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ORIGINAL ARTICLE



Motivation in the return to work process: a self-determination cluster approach

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ABSTRACT

Purpose: Motivation may predict return to work (RTW), yet the measurement of motivation needs more scientific evidence. We adopt a dimensional approach, based on the self-determination theory (SDT), distinguishing between amotivation, controlled and autonomous motivation. We seek to explore the presence of these dimensions in sick-disabled patients, and are interested in associations with quality of life, depression, patient's predictions of RTW, and health care provider estimations of patient's motivation.

Materials and methods: A cross-sectional study in 336 patients was conducted. Motivation was assessed using the Motivation at Work Scale (MAWS) and examined in relation to patient outcomes, patient's prediction of RTW, and health care provider estimations of patients' motivation. A cluster analysis was performed, and differential associations between motivational profiles were explored.

Results: Cluster analysis revealed four profiles. Highly controlled profiles were most prevalent, reported poorer mental quality of life, and expected a longer time before RTW, regardless of the level of autonomous motivation. Interestingly, the health care provider's estimation was not related to controlled motivation.

Conclusions: Our results show that SDT may help to differentiate people with a work disability regarding their motivation to RTW. Most notably, the devastating consequences of controlled motivation are discussed, and clinical implications are provided.

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KEYWORDS

Self-determination theory; motivation; return to work; work disability; vocational rehabilitation; quality

► IMPLICATIONS FOR REHABILITATION

- Assessing the different dimensions of motivation in the context of RTW will be a significant advance as the self-report measures appear to be viable tools.
- Controlled motivation, which indicates that people are motivated to RTW but only because they "have to", has negative consequences yet a high prevalence and should therefore be addressed by the practitioner.
- Practitioners should keep in mind that employees are motivated by several motives at the same time, with some being more beneficial than others.
- Controlled motivation can be converted into autonomous (i.e., good quality) motivation by supporting autonomy of the patient, by supporting their relationships with colleagues, managers, and health care providers and by supporting their feeling of competence in the RTW process.

Introduction

Work disability

Work disability is a rising problem holding a high societal and individual cost across the world [1]. For example, in the USA, the disability benefits represent just over 10% of all social expenditure, while in Norway this number has risen up to 20% [2]. In Belgium, the costs for work disability have even overgrown the costs of unemployment [3]. At the individual level, long-term work disability is related to financial difficulties, future unemployment, psychological difficulties, social exclusion, and a slower medical recovery [4]. Given that the European Union aims to stimulate participation of all citizens in society [5], delayed return to work (RTW) due to prolonged work disability has become a critical point of concern [6]. However, more research is needed to provide a broader scientific base to understand RTW and to provide stakeholders with tools to improve practice [4].

RTW can be conceived in different ways. A classic view relates to a biomedical framework. This view assumes that after the disease is diagnosed, treatment should ameliorate the patient's health complaints and (work) activities can be resumed. Although this view has long dominated medical and RTW thinking, it is now highly contested for several reasons: the biomedical framework can for example not explain why there is a large variation in reported health complaints among patients with equal objective pathology and why some patients do resume work although they still report health complaints, while others do not.

In contrast to the biomedical framework, the biopsychosocial perspective highlights the importance of a myriad of factors, being biological (e.g., virus, lesion), psychological (e.g., stress, motivation), and social (e.g., work environment) in nature. All these factors and their interactions affect patients' health complaints, suffering, and RTW rate [6,7]. In line with the emergence of biopsychosocial thinking, the concept of motivation is becoming

increasingly important in the context of RTW. The RTW framework of Talmage aligns with this biopsychosocial perspective [8] and evaluates work disability based on three pillars: risk, capacity, and tolerance. *Risk* is defined as the chance of harm to the patient or others if the patient would return to the work context. In case of a risk, a restriction is being put in place. *Capacity* is the objectively measured functional physical or mental ability to resume working. *Tolerance* is the ability for sustained work or activity at a given level. It describes the worker's motivation to reengage in work and is dependent on the subjective experience of obstacles (e.g., pain or fatigue) and rewards (e.g., money, recognition of colleagues) available to the patient for work resumption.

The concept of tolerance has been criticized for not be objectively or scientifically verifiable [9]: different physicians will often find it difficult to agree on issues relating to the work tolerance of the same patient. Due to such difficulties, the concept of tolerance has often been neglected, which withheld scholars and practitioners from adopting the biopsychosocial model in the RTW context. We content that psychological science may help to overcome this issue by giving further insight into the concept of tolerance, which is closely linked to the well-studied construct of motivation.

Berglund and Gerner [10] describe motivation to work as a prerequisite for RTW among people that have been away from the labor market due to illness and both quantitative and qualitative studies indicate the importance of motivation in RTW [11–14]. However, in the context of RTW, motivation is most often measured by a mere estimation of the researcher or health care worker of whether the participant is motivated or not (cfr. top layer of Figure 1) [15,16]. Such a measurement is simple and face valid. However, it reduces the complex phenomenon of motivation to a simple dichotomy: a patient is motivated (1) or not (0). Moreover, there is often little agreement between physicians' intuitive ratings of the readiness and motivation of sick-listed employees to RTW [17]. This accentuates the need for a better conceptualization of motivation in RTW. Self-determination theory (SDT) [18] may help to advance our insights into the concept of motivation and assist in the adoption of the biopsychosocial model on disability and rehabilitation.

Quality versus quantity of work motivation: a self-determination theory perspective

SDT has been introduced in the 1970s by Edward Deci and Richard Ryan, and has been extensively applied ever since, in

various fields. Whereas other theories in psychological science mainly approach motivation in terms of how strongly people are motivated (a continuous quantitative approach), SDT maintains that higher levels of motivation do not necessarily yield more desirable outcomes if the motivation is of poor quality [19]. Specifically, apart from *amotivation*, which represents a lack of motivation, SDT differentiates various qualitative different types of motivation, which can be ordered on a self-determination continuum (Figure 1) ranging from non-self-determined or controlled types of motivation to fully self-determined or autonomous types of motivation. In case of *external* motivation people's behavior is initiated by contingencies external to the person. People are then motivated to pursue a desired outcome (e.g., a financial bonus) or avoid an undesired one (e.g., getting fired) which is controlled by others. *Introjected* motivation is also a controlled form of motivation but is contingent upon rewards and punishments within the person itself: when introjected, people engage in certain behavior to feel proud or worthy, or they avoid feelings of shame and guilt. In case of *identified* regulation, people feel greater freedom and volition because they engage in particular behavior because it is congruent with their own goals (e.g., a physician would be identified if she puts effort into her job because she wants to make a difference in the lives of her patients). With *intrinsic* motivation, people are motivated for their work because it is interesting and fun.

External and introjected motivation are *controlled* forms of motivation: the reason people engage in an activity lies outside themselves and, they act out of internal or external pressure [18]. Controlled motivation is likely to go along with feelings of internal conflict and pressure at the expense of quality of life [18]. In the context of RTW, a controlled motivation for returning to work could for example be: financial reasons (i.e., replacement benefits are nearly always lower than people's wage), because others (e.g., spouse, manager) expect them to RTW (i.e., because they fear getting fired when they are off from work for a longer period of time).

Identified and intrinsic motivation on the other hand, are *autonomous* forms of motivation. People then see the reason for their actions as coming from themselves: they have internalized the reason for engaging in the activity, they find personal value in the activity or they enjoy the activity itself. When being autonomously motivated, people experience psychological freedom while engaging in the activity. In the context of RTW, people with autonomous motivation may for example RTW, because they

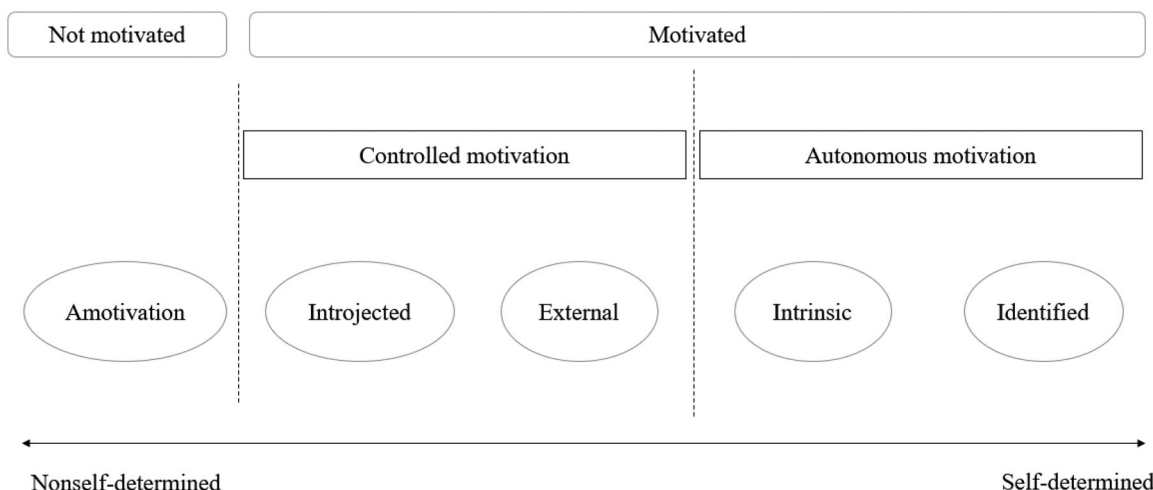


Figure 1. The self-determination continuum ranging from amotivation, over controlled motivation (external, introjected) to autonomous motivation (identified, intrinsic).

enjoy their job as a car mechanic, they see their job as a nurse as a calling, or they believe their job as a teacher is important.

To become more autonomously motivated, SDT assumes that people should have three basic psychological needs satisfied [19]. The need for *autonomy* refers to the experience of a sense of volition and self-endorsement of behavior. The need for *competence* refers to the experience of a sense of effectiveness in interacting with one's environment. The need for *relatedness* refers to the desire to feel connected to significant others [18]. The satisfaction of these psychological needs prevents controlled motivation and fosters autonomous motivation [20]. It also improves mental health. Deprivation or frustration of these needs leads to more controlled motivation, reduced autonomous motivation, and poor well-being. There is considerable support for these assumed associations between need satisfaction and well-being in a general health context [21–23], and the idea of basic psychological needs seems valuable in research on RTW too.

In sum, SDT expects that autonomous motivation yields more beneficial outcomes than controlled motivation. Several studies confirm this expectation in showing that mental wellbeing and professional functioning increase when employees [24] and unemployed people [25] have more autonomous and less controlled motivation. Having more autonomous than controlled motivation is for example related to more job satisfaction, work engagement, organizational commitment, as well as decreased burn-out and turnover intentions [24,26–29]. A recent meta-analysis furthermore indicated that autonomous motivation is also critical for health behavior change and its maintenance [22].

Notably, people may pursue certain activities for various reasons. Teachers may for example RTW both because they need the money and enjoy teaching. Cluster analysis allows to capture such motivational profiles. It divides participants into mutually exclusive groups that display high homogeneity and maximally differ from each other. Previous research revealed that workers scoring high on autonomous motivation, reported most job satisfaction, work enthusiasm and the lowest levels of burnout, while profiles with controlled motivation displayed the least optimal outcomes. This supports the hypothesis that autonomous motivation is far more important in promoting positive workplace outcomes [30,31].

SDT in work disability

Whereas SDT has already proven its usefulness in the context of work to understand, e.g., job satisfaction, engagement, and burn-out-rates [32–35]. Research applying SDT to the context of work disability is scarce. Building on previous research and theorizing [8,10], we however content that developing further insights in the role of motivation in the context of RTW based on SDT will help to develop a more encompassing view on which factors – apart from patients' bodily functions – can facilitate RTW. Various meta-analyses show that there are indeed many more factors in RTW than mere bodily dysfunction, supporting the biopsychosocial approach [35]. Motivation is one of these factors, but it is currently studied in a rather limitative way: the approach that currently dominates the RTW literature [15,31] and is still widely applied in practice, is an assessment patient's motivation based on the post hoc estimation (dichotomous: yes/no) of the health care provider. In this study, we want to provide evidence for a dimensional approach using SDT.

We expect that a difference can be made between work disabled people's amotivation, controlled motivation, and autonomous motivation and that patients may simultaneously display

different types of motivation toward RTW. Based on previous research using the same set of variables and methodological approach [31], we expect to identify participants with divergent motivational profiles. We hypothesize (Hypothesis 1) that different types of motivation can co-exist in a sense that four different clusters can arise based on these two dimensions including people who have (1) only autonomous, or (2) only controlled motivation, but also people (3) scoring high on both or (4) low on both motivation types.

We hypothesize (Hypothesis 2) that profiles characterized by high autonomous motivation (in the absence of controlled motivation) will relate to more beneficial outcomes (i.e., fewer depressive symptoms, better mental quality of life, more satisfaction of the basic psychological needs, and lower expected duration of work disability). We expect profiles characterized by high autonomous (with or without co-existing controlled motivation) to report more beneficial outcomes compared to profiles reporting controlled motivation or not reporting any type of motivation.

Finally, we also hypothesize (Hypothesis 3) that the quality of motivation as assessed by the patients themselves in terms of SDT shows very low to no correlations with the estimation of the patient's motivation assessed by the health care provider. Examining this hypothesis has important practical significance. The health care worker's estimation of the patient's motivation is currently the golden standard in clinical practice. If this approach appears to lack sensitivity, a more objective and dimensional approach may be needed and warranted.

Materials and methods

Participants and procedure

Participants were recruited via the Alliance of Christian Sickness Funds between January 2018 and April 2019. When being work disabled in Belgium, people have the right to receive a sickness benefit from the government, which is paid by a sickness fund. Criteria to receive this benefit are assessed by the social security physician and team of paramedics on average after 3 months of work disability. All participants having a first appointment with the physician or paramedic, received information about the study. Participants thus were work disabled for minimum 3 months. They were asked to read and complete the informed consent in the waiting room. After consenting to participate, they had the opportunity to complete the questionnaire. Questionnaire data were coded such that participant code and data could only be linked by the researcher. Ethical approval was obtained from the SMEC (Social Societal ethical committee), code G-2017 10 955.

Participants completed a set of measures assessing motivation, health related quality of life, and a depression screening. Occupational status and diagnosis were extracted from the data of the social security company.

Measures

Motivation at work

The Motivation at Work Scale (MAWS) [36] measured the four subscales of motivation (external, introjected, identified, and intrinsic) and amotivation. The scales for external (e.g., to avoid getting fired) and introjected (e.g., otherwise I wouldn't feel proud of myself) motivation are aggregated into the controlled motivation subscale. Identified (e.g., because this job is in line with my personal values) and intrinsic (because I'm having fun at work) motivation aggregated to autonomous motivation. Amotivation (e.g., I do not make efforts for this job, I have the feeling I am wasting

my time) was rated as a separate scale. Responses were made on a seven-point scale from 1 (strongly disagree) to 7 (totally agree). Cronbach's alpha for this measure was $\alpha=0.84$ for controlled motivation, $\alpha=0.82$ for autonomous motivation, and $\alpha=0.76$ for amotivation.

Basic psychological needs

The Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) [37–39] was used to assess basic psychological need *satisfaction* (four items; e.g., I feel I have been doing what really interests me; e.g., I feel I can successfully complete difficult tasks) and basic psychological need *frustration* (e.g., I feel insecure about my abilities; e.g., I feel the relationships I have are just superficial). Responses were made on a five-point scale from 1 (not true at all) to 5 (completely true). Cronbach's alpha for need satisfaction was $\alpha=0.87$ and for need frustration $\alpha=0.88$ in the current study.

Health-related quality of life

The six-item Short-Form version 2 (SF-36v2) [40], Dutch version, was used to measure health related quality of life. The SF-36v2 measures health status as the extent to which physical health impacts on functional ability and perceived well-being in mental, social, and physical aspects. Responses were captured on a three-to seven-point scale. The scores were summated into eight multi-item scales: physical functioning (e.g., how limited are you in carrying groceries), limitations due to physical health problems (role-physical; e.g., accomplished less than you would like), bodily pain (e.g., How much bodily pain have you had during the past 4 weeks), general health (e.g., I seem to get sick a little easier than other people), vitality (e.g., did you have a lot of energy), social functioning (e.g., how much of the time has your physical health or emotional problems interfered with your social activities), limitations due to emotional health problems (role-emotional; e.g., didn't do work or other activities as carefully as usual), and mental health (e.g., have you been a very nervous person). These scales were aggregated into a physical component summary and a mental component summary.

Depression

Patient-reported outcome measures (PROMs), defined as “a measurement of any aspect of a patient's health status that comes directly from the patient” [41] was used to screen for depressive symptoms. Due to the perceived advantages in efficiency and feasibility, there is growing interest in short (5–20 item) or ultra-short (1–4 item) measures [42]. In this study, the four-item PROMIS Short Form v1.0 – Depression 4a was used (e.g., I feel helpless, I feel depressed, etc.). Cronbach's alpha for this scale was $\alpha=0.90$.

Expectancy of RTW

Participants were asked what the chances (on a 1–10 scale) would be for them to RTW within 3 months.¹

Expected duration of work disability

Participants were asked how many months they estimated their work disability would last.²

Estimation of motivation by the health care provider

Motivation was also measured as a binary estimation of the social security physician or the paramedic. After the consult, the social security physician or paramedic was asked if he/she perceived the patient as motivated (1) or not (0) by the face valid question: “do you think this patient is motivated to return to a work context?”

[15,31]. Only one paramedic was willing to participate to this part of the study.

Data analysis

The data were analyzed using IBM SPSS statistics version 26 (Armonk, NY). In the preliminary results, Pearson's correlations were used to investigate the associations between age, amotivation, controlled motivation, autonomous motivation, basic psychological need satisfaction and frustration, physical and mental quality of life, depressive symptoms, patients' expectation of the total duration of work disability, patients' expectation of RTW within 3 months and the motivation (binary) as estimated by the health care provider. A cluster analysis was performed, this was followed by a MANOVA, ANOVA, and pairwise comparisons using Tukey's honestly significant difference test to examine mean-level differences between the motivational groups for the same variables as described in the preliminary results.

Results

Descriptive statistics and pre-analyses

Figure 2 shows the participant flow. To be eligible for the study, individuals had to (1) be between 18 and 65 years old, (2) be able to speak and read Dutch fluently, (3) have the right to receive a sickness benefit after 3 months of work disability, (4) have cognitive and comprehensive abilities to complete a questionnaire, and (5) give informed consent. Eligible participants (559) were informed of the study when they arrived at the center. In total, 366 participants could be included in this study.

Demographic variables, medical diagnosis, and occupational sector were extracted from the data of the social security company. About one-third (33.7%) were male and 66.3% female (Table 1). Concerning the educational level, 7.9% of the participants did not have a high school degree, 43.9% had a

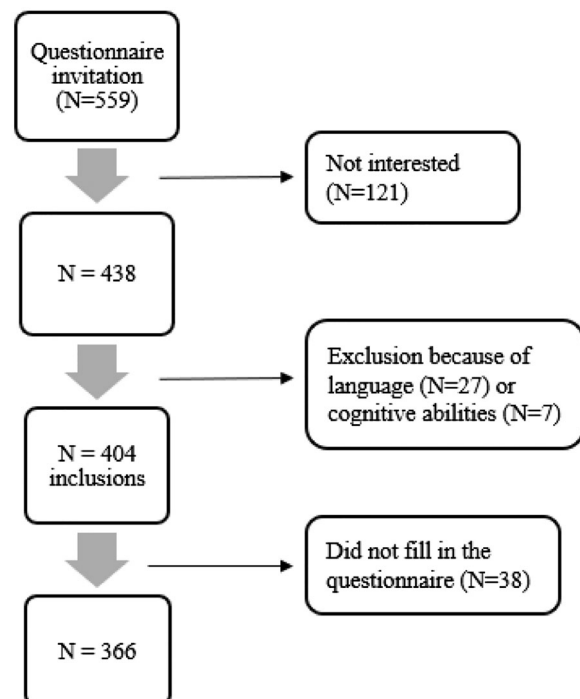


Figure 2. Participant flow.

Table 1. Means and standard deviation on age, work disability, as well as correlation coefficients for all study variables.

	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	40.89 (9.90)	1											
2. Amotivation	1.96 (1.20)	-0.05	1										
3. Controlled	4.23 (1.26)	-0.11	0.17**	1									
4. Autonomous	5.02 (1.13)	0.10	-0.49***	0.16**	1								
5. NeedSat	3.61 (0.69)	0.12*	-0.27***	-0.35***	0.35***	1							
6. NeedFru	2.46 (0.77)	-0.06	0.32***	0.48***	-0.23***	-0.71***	1						
7. QOLph	2.02 (0.97)	-0.18**	0.17**	0.04	-0.03	-0.05	0.04	1					
8. QOLm	3.15 (0.63)	0.10	-0.15*	-0.38***	0.08	0.40***	-0.47***	0.13*	1				
9. Depression	2.58 (0.99)	-0.11	0.20**	0.35***	-0.14*	-0.46***	0.60***	-0.09	-0.74***	1			
10. Expectation	6.59 (2.71)	0.17	0.06	0.12	-0.11	0.03	0.00	-0.06	-0.14	0.06	1		
11. ChanceRTW	6.29 (2.93)	0.00	0.02	-0.21*	0.08	0.05	-0.21*	0.24**	0.10	-0.20*	0.24	1	
12. Estimation	0.71 (0.45)	-0.04	-0.16*	0.06	.19**	0.19**	-0.20**	0.11	0.10	-0.25***	-0.11	0.35	1

NeedSat: needs satisfaction; NeedFru: needs frustration; QOLph: physical quality of life; QOLm: mental quality of life; expectation: patients' expected duration of the total duration of work disability; Exp3: patients' expectation (chance) of RTW within 3 months; Est: motivation (binary; yes = 1, no = 0) as estimated by the health care provider. *N* ranges from 130 to 366 due to missing data. Pearson's correlation * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

professional education, 20.2% had a high school degree, 18% had a bachelor's degree, and 9.8% had a master's degree. Participants were working in service and sales (21.8%), doing manual labor (20.4%), or were craft and related trades workers (16.3%), scientific personnel and teachers (15.8%), clerical support workers (8.7%), unemployed people (4.4%), managers (3.8%), machine operators and assemblers (3.8%), technicians and associate professionals (3%), and farmers (2%). Diagnoses were prescribed by a physician of the curative sector, based on the ICD-10 (International Classification of Diseases version 10) [41]: 41.2% of the participants were on sick leave because of a mental illness (ICD 10 V), 45.6% had a musculoskeletal condition (ICD 10 XIII and XIX), 4.1% had a chronic fatigue or chronic pain condition, 2.2% had deviant laboratory results (ICD 10 XVIII), 1.9% had a neurologic condition (ICD VI), 1.1% had cancer (ICD 10 II), 1.1% had a disease of the circulatory system (ICD IX), remaining categories were infections (I), endocrine diseases (IV), diseases of the ear (VIII), diseases of the respiratory system (X), diseases of the skin (XII), conditions containing the perinatal period (XVI), malformations (XVII), and other (XXI).

Handling of missing data

Missing data were handled by listwise deletion except for the correlation analysis where a pairwise deletion was used.

Descriptive statistics and correlations

Table 1 presents mean scores and standard deviations as well as correlation coefficients for all study variables. Compared to the mean in a random sample of Dutch speaking participants [31], the mean scores in this sample were higher for amotivation (1.09 in the general population) and for controlled motivation (3.52). The mean score for autonomous motivation in the current study was slightly lower than the average (5.33).

The different types of motivation were intercorrelated: amotivation correlated positively with controlled motivation and negatively with autonomous motivation. Controlled motivation was positively associated with autonomous motivation.

In line with SDT, amotivation and controlled motivation showed negative correlations with basic psychological need satisfaction and positive correlations with need frustration. Autonomous motivation was positively correlated with basic psychological need satisfaction and negatively with need frustration.

Amotivation correlated positively with physical quality of life and negatively with mental quality of life. Controlled motivation was related to more depressive symptoms, and showed negative correlations with mental quality of life, and the expectancy to RTW within 3 months. Autonomous motivation correlated with less depressive symptoms.

There were no significant correlations between the types of motivation and the patient's own expectancy of the duration of work disability. Patients' estimation of their changes to RTW within three months was negatively correlated to controlled motivation. It was also negatively related to depressive symptoms, and positively correlated to physical quality of life.

Patients amotivation was negatively correlated with the estimation of the patient's motivation reported by the health care provider. Controlled motivation was unrelated to this estimation, while autonomous motivation was positively related to it.

Cluster analysis and regression analysis

To shed light on Hypothesis 1, an exploratory cluster analysis was performed. In preparation of the cluster analysis, autonomous and controlled motivation were standardized [43]. Then, a hierarchical cluster analysis was performed based on squared Euclidian distances and Ward's method [44], which counts the sum of squared distances of individuals from the centers of their clusters, and merges clusters to minimize this. This process continues until one homogeneous cluster is formed. We removed univariate and multivariate outliers based on Mahalanobis distance values since hierarchical cluster analysis is sensitive to outliers that can lead to undesirable combinations of clusters that persist throughout the analysis [45]. The number of clusters is based on *a priori* theorizing and explanatory power. In the following step, an iterative k-means clustering procedure was used based on the initial cluster extracted according to Ward's method. These clusters are then compared for agreement with the original cluster by means of Cohen's kappa. As shown in Figure 3, and in line with Hypothesis 1, four clusters were formed: (1) autonomous (HA-LC) profile characterized by high autonomous and low controlled motivation (22%), (2) controlled (LA-HC) profile typified by low autonomous and high controlled motivation (31%), (3) a lowly motivated (LA-LC) profile characterized by low autonomous and low controlled motivation (14%), and (4) a highly motivated (HA-HC) profile characterized by high autonomous and high controlled motivation (33%).

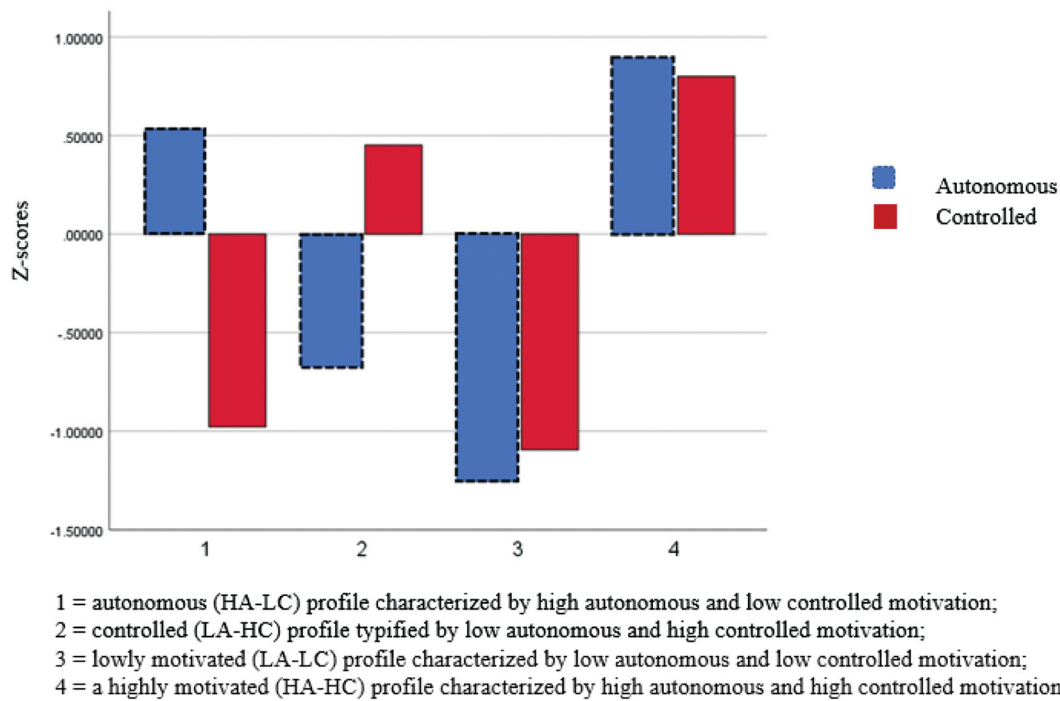


Figure 3. Z-scores of autonomous and controlled motivation in the four-cluster solution.

Table 2. Characteristics of the clusters.

	HH	Autonomous	Controlled	LL	<i>F</i>	η^2
Total <i>N</i> (%)	33%	22%	31%	14%		
NeedSat	3.38 ^a	4.10 ^c	3.63 ^{a,b}	3.80 ^{b,c}	$F(3,236)=14.76^{***}$	0.16
NeedFr	2.66 ^b	1.86 ^a	2.58 ^b	2.08 ^a	$F(3,236)=17.31^{***}$	0.18
Qph	43.91	43.58	42.42	40.77	$F(3,265)=0.29$	n.s.
Qm	41.40 ^b	55.52 ^a	39.02 ^b	55.87 ^a	$F(3,363)=12.09^{***}$	0.12
Dep	60.24 ^b	54.65 ^a	61.25 ^b	54.54 ^a	$F(3,262)=12.06^{***}$	0.12
Expectation	5.79	6.53	6.91	7.07	$F(3,111)=0.85$	n.s.
RTWchance	6.28	7.42	5.76	6.83	$F(3,99)=1.53$	n.s.
Estimated	0.83a	0.82 ^a	0.61 ^b	0.68 ^{a,b}	$F(3,251)=5.51^{**}$	0.05

HH: a highly motivated (HA-HC) profile characterized by high autonomous and high controlled motivation; autonomous: autonomous (HA-LC) profile characterized by high autonomous and low controlled motivation; controlled: controlled (LA-HC) profile typified by low autonomous and high controlled motivation; LL: lowly motivated (LA-LC) profile characterized by low autonomous and low controlled motivation; NeedSat: needs satisfaction; NeedFr: needs frustration; Qph: physical quality of life; Qm: mental quality of life; Dep: depression; expectation: patients' expectation of the total duration of work disability; RTWchance: patients' expectation (chance) of RTW within 3 months; estimated: motivation (binary; yes = 1, no = 0) as estimated by the health care provider.

Cluster means are significantly different if they have different subscripts.

** $p < 0.01$.

*** $p < 0.001$.

To shed light on Hypothesis 2, we used MANOVA, ANOVA, and pairwise comparisons using Tukey's honestly significant difference test to examine mean-level differences between the four motivational groups in terms of basic psychological need satisfaction and frustration, depressive symptoms, quality of life, estimated duration of work disability, and the estimation of motivation by the health care provider across the clusters.

Regarding the basic psychological need satisfaction, the autonomous group (HA-LC) reported most need satisfaction, followed by the lowly motivated group (LA-LC), and the lowest reports were found for the controlled group (LA-HC) and highly motivated group (HA-HC). In terms of need frustration, both clusters who reported to have a highly controlled motivation (group HA-HC and LA-HC) show the least favorable outcomes compared to the clusters who reported to have a low controlled motivation (HA-LC and LA-LC) (Table 2).

There was a significant difference in reported depressive symptoms. More depressive symptoms were reported in the clusters who reported to have a highly controlled motivation (HA-HC and LA-HC), regardless of the degree to which they were autonomously motivated. Worse mental quality of life was also related to a highly controlled motivation. No differences were found for the patient's own expectancy of the duration of work disability nor for the patients' expected RTW within 3 months. Since we hypothesized that profiles characterized by high autonomous (with or without co-existing controlled motivation) would have more beneficial outcomes compared to profiles reporting controlled motivation, Hypothesis 2 was only partially met. In our results, autonomous motivation generally resulted in better outcomes only in absence of controlled motivation.

Finally, as respects Hypothesis 3, results showed that the work disabled in the various clusters differed in terms of the health

care worker's assessment of their motivation. The clusters with higher autonomous motivation (HA-LC and HA-HC) were perceived as more motivated by the health care provider. No other differences were found. These results are in line with Hypothesis 3, since the estimation by the health care provider seemed not related to controlled motivation and therefore an important aspect of motivation is missed.

Discussion

The current study aims at providing a suitable theoretical framework for the conceptualization and measurement of motivation in work disability, using the SDT. SDT is an evidence-based framework which emphasizes the importance of differentiating among qualitative different types of motivation, being amotivation, controlled and autonomous motivation. A dichotomous approach to motivation, we argued, will lead to an obvious concern. In fact, motivation may be associated with desirable outcomes, but may have negative outcomes when motivation is of poor quality.

Our findings point out that we indeed are able to differentiate among high-quality motivation (i.e., autonomous motivation) and motivation that is of lower quality (i.e., controlled motivation) by probing the work disabled themselves. Notably, our results show that the mean for controlled motivation is higher in this sample of people with a work disability compared to the average in a general Dutch-speaking population [36]. The high levels of controlled motivation may indicate that people with controlled motivation may thus be more likely to drop out of work. Alternatively, people with a work disability may develop controlled motivation during their disability: they may experience guilt or shame regarding their job because they have dropped out or feel pressurized to RTW. Given the cross-sectional nature of this study, it remains unclear when these feelings of controlled motivation emerge. Both autonomous and controlled motivation relate to the psychological needs and depression, albeit in different directions, indicating the importance of differentiating among these qualitative different types of motivation. Controlled motivation was the only type of motivation which correlated with the patients' own prediction of longer duration of work disability. Given that such predictions proved to be highly significant in terms of actual RTW in musculoskeletal disorders [46,47] as well as in mental disorders [48,49], these results attest to the importance of considering particularly controlled motivation.

Furthermore, using cluster analysis, we found evidence for four different motivational profiles that differentiated depending on the levels of autonomous and controlled motivation, which is in line with the first hypothesis. We call these: the highly motivated group (HA-HC; 33%), the highly controlled group (LA-HC; 31%), the highly autonomous group (HA-LC; 22%), and the lowly motivated group (LA-LC; 14%). Notably, two-thirds of the participants reported a controlled motivation regarding returning to work (i.e., HA-HC and the LA-HC profiles), while 55% of the participants reported an autonomous motivation (HA-HC and the HA-LC profiles). The four profiles relate differentially to outcomes that are important in the context of RTW: having controlled motivation (HA-HC and LA-HC), regardless of one's level of autonomous motivation, is related to a higher basic psychological need frustration, decreased mental quality of life, and more depressive symptoms. Having autonomous motivation (HA-LC) is related to increased basic psychological need satisfaction and better mental quality of life. This is partially in line with the second hypothesis. Our four-cluster division is in line with existing research in the work and educational context showing that people scoring high

on autonomous motivation report, e.g., most job satisfaction, the lowest levels of burnout, and the most optimal learning whereas the opposite is true for controlled motivation [31,50]. However, the current study also differs from existing research: previous research particularly discovered beneficial effects of autonomous motivation, despite people's level of controlled motivation [18,27,51]. Our results, in contrast, show that, despite the presence of parallel autonomous motivation, controlled rather than autonomous motivation is important to understand the depressive symptomatology of the person with a work disability and their quality of life. Having autonomous motivation does not seem to be a protective factor for the detrimental outcomes when one holds controlled motivation. From our findings, it seems that it is important to differentiate qualitative motivational dimensions, and controlled motivation in particular. It appears that forced motivation to RTW fuels depression and mental distress.

The notion that dimensions of motivation may coincide is of crucial importance. Therefore, autonomous motivation is not "de facto" the most adaptive. Health care providers may very well want to capture autonomous motivation in patients but should be aware under which circumstances this may have adverse outcomes. Our cluster-analysis indeed showed that the co-existence of autonomous motivation with controlled motivation is maladaptive and may have poor outcomes. It is therefore important to capture all motivational dimensions with regard to RTW, which is presumably not easily attained when relying on a mere estimation by the health care provider alone.

Indicative of this, it is important to mention that, in line with Hypothesis 3, the assessment of the motivation measured by the health care provider of the person who is work disabled does not correlate with patient's self-reports of controlled motivation, while correlations are found in the expected directions with patient's reports of autonomous motivation and amotivation. We should however note that the estimation of the health care provider in this study may be biased, as the provider had a background in SDT. Therefore, the provider could have been primed toward recognizing primarily autonomