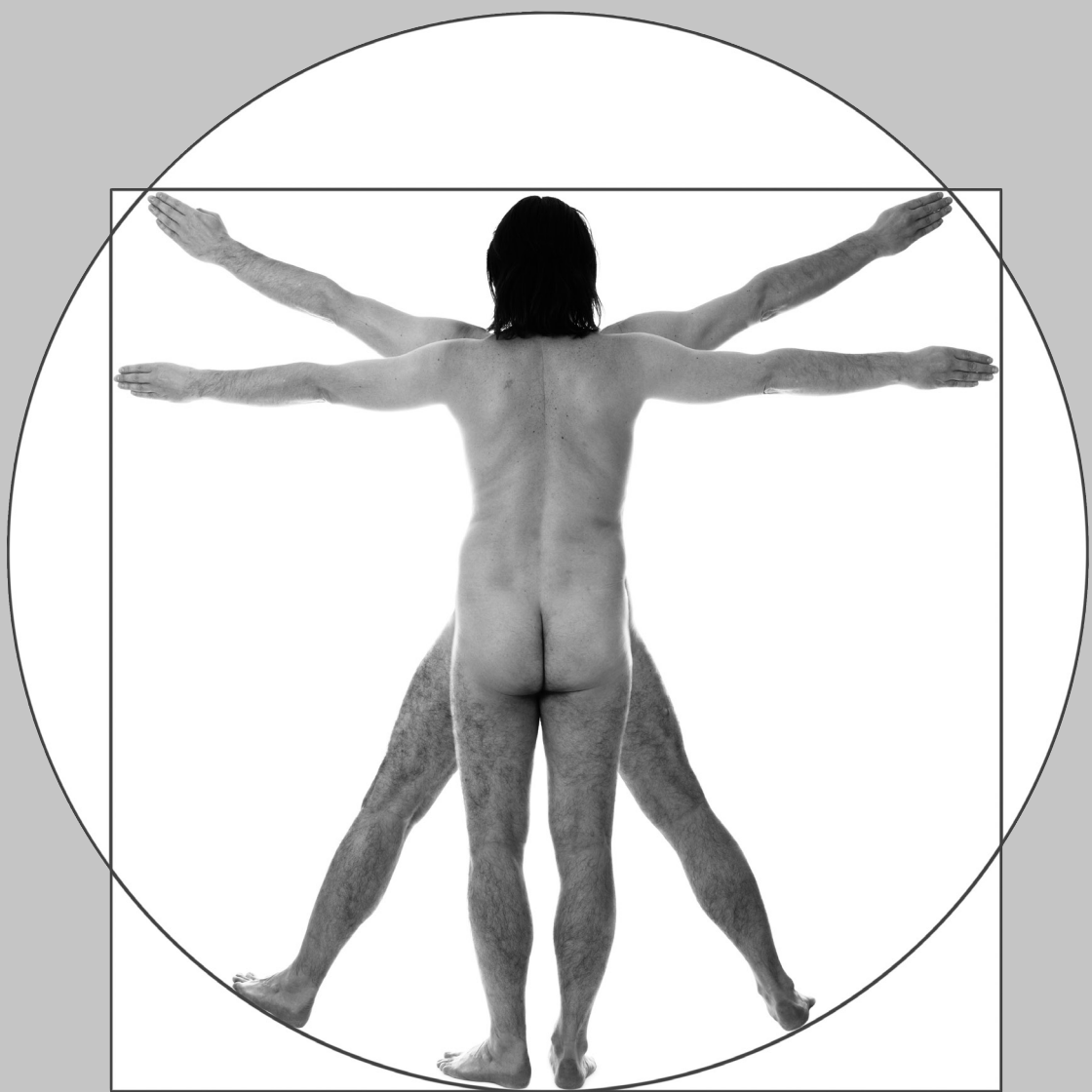

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Sickness absence and work disability due to musculoskeletal disorders (MSD) are a common and substantial public health problem with major economical consequences worldwide[1, 2]. To date, most RTW intervention research is aimed at sick-listed (established regular) employees, i.e. workers with relatively permanent employment relationships. Participatory RTW interventions have proven to be (cost-)effective for work resumption of sick-listed employees suffering from musculoskeletal health complaints, e.g. (sub)acute and chronic low back pain. In contrast, development of effective RTW interventions for sick-listed workers without (relative) permanent employment relationships is lagging. However, these workers represent a vulnerable group within the working population as they have a poorer health status, are burdened with a greater distance to the labour market, and have an increased risk for (long-term) work disability, compared to regular employees. Moreover, when sick-listed, these workers have in most cases no workplace/employer to return to. Hence, for these (more) vulnerable workers, there is a need for development of RTW interventions with active involvement of important stakeholders and the possibility of a temporary workplace for therapeutic RTW. Therefore, this thesis focused on a newly developed participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. The main focus of this thesis is on the STEP-UP study, a randomized controlled trial in which the new participatory RTW program is compared to care as usual.

OHC and return-to-work of sick-listed workers without an employment contract

Chapter 2 described cross-sectional data analyses of a large Dutch cohort of workers without an employment contract who were, at baseline, at least 13 weeks sick-listed. The aim of this cohort study was to examine characteristics of workers without an employment contract, sick-listed for at least 13 weeks; to examine occupational health care (OHC) for this group of sick-listed workers; and to examine the association between applied occupational health care interventions and RTW. The results showed that the sick-listed workers without an employment contract in this study were characterised by a low level of education. At 7-9 months after the first day of reporting sick most of the workers viewed their health as fairly poor or poor and the most reported reason for absenteeism was having musculoskeletal complaints.

Furthermore, only 19% of the workers had (partially or completely) returned to work, whereas the majority (81%) of the workers had not (yet) started working again. With regard to the received OHC, the most frequently reported (49%) OHC intervention was 'the OHC professional discussed RTW'. Only 19% of the workers reported that a RTW action plan was discussed and made while 74% of the workers reported that no RTW action plan was made by their insurance physician. Moreover, loglinear multiple regression analysis showed a significant positive association between RTW and the reported interventions: 'OHC professional discussed RTW' (OR 1.57 ; 95% CI 1.03 – 2.40); and 'OHC professional made and discussed a RTW action plan' (OR 1.87 ; 95% CI 1.16 – 3.0). The intervention 'OHC professional referred sick-listed worker to a vocational rehabilitation agency' was significantly associated with no RTW (OR 0.52 ; 95% CI 0.29 – 0.95). In conclusion, further research is needed to develop tailor-made OHC interventions to optimize the frequency and content of OHC interventions and to evaluate the effect of these interventions on RTW of the vulnerable sick-listed workers without (relative permanent) employment relationships.

Development of a participatory RTW program for workers without an employment contact, sick-listed due to MSD.

In chapter 3, the structured development of a participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD, is described. The Intervention Mapping protocol was used to combine theory, evidence, and practice in the making of a specifically tailored participatory RTW program, based on an earlier developed cost-effective participatory RTW intervention for regular sick-listed employees with sub acute low back pain. Intervention Mapping offered the unique opportunity to analyse the potential of the new RTW program, taking into account the specific factors of the context in which the participatory RTW program was implemented and used. The Attitude-Social influence-self-Efficacy (ASE) model was used as a theoretical framework for determinants of behaviour regarding RTW of the sick-listed worker and development of the intervention. Important stakeholders were involved in all steps of program development and implementation, i.e. board and management of the Social Security Agency (SSA), staff and OHC professionals at the SSA, representatives of national temporary work agencies, and representatives

of vocational rehabilitation agencies. It became clear that the absence of an actual workplace to return to and decreased possibilities for RTW in (temporary) adapted work were considered major obstacles for RTW. Next, results of semi-structured interviews and 'fine-tuning' meetings were used to design the final participatory RTW program. Following the Intervention Mapping protocol resulted in an RTW intervention that stimulates early RTW intervention, active involvement of the sick-listed worker, more contact with the OHC professionals at the SSA, making of a consensus based RTW action plan, the possibility of a temporary (therapeutic) workplace to RTW, and structural communication between all parties involved.

Design of the study

Chapter 4 describes the design of a randomized controlled trial to investigate the cost-effectiveness of the newly developed participatory RTW program, compared to care as usual, for temporary agency workers and unemployed workers, sick-listed due to MSD. Five front offices of the Dutch Social Security Agency (SSA) and four large Dutch vocational rehabilitation agencies (Olympia, Adeux, Capability, and Randstad Rentrée) in the eastern part of the Netherlands participated in the study. The study population consisted of temporary agency workers and unemployed workers 2-8 weeks sick-listed with MSD as the main health complaint for the sickness benefit claim. The main exclusion criteria were a conflict with the SSA regarding a sickness benefit claim or a long-term disability claim; inability to complete questionnaires written in the Dutch language; a legal conflict, e.g. an ongoing injury compensation claim; and an episode of sickness absence due to MSD within one month before the current sickness benefit claim. The new participatory RTW program consisted of a structured stepwise protocol aimed at making a consensus-based RTW action plan with the possibility of a temporary (therapeutic) workplace to RTW. Outcomes were measured at baseline, 3, 6, 9 and 12 months. The formulated primary outcome measure was duration of sickness benefit from the first day of randomization until benefit claim closure for at least 4 weeks without (partial of full) revival of the sickness benefit. Secondary outcome measures were: time until sustainable first RTW (defined as the duration in calendar days from the day of randomization until return to work in paid regular work or regular work with supportive benefit for at

least 28 consecutive days), total number of days of sickness benefit during follow-up; functional status; intensity of musculoskeletal pain, and perceived health. Data on sickness benefit claim duration were acquired from the SSA database after the follow-up period. The RTW data were collected from the SSA database, including the workers' files. Data on the heath-related secondary outcomes were collected using self-report questionnaires.

Effectiveness of the participatory RTW program

Chapter 5 evaluates the effectiveness of the participatory RTW program compared to usual care for temporary agency workers and unemployed workers, sick-listed due to MSD. In total, 163 workers, sick-listed for 2-8 weeks due to MSD, were randomly allocated to theparticipatory RTW program (n=79) or to usual care (n=84). The median duration until sustainable first RTW was 161 days in the intervention group and 299 days in the usual care group. In addition, the per-protocol analysis showed a median duration until sustainable RTW of 157 days in the intervention group versus 330 days in controls. The new RTW program resulted in a non-significant delay in RTW during the first 90 days (possibly due to more intensive involvement after enrolment in the new participatory RTW program), followed by a statistically significant advantage in RTW rate after 90 days (hazard ratio of 2.24 [95%confidence interval 1.28 to 3.94] p=0.005). Both groups improved over 12 months with regard to their functional status, pain intensity, and perceived health, but no statistical significant differences between both groups were found. Furthermore, although not statistically significant, the new RTW program had a negative impact on sickness benefit duration (intention-to-treat: median of 69 days; per-protocol: median of 59 days). This was mainly due to the fact that in most cases the therapeutic workplaces were offered with ongoing sickness benefit, i.e. the total number of days working in these temporary workplaces represented 95% of the difference in total benefit duration between both groups.

Feasibility of the participatory RTW program

The objective of chapter 6 is to evaluate the feasibility of the participatory RTW program for temporary agency workers and unemployed workers, sick-listed due to MSD. The feasibility study concerned part of the study population, i.e. the workers

who were allocated to the participatory RTW program group. The aims were to describe the reach and extent of implementation of the participatory RTW program, the satisfaction and experiences of all stakeholders, and the perceived barriers and facilitators for implementation of the participatory RTW program in daily practise. After enrolment, seven sick-listed workers did not start with the participatory RTW program. The main reason for not starting was full recovery from MSD before start of the program. In total, 38 of the 72 sick-listed workers who started with the program participated in the meetings with the RTW coordinator with the making of a consensus-based RTW action plan. In total, 98 obstacles for RTW were identified and prioritized. The most identified obstacles were related to the physical workload, commuting, low level of education/work, job design, and work schedule. In total, 30 participants were referred to a vocational rehabilitation agency of which 19 workers were actually placed in a temporary (therapeutic) workplace. Furthermore, three workers were placed in a temporary (therapeutic) workplace through the personal network of their labour expert and four workers found a suitable workplace on own initiative. The majority of the sick-listed workers felt taken seriously during the meetings with the OHC professionals and the overall satisfaction was good (63% with the insurance physician, 66% with the labour expert, and 72% with the RTW coordinator). Furthermore, the majority of the labour experts experienced a minor or major contribution of the presence of the RTW coordinator. Largely, implementation of the program was performed according to protocol. However, offering of suitable temporary workplaces was delayed with 45 days. The results of this study indicate overall feasibility for implementation of the participatory RTW program in daily practice. However, to overcome important barriers for implementation, more attention should be paid to improve timely offering of suitable temporary workplaces; to describe more clearly the program goals and the professional's roles; to reduce the administrative time-investment; and to offer additional support for workers suffering from complex multi-causal health problems.

Cost-effectiveness of the participatory RTW program

Chapter 7 describes an economic evaluation of the participatory RTW program compared to usual care for temporary agency workers and unemployed workers, sick-

listed due to MSD, after 12-months of follow-up. Cost-effectiveness was evaluated from both the social insurers' and societal perspective. Cost-benefit was evaluated from the societal perspective. The effect outcomes were sustainable first RTW and quality adjusted life years.

Total health care costs in the participatory RTW program group (€10,189; SD 7055) were statistically significantly higher compared to care as usual (€7,862; SD 7394), mainly due to higher Social Security Agency costs associated with the new intervention. The cost-effectiveness analyses from both the social insurer's and societal perspective showed that the new intervention was more effective but also more costly than usual care, i.e. to gain one day earlier RTW by using the participatory RTW program approximately 80 Euros (76 and 82 Euros, respectively) needed to be invested. Furthermore, from a societal perspective, there was a net monetary benefit after 12 months, i.e. every Euro invested was doubled due to the gain in productivity. The net societal benefit of the new participatory RTW program compared to care as usual was 2,073 Euros per worker. Overall, the new RTW program enhanced work resumption of vulnerable workers without (relative) permanent employment relationships, sick-listed due to MSD, enhanced their social participation, and generated a net economic benefit. However, on the one hand, investments were made on the part of the Social Security Agency, i.e. made from public money and, on the other hand, the benefits were on the part of the employers. The realization of shared cost-benefit arrangements between the Social Security Agency and employers, e.g. realization of subsidised (temporary) workplaces, may increase the chance of convincing decision makers and subsequent successful implementation of the new RTW program in daily practice. Furthermore, a potential solution could be to increase the responsibilities of employers with regard to the facilitation of RTW of sick-listed workers without an employment contract. From this perspective, it can be recommended to asses the possibilities to make temporary agencies more responsible for RTW of sick-listed temporary agency workers, i.e. offering a suitable workplace for (therapeutic) RTW and having financial responsibilities with regard to vocational rehabilitation costs. Finally, creating a network of potential (temporary) workplaces and not having to contract commercially operating vocational rehabilitation agencies could reduce the costs for applying the new RTW program.

General discussion

Chapter 8 discusses the findings of this thesis with regard to current evidence. In addition, methodological characteristics of the study are discussed. International literature shows that a global perspective has been adopted to address the multicausality of work disability proposing that RTW interventions should encompass the following three central elements: 1. addressing individual factors, 2. addressing work(place) factors, and 3. involvement of the various stakeholders. We believe all three elements were sufficiently incorporated in our newly developed participatory RTW program, namely: work disability management tailored to the needs of the sick-listed worker to remove the (individual) barriers to RTW, i.e. making of a tailor-made consensus-based RTW action plan; addressing work factors by offering the possibility of a suitable temporary (therapeutic) workplace for RTW; and stimulating strong involvement of the different stakeholders involved in the RTW process of the worker. Moreover, application of the IM protocol for intervention development and implementation ensured a clear focus on actual RTW and integration of the intervention program into regular vocational rehabilitation practice. In addition, the new RTW program offered the possibility of work resumption in a temporary (therapeutic) workplace, thus facilitating the change of focus from work disability to functional abilities in a early stage after reporting sick by letting the worker experience that work resumption in suitable work is possible. This focus on early recovery of activities, including RTW, was in our study identified as a facilitator for implementation. Moreover, this change of goal setting towards not only recovery of health but also towards function restoration already has been adopted in current Dutch OHC guidelines as formulated by the Netherlands Society of Occupational Medicine (NVAB).

Furthermore, findings suggest that societal support for supported employment interventions, e.g. IPS interventions in the US and the Danish Flex-jobs Scheme, helps work disabled workers to successfully (re)enter the labour market. However, Dutch employers may be hesitant in employing workers with functional limitations. From this perspective, societal thoughts about RTW and enhancing a sustainable contribution to the labour force of (more) vulnerable workers without an employment contract and workers with flexible labour agreements needs to shift. Towards an understanding

that investing in strengthening of the labour supply and a continued strengthening of measures targeting integration of vulnerable workers is of vital importance for the welfare of not only the individual worker but Dutch society as a whole.
Finally, besides offering the possibility of supported employment to facilitate RTW, recognition of the importance of incorporation of work disability management and RTW as part of an integrated health care approach to improve functioning in working life can be the first step towards a more sustainable contribution of vulnerable work disabled workers who experience a distance towards the labour market.

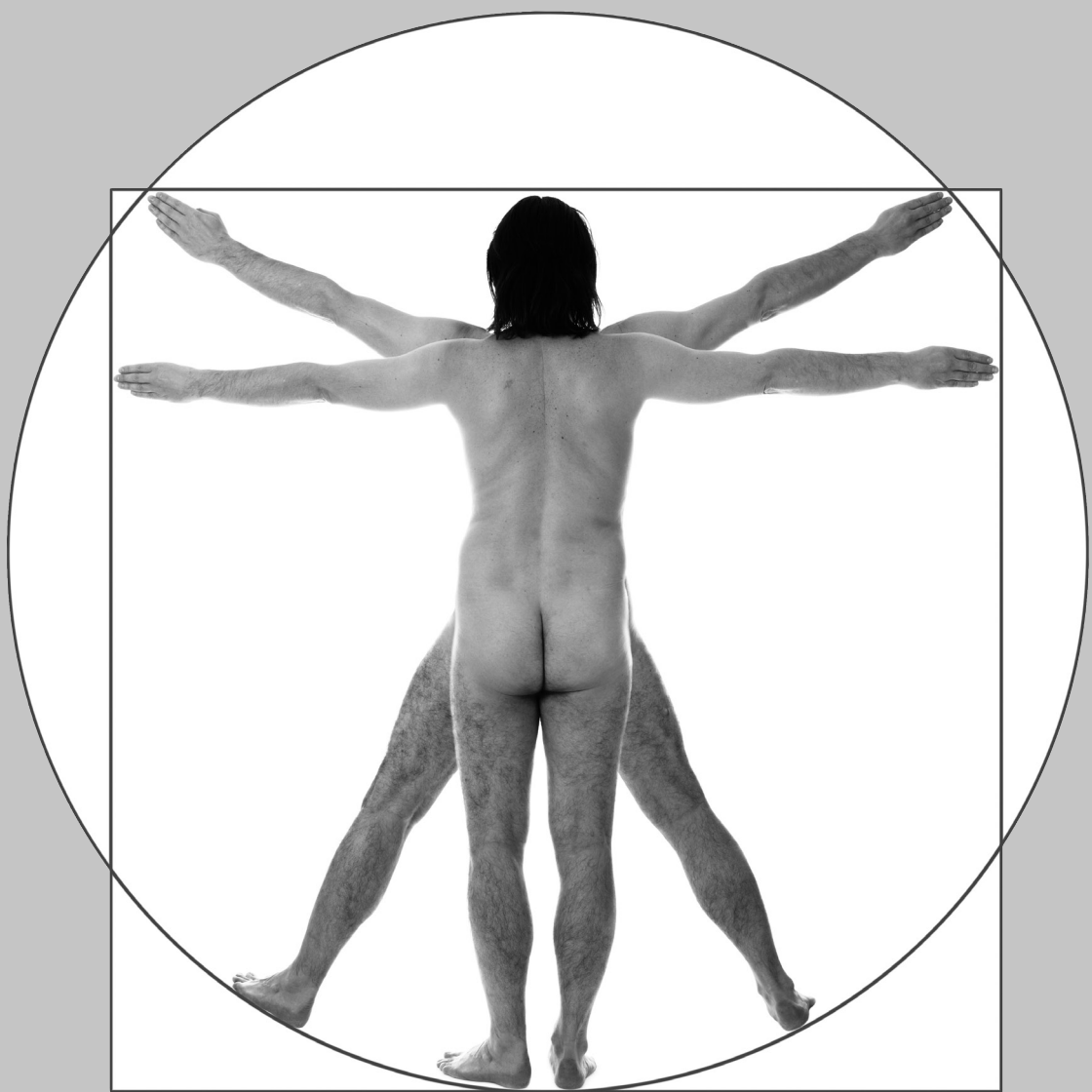
Recommendations

The main recommendations for future research are:

- To perform studies with a longer follow-up to investigate RTW patterns after one year (from baseline).
- To explore long-term disability benefit patterns. To see if an earlier sustainable return to the labour market in the first year results in a decrease of (awarded) long term disability benefit claims.
- To perform exploratory subgroup analyses to uncover what works best for whom (and at what cost).
- To investigate if the participatory RTW program is also (cost-)effective for other groups of sick-listed workers without an employment contract, for instance workers with chronic MSD or workers with mental health disorders

The main recommendations for practice and policy are:

- A fundamental change in Dutch policy is needed to improve labour participation of sick-listed workers without an employment contract. For instance, the realization of arrangements for subsidised temporary workplaces to share costs between society (and thus from public funding), and employers. Furthermore, strengthening of the responsibilities of temporary agencies to offer suitable workplaces for RTW and to have financial responsibilities with regard to vocational rehabilitation costs of sick-listed temporary agency workers.
- Incorporation of study findings in (occupational) health care guidelines. This can contribute to more focus on work-related factors and improve coordinated care between all health care professionals involved and subsequently decrease unnecessary long-term work disability.
- Revision of sickness benefit criteria. In line with the already existing work disability regulation for regular employees, implementation of the participatory RTW program could be facilitated if it would be possible to establish full work ability on the ground of RTW in suitable other work with equal earnings. Moreover, this can help the worker to change the focus towards work ability and possibilities for RTW.
- Utilization of existing expert knowledge of the labour market with the presence of regional job/employer networks to improve availability of temporary workplaces.



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Ziekteverzuim en arbeidsongeschiktheid als gevolg van aandoeningen van het houding- en bewegingsapparaat (HBA) zijn een veelvoorkomend en wezenlijk probleem voor de volksgezondheid met grote economische gevolgen wereldwijd. Tot op heden is het merendeel van het re-integratie-interventie onderzoek gericht op zieke (reguliere) werknemers, dat wil zeggen werkers met een relatief vast dienstverband. Participatieve re-integratie interventies blijken (kosten)effectief voor werkhervatting van zieke werknemers met houding- en bewegingsapparaatklachten, bijvoorbeeld (sub)acute en chronische lage rugpijn. Ontwikkeling van effectieve re-integratie interventies voor zieke werkers zonder (relatief vast) dienstverband is hierbij echter achtergebleven. Echter, deze werkers vormen een kwetsbare groep binnen de beroepsbevolking. In vergelijking met reguliere werknemers ervaren zij een slechtere gezondheid, hebben zij een grotere afstand tot de arbeidsmarkt en een verhoogd risico op (langdurige) arbeidsongeschiktheid. Bovendien hebben deze werkers bij ziekteverzuim in de meeste gevallen geen werkplek/werkgever om naar terug te keren. Vandaar dat er voor deze (meer) kwetsbare werkers behoefte is aan ontwikkeling van re-integratie interventies met actieve betrokkenheid van belangrijke stakeholders en de mogelijkheid van een tijdelijke werkplek voor therapeutische werkhervatting. Dit proefschrift is dan ook gericht op een nieuw ontwikkeld participatief re-integratie programma voor uitzendkrachten en werklozen die zich hebben met ziek gemeld vanwege HBA. De belangrijkste focus van dit proefschrift ligt op de OPSTAP studie, een gerandomiseerde gecontroleerde trial waarin de nieuwe participatieve re-integratie interventie is vergeleken met de gebruikelijke zorg.

Ziekteverzuimbegeleiding en terugkeer naar werk van zieke werkers zonder arbeidsovereenkomst

Hoofdstuk 2 beschrijft cross-sectionele data analyses van een groot Nederlands cohort van werkers zonder een arbeidsovereenkomst (zogenaamde 'vangnetters'), die bij aanvang minimaal 13 weken ziek gemeld waren. Het doel van deze cohort studie was om kenmerken te onderzoeken van deze werkers (zonder arbeidsovereenkomst en tenminste 13 weken ziek gemeld); om de re-integratie inspanningen/activiteiten te onderzoeken voor deze groep zieke werkers; en om de associatie te onderzoeken tussen toegepaste re-integratie interventies en werkhervatting. De resultaten

lieten zien dat zieke werkers zonder arbeidsovereenkomst in deze studie werden gekenmerkt door een laag opleidingsniveau. Verder bleek dat 7-9 maanden na de eerste dag van de ziekmelding het merendeel van de werkers hun gezondheid als (tamelijk) slecht beoordeelden en de meest gerapporteerde reden voor verzuim was klachten aan het houding- en bewegingsapparaat. Verder was 7-9 maanden na de ziekmelding slechts 19% van de werkers (geheel of gedeeltelijk) weer aan het werk, terwijl de meerderheid (81%) van de werkers (nog) niet het werk had hervat. Wat betreft de ontvangen ziekteverzuim- en re-integratiebegeleiding door het UWV was de meest gerapporteerde (49%) re-integratie-interventie: 'werkhervatting is besproken'. Slechts 19% van de werkers gaven aan dat er een plan van aanpak was opgesteld en besproken, terwijl 74% van de werkers rapporteerde dat er geen plan van aanpak was opgesteld door de begeleider van het UWV. Bovendien bleek uit loglineaire regressie-analyse dat er een significant positief verband bestond tussen werkhervatting en de gerapporteerde re-integratie-interventies: 'werkhervatting is besproken' (OR 1.57; 95% CI 1.03 – 2.40) en 'plan van aanpak opgesteld en besproken' (OR 1.87; 95% CI 1.16 – 3.0). De re-integratie-interventie 'verwezen naar een re-integratiebedrijf' was significant geassocieerd met geen werkhervatting (OR 0.52; 95% CI 0.29 – 0.95). Concluderend, er is verder onderzoek nodig om op maat gemaakte re-integratie-interventies te ontwikkelen, om de frequentie en inhoud van de verzuim- en re-integratiebegeleiding te optimaliseren en het effect van deze interventies op werkhervatting van zieke werkers zonder (relatieve vast) dienstverband te evalueren.

Ontwikkeling van een participatieve terugkeer naar werk methode voor zieke werkers zonder dienstverband

In hoofdstuk 3 wordt de gestructureerde ontwikkeling beschreven van een participatieve terugkeer naar werk methode voor uitzendkrachten en werklozen, die zich hebben ziek gemeld vanwege HBA. Het Intervention Mapping protocol werd gebruikt om theorie, wetenschappelijke evidence en de praktijk te combineren bij het vormgeven van een op maat gemaakt terugkeer naar werk programma. Gebaseerd op een eerder ontwikkelde kosteneffectieve participatieve re-integratie-interventie voor werknemers met subacute lage rugpijn. Intervention Mapping bood de unieke

kans om de mogelijkheden van het nieuwe terugkeer naar werk programma te analyseren, rekening houdend met de specifieke factoren van de context waarin het re-integratieprogramma werd geïmplementeerd en toegepast. Het Attitude - Sociale invloed - Eigen effectiviteit (ASE) model was het theoretisch raamwerk voor determinanten van gedrag ten aanzien van werkhervatting van de zieke werker en de ontwikkeling van de nieuwe re-integratie-interventie. Belangrijke stakeholders werden betrokken bij alle stappen van ontwikkeling en implementatie van het re-integratieprogramma, namelijk directie en management van UWV, staffunctionarissen en professionals werkzaam binnen de Ziektewet bij UWV, vertegenwoordigers van grote (landelijke) uitzendbureaus, en vertegenwoordigers van re-integratiebureaus. Het werd duidelijk dat het ontbreken van een feitelijke werkplek om naar terug te keren en beperkte mogelijkheden voor werkhervatting in (tijdelijk) aangepast werk werden beschouwd als belangrijke obstakels voor werkhervatting. Vervolgens werden de resultaten van semigestructureerde interviews en 'fine-tuning' bijeenkomsten gebruikt om het definitieve participatieve terugkeer naar werk programma te ontwerpen. Het volgen van het Intervention Mapping protocol resulteerde in een re-integratie-interventie gericht op vroege werkhervatting, actieve betrokkenheid van de zieke werker, meer contact met de Ziektewet professionals van het UWV, het maken van een plan van aanpak voor werkhervatting op basis van consensus, de mogelijkheid van een tijdelijke (therapeutische) werkplek voor werkhervatting en structurele communicatie tussen alle betrokken partijen.

Opzet van het onderzoek

Hoofdstuk 4 beschrijft de opzet van een gerandomiseerde gecontroleerde trial naar de kosteneffectiviteit van het nieuw ontwikkelde participatieve terugkeer naar werk programma voor uitzendkrachten en werklozen die zich hebben ziek gemeld vanwege HBA, in vergelijking met de gebruikelijke zorg. Vijf front-offices van het UWV en vier grote Nederlandse uitzendbureaus (Olympia, Adeux, Capability, en Randstad Rentree) gevestigd in het Oosten van Nederland namen deel aan het onderzoek. De onderzoekspopulatie bestond uit uitzendkrachten en werklozen die tussen de 2 en 8 waren ziek gemeld met HBA als de belangrijkste gezondheidsklacht voor de Ziektewet claim. De belangrijkste exclusiecriteria waren: een conflict met het

UWV met betrekking tot een Ziektewet claim of een WIA claim; niet in staat zijn om vragenlijsten in het Nederlands in te vullen; een juridisch conflict, bijvoorbeeld een lopende letselschadeprocedure; en een eerdere ziekteverzuimperiode als gevolg van HBA binnen een maand voor de huidige Ziektewet claim. Het nieuwe participatieve terugkeer naar werk programma bestond uit een gestructureerd stapsgewijs protocol gericht op het maken van een plan van aanpak voor werkhervatting op basis van consensus met de mogelijkheid van een tijdelijke (therapeutische) werkplek voor werkhervatting. Resultaten werden gemeten bij aanvang, en daarna na 3, 6, 9 en 12 maanden. De primaire uitkomstmaat was de duur van de Ziektewetuitkering vanaf de eerste dag van randomisatie tot het beëindigen van de Ziektewetuitkering gedurende tenminste 4 weken zonder (gedeeltelijke of volledige) herleving van de Ziektewetuitkering. Secundaire uitkomstmaten waren: tijd tot duurzame eerste werkhervatting (gedefinieerd als de duur in kalenderdagen vanaf de dag van randomisatie tot werkhervatting in betaald regulier werk of regulier werk met ondersteunende Ziektewetuitkering voor tenminste 28 opeenvolgende dagen), het totaal aantal dagen Ziektewetuitkering gedurende follow-up, functionele status, pijnintensiteit en de ervaren gezondheid.

Effectiviteit van het participatieve terugkeer naar werk programma

Hoofdstuk 5 evalueert de effectiviteit van het participatieve terugkeer naar werk programma in vergelijking met de gebruikelijke zorg voor uitzendkrachten en werklozen, die ziek gemeld zijn vanwege HBA. In totaal werden 163 werkers, tussen de 2 en 8 weken ziek gemeld als gevolg van HBA, willekeurig toegewezen aan het participatieve terugkeer naar werk programma (n = 79) of aan de gebruikelijke zorg (n = 84). De mediane duur tot duurzame eerste werkhervatting was 161 dagen in de interventiegroep en 299 dagen in de gebruikelijke zorggroep. Daarnaast bleek uit de per-protocol analyse een mediane duur tot duurzame werkhervatting van 157 dagen in de interventiegroep versus 330 dagen in de controlegroep. Het nieuwe terugkeer naar werk programma resulteerde in een niet-significante vertraging in werkhervatting tijdens de eerste 90 dagen (mogelijk door meer intensieve betrokkenheid na instroom in het nieuwe participatieve terugkeer naar werk programma), gevolgd door een statistisch significant voordeel in werkhervatting

na 90 dagen (hazard ratio van 2.24 [95% betrouwbaarheidsinterval 1.28 – 3.94] p = 0.005). Beide groepen verbeterden gedurende de 12 maanden follow-up wat betreft hun functionele status, pijnintensiteit en ervaren gezondheid. Er was geen statistisch significant verschil tussen beide groepen. Bovendien, hoewel niet statistisch significant, had het nieuwe terugkeer naar werk programma een negatieve invloed op de duur van de Ziektewetuitkering (intention-to-treat: mediaan van 69 dagen; per-protocol: mediaan van 59 dagen). Dit was vooral vanwege het feit dat in de meeste gevallen de therapeutische werkplekken werden aangeboden met doorbetaling van de Ziektewetuitkering. Het totaal aantal gewerkte dagen in deze tijdelijke werkplekken vertegenwoordigden 95% van het verschil in de totale duur van de Ziektewetuitkeringen tussen beide groepen.

Haalbaarheid van het participatieve terugkeer naar werk programma

Hoofdstuk 6 evalueert de haalbaarheid van het participatieve terugkeer naar werk programma voor uitzendkrachten en werklozen, die ziek gemeld zijn vanwege HBA. De haalbaarheidstudie betrof een deel van de studiepopulatie, namelijk de deelnemers die werden toegewezen aan het participatieve terugkeer naar werk programma. Het doel van de studie was het beschrijven van de omvang van de implementatie van het participatieve terugkeer naar werk programma, de tevredenheid en ervaringen van alle betrokkenen, en de ervaren barrières en bevorderende factoren voor implementatie van het participatieve terugkeer naar werk programma in de dagelijkse praktijk. Na toewijzing aan de interventiegroep zijn zeven deelnemers niet gestart met het participatieve terugkeer naar werk programma. De belangrijkste reden om niet te beginnen was volledig herstel van HBA voor aanvang van het programma. In totaal hebben 38 van de 72 interventiedeelnemers, die startten met het programma, ook deelgenomen aan de bijeenkomsten met de procescoach met als doel het maken van een plan van aanpak voor werkhervatting op basis van consensus. In totaal werden 98 belemmeringen voor werkhervatting geïdentificeerd en geprioriteerd. De meest genoemde belemmeringen voor werkhervatting hadden te maken met fysieke werkbelasting, woon-werkverkeer, een laag opleidingsniveau/werkniveau, werkinhoud en het werkrooster. In totaal werden 30 interventiedeelnemers doorverwezen naar een re-integratiebureau waarvan 19 werkers daadwerkelijk

werden geplaatst in een tijdelijke (therapeutische) werkplek. Verder kregen drie werkers een tijdelijke (therapeutische) werkplek via het persoonlijk netwerk van hun arbeidsdeskundige en vier werkers vonden zelf een passende werkplek. De meerderheid van de zieke werkers voelde zich serieus genomen tijdens de bijeenkomsten met de Ziektewetprofessionals en de algemene tevredenheid was goed (63% met de verzekeringsarts, 66% met de arbeidsdeskundige en 72% met de procescoach). Bovendien ervoer de meerderheid van de arbeidsdeskundigen een positieve bijdrage van de aanwezigheid van de procescoach. Het programma werd grotendeels uitgevoerd volgens het protocol. Echter, het aanbieden van geschikte tijdelijke werkplekken kostte meer tijd (45 dagen langer). De resultaten van deze studie wijzen op een algehele haalbaarheid voor implementatie van het participatieve terugkeer naar werk programma in de dagelijkse praktijk. Echter, voor implementatie in de praktijk moet aandacht worden geschonken aan de volgende belangrijke belemmeringen: het verbeteren van het tijdig aanbieden van geschikte tijdelijke werkplekken; de programma doelen en de rollen van de professionals duidelijker omschrijven; de administratieve tijdinvestering verminderen, en het bieden van extra steun voor werkers met complexe multi-causale gezondheidsproblemen.

Kosteneffectiviteit van het participatieve terugkeer naar werk programma

Hoofdstuk 7 beschrijft een economische evaluatie van het participatieve terugkeer naar werk programma in vergelijking met de gebruikelijke zorg voor uitzendkrachten en werklozen, die ziek gemeld zijn vanwege HBA. De kosteneffectiviteit is na 12 maanden follow-up geëvalueerd vanuit zowel het perspectief van UWV als het maatschappelijk perspectief. Kosten-baten werden geëvalueerd vanuit het maatschappelijk perspectief. De effect uitkomsten waren duurzame eerste werkhervatting en Quality Adjusted Life Years. De totale gezondheidszorgkosten in de interventiegroep (€ 10.189; SD 7055) waren statistisch significant hoger in vergelijking met de gebruikelijke zorg groep (€ 7.862; SD 7394), voornamelijk als gevolg van hogere UWV kosten samenhangend met de nieuwe re-integratie-interventie. De kosteneffectiviteit analyses vanuit zowel het UWV perspectief als het maatschappelijk perspectief lieten zien dat de nieuwe re-integratie-interventie effectiever was, maar ook duurder dan de gebruikelijke zorg. Voor één dag eerdere

werkhervatting met behulp van het participatieve terugkeer naar werk programma moest ongeveer 80 euro (76 en 82 euro, respectievelijk) worden geïnvesteerd. Verder bleek er vanuit het maatschappelijk perspectief een netto financiële opbrengst na 12 maanden. Dat wil zeggen elke geïnvesteerde euro werd verdubbeld als gevolg van winst in productiviteit. De netto maatschappelijke baten van het nieuwe participatieve terugkeer naar werk programma (ten opzichte van de gebruikelijke zorg) was 2.073 euro per werker. Over het geheel genomen bevorderde het nieuwe terugkeer naar werk programma werkhervatting van kwetsbare werkers zonder (relatief) vast dienstverband, die ziek gemeld waren als gevolg van HBA. Tevens verbeterde de nieuwe re-integratie-interventie de maatschappelijke participatie van de werkers en leverde het een netto economisch voordeel op. Echter, enerzijds werd er geïnvesteerd door het UWV en dus betaald met publiek geld, terwijl anderzijds de (productiviteit)opbrengsten voor de werkgevers waren. Het maken van afspraken over gedeelde kosten en baten tussen het UWV en werkgevers, bijvoorbeeld over realisatie van gesubsidieerde (tijdelijke) werkplekken, kan helpen beleidsmakers te overtuigen en een succesvolle implementatie van het nieuwe terugkeer naar werk programma in de dagelijkse praktijk te bevorderen. Bovendien kan een mogelijke oplossing zijn om werkgevers meer verantwoordelijkheid te geven met betrekking tot het faciliteren van werkhervatting van zieke werkers zonder een arbeidsovereenkomst. Vanuit dit perspectief kan worden aanbevolen na te gaan wat de mogelijkheden zijn om uitzendbureaus meer verantwoordelijk te maken voor re-integratie van zieke uitzendkrachten. Hierbij kan gedacht worden aan het aanbieden van een passende werkplek voor (therapeutische) werkhervatting en financiële verantwoordelijkheden met betrekking tot het betalen van re-integratie kosten. Tot slot kan het creëren van een netwerk van potentiële (tijdelijke) werkplekken en het niet hoeven te contracteren van commercieel opererende re-integratiebureaus de kosten verminderen voor de toepassing van het nieuwe terugkeer naar werk programma.

Algemene discussie

Hoofdstuk 8 gaat in op de bevindingen van dit proefschrift met betrekking tot huidige wetenschappelijke inzichten. Bovendien worden methodologische aspecten van de studie besproken. Internationale literatuur toont dat een globaal perspectief is aangenomen gericht op de multicausaliteit van arbeidsongeschiktheid, waarbij re-integratie-interventies de volgende drie centrale elementen moeten omvatten: 1. het aanpakken van individuele factoren, 2. het aanpakken van werk(plek) factoren, en 3. betrokkenheid van de verschillende stakeholders. Wij zijn van mening dat alle drie elementen voldoende zijn opgenomen in het nieuw ontwikkelde participatieve terugkeer naar werk programma, te weten: 1. management van arbeidsongeschiktheid afgestemd op de behoeften van de zieke werker om de (individuele) belemmeringen voor werkhervatting weg te nemen; 2. het aanpakken van werk(plek)factoren door het aanbieden van een geschikte tijdelijke (therapeutische) werkplek voor werkhervatting; en 3. het stimuleren van sterke betrokkenheid van de verschillende belanghebbenden bij het re-integratie proces van de werker. Bovendien zorgde het toepassen van het Intervention Mapping protocol bij de interventieontwikkeling en de implementatie voor een duidelijke focus op het realiseren van feitelijke werkhervatting en het integreren van het interventieprogramma in de reguliere praktijk van verzuimbegeleiding en re-integratie. Het nieuwe re-integratieprogramma biedt de mogelijkheid van werkhervatting in een tijdelijke (therapeutische) werkplek. Het bevordert de verandering van focus van arbeidsongeschiktheid naar functionele mogelijkheden in een vroeg stadium door de werker te laten ervaren dat werkhervatting in geschikt werk mogelijk is. Deze focus op snel herstel van activiteiten, inclusief werkhervatting, werd in onze studie geïdentificeerd als een bevorderende factor voor implementatie. Bovendien sluit deze dubbele focus op gezondheidsherstel én herstel van functioneren aan bij de huidige Nederlandse richtlijnen voor verzuimbegeleiding en re-integratie zoals geformuleerd door de Nederlandse Vereniging voor Arbeid- en Bedrijfsgeneeskunde (NVAB).

Tevens laten (internationale) bevindingen zien dat maatschappelijk draagvlak voor ondersteunende terugkeer naar werk interventies, bijvoorbeeld IPS (Individual Placement & Support) interventies in de VS en de Deense Flex-Jobs regeling, helpt om arbeidsgehandicapte werkers met succes de arbeidsmarkt te laten (her)betreden.

Echter, Nederlandse werkgevers kunnen terughoudend zijn als het gaat om het in dienst nemen van werknemers met functionele beperkingen. Een verandering van de maatschappelijke visie is daarom nodig ten aanzien van re-integratie en het bevorderen van een duurzame bijdrage van (meer) kwetsbare werkers zonder (vaste) arbeidsovereenkomst aan de beroepsbevolking. Richting een bewustwording dat investeren in het versterken van het arbeidsaanbod en een verdere versterking van maatregelen gericht op re-integratie van kwetsbare werkers van vitaal belang zijn voor het welzijn van niet alleen de individuele werker, maar de Nederlandse samenleving als geheel.

Tot slot, naast het aanbieden van de mogelijkheid van een werkervaringplek om werkhervatting te vergemakkelijken, kan het onderkennen van het belang van het integreren van verzuimbegeleiding en re-integratie in een geïntegreerde gezondheidszorgaanpak een belangrijke eerste stap zijn om het functioneren in werk te verbeteren. Om zo een meer duurzame bijdrage te kunnen bevorderen van kwetsbare arbeidsgehandicapte werkers die een afstand ervaren ten opzichte van de arbeidsmarkt.

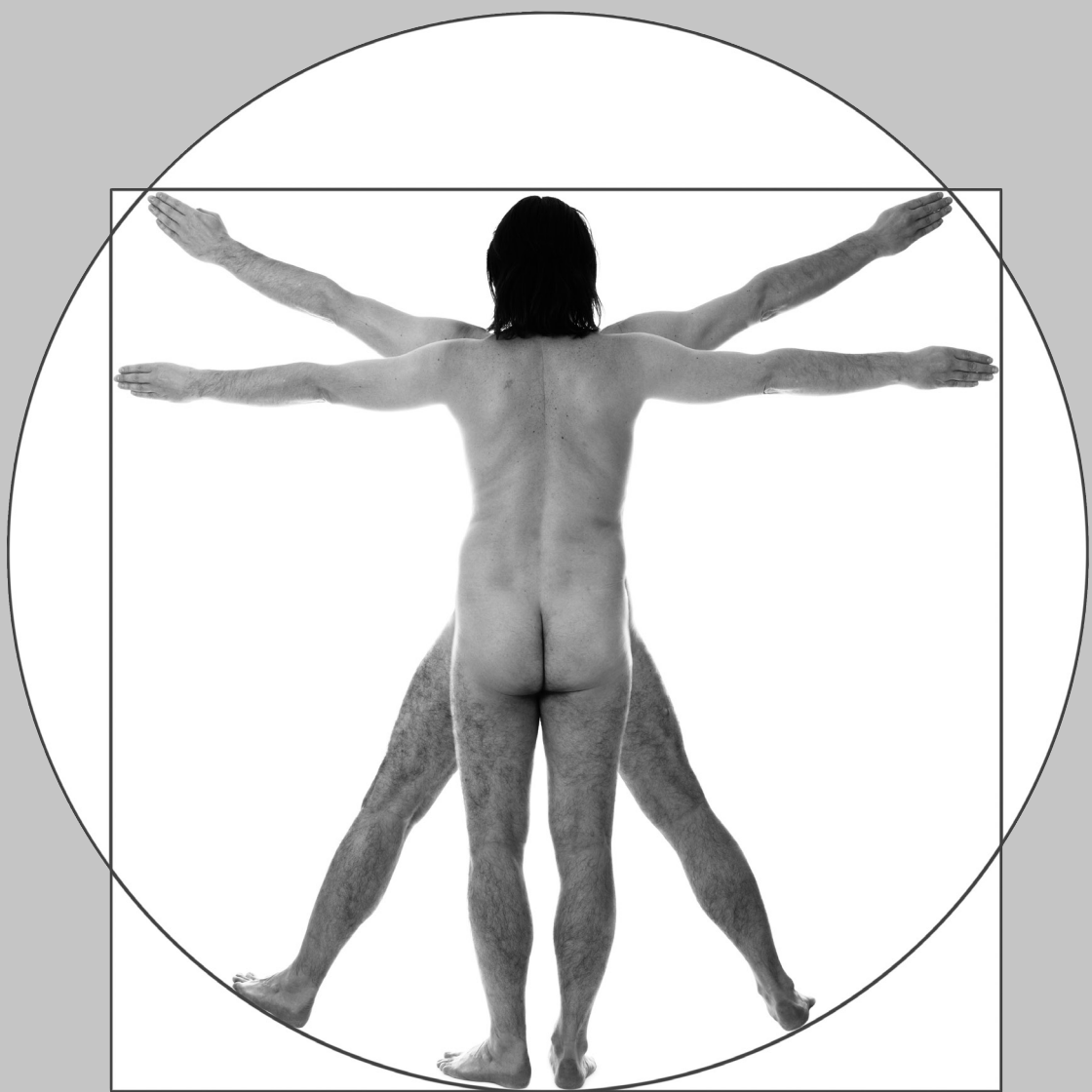
Aanbevelingen

De belangrijkste aanbevelingen voor toekomstig onderzoek zijn:

- Studies met een langere follow-up om werkhervattingpatronen na een jaar (ten opzichte van baseline) te onderzoeken.
- Exploreren van patronen van arbeidsongeschiktheidsuitkeringen. Om vast te stellen of een eerdere duurzame terugkeer naar de arbeidsmarkt in het eerste jaar resulteert in een daling van (toegekende) arbeidsongeschiktheidsuitkeringen.
- Verkennende subgroep analyses om te achterhalen wat het beste werkt voor wie (en tegen welke kosten).
- Onderzoeken of het participatieve terugkeer naar werk programma ook (kosten)effectief is voor andere groepen zieke werkers zonder arbeidsovereenkomst, bijvoorbeeld werkers met chronische HBA of werkers met psychische stoornissen.

De belangrijkste aanbevelingen voor de praktijk en het beleid zijn:

- Een fundamentele beleidsverandering om de arbeidsparticipatie van zieke werkers zonder een arbeidsovereenkomst, zogenaamde vangnetters, te verbeteren. Een voorbeeld is het realiseren van een regeling voor gesubsidieerde tijdelijke werkplekken om zo de kosten te kunnen delen tussen de samenleving (en dus met overheidsmiddelen gefinancierd) en werkgevers. Een andere mogelijkheid is het zorgen voor meer verantwoordelijkheid van uitzendbureaus om passende werkplekken te bieden voor werkhervatting. Tevens is het van belang ervoor te zorgen dat zij meer financiële verantwoordelijkheid krijgen met betrekking tot de re-integratie van zieke uitzendkrachten.
- Integreren van de onderzoeksbevindingen in (bedrijf)gezondheidszorg richtlijnen. Dit kan bijdragen aan meer aandacht voor werkgerelateerde factoren en het verbeteren van gecoördineerde zorg tussen alle betrokken zorgverleners. Op die manier wordt de kans op onnodige langdurige arbeidsongeschiktheid verminderd.
- Herziening van de Ziektewet criteria. In lijn met de reeds bestaande arbeidsongeschiktheidregeling voor reguliere werknemers, kan de implementatie van het participatieve terugkeer naar werk programma worden vergemakkelijkt als het mogelijk is om volledige arbeidsgeschiktheid vast te stellen op grond van werkhervatting in ander werk met gelijke verdiencapaciteit. Bovendien kan dit de werker helpen om de focus te veranderen richting arbeidsgeschiktheid en mogelijkheden voor werkhervatting.
- Gebruik van bestaande kennis en expertise met betrekking tot de arbeidsmarkt, inclusief de aanwezigheid van een regionaal netwerk van werkplekken/werkgevers, om zo de beschikbaarheid van tijdelijke werkplekken te verbeteren.



Dankwoord

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Het is zover. Met het schrijven van mijn dankwoord komt er een afronding aan mijn proefschrift! Een heerlijk gevoel om na meerdere jaren hard werken aan mijn promotieonderzoek nu terug te kunnen kijken. Er zijn veel mensen betrokken geweest bij het project OPSTAP. Ik ben hen allen dankbaar. Zij hebben een belangrijke bijdrage geleverd aan het tot stand komen van dit proefschrift. Maar ook familie en vrienden wil ik in het zonnetje zetten. Ik ben hen dankbaar voor hun liefde, steun en betrokkenheid.
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(Co-)promotoren

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Co-auteurs

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Onderzoeksassistentie

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EMGO+ collega's

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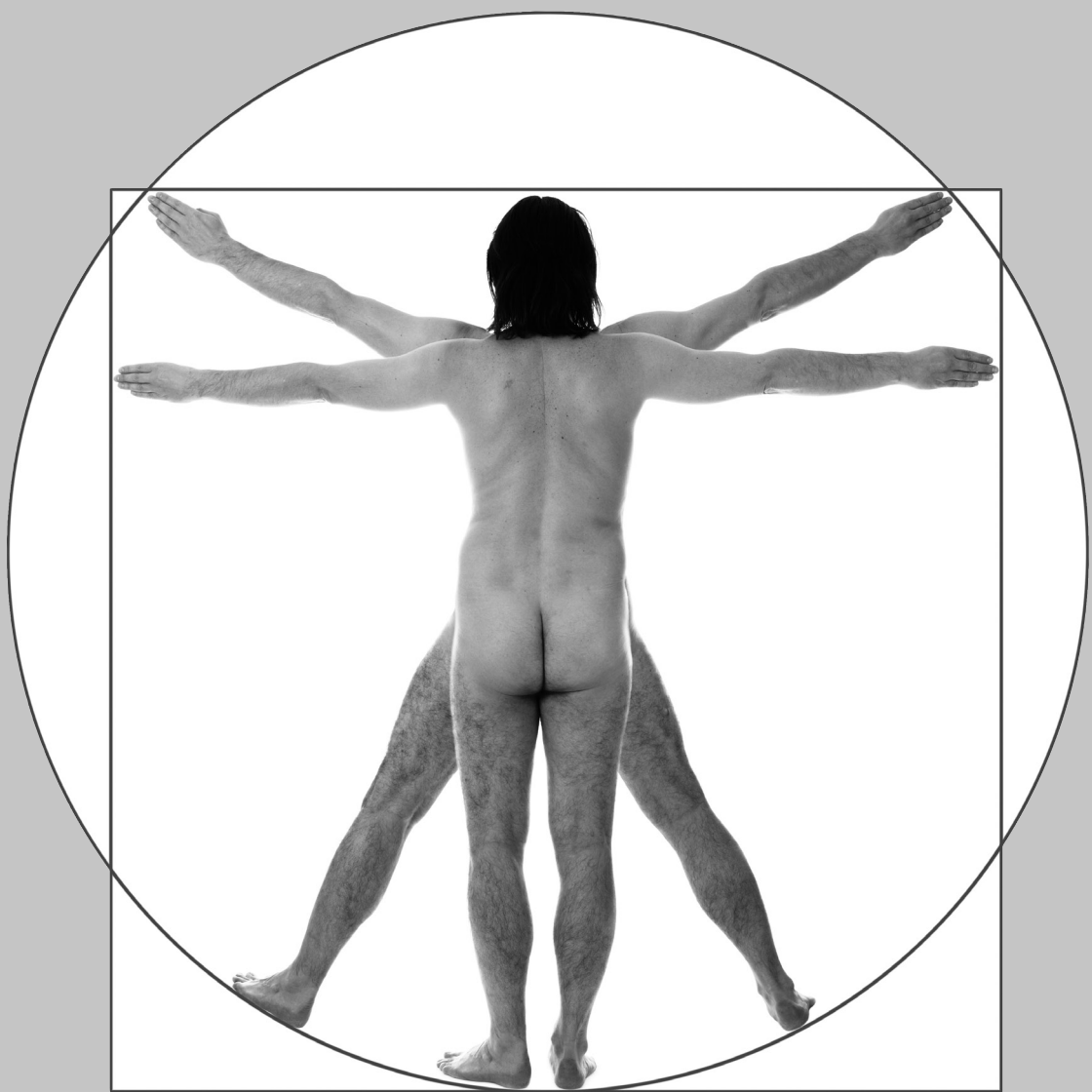

About the author

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Sylvia Vermeulen was born on March 18th 1974 in Utrecht, the Netherlands. After completing secondary school at the Sint Bonifatius College in 1992, she studied Medicine at the Utrecht University. After graduating with honours she received her medical degree in 1998. She then specialised in social insurance medicine and in 2004 she was registered.

In 2006 Sylvia started working as a junior researcher at the Dutch Research Center for Social Insurance Medicine, a collaboration between the VU Medical Center, the Academic Medical Center, the University Medical Center Groningen and UWV.
For her PhD project, she worked at the Department of Public and Occupational Health, EMGO Institute for Health and Care Research, VU University Medical Center, Amsterdam. Where she performed a randomised controlled trial to evaluate the effectiveness and cost-effectiveness of a participatory return-to-work program for temporary agency workers and unemployed workers, sick listed due to musculoskeletal disorders. The results of this project are presented in this thesis.

In 2006 Sylvia was awarded with the *Talmapenning 2006* by the Dutch Association for Insurance Medicine (NVVG) for best relevant publication in the field of insurance medicine in 2006. In 2008 and in 2010 Sylvia received the *KCVG Exchange Trophy* for best research project of the year.

Currently, Sylvia is working an insurance physician and senior researcher at the Dutch Research Center for Social Insurance Medicine, Department of Public and Occupational Health, VU University Medical Center.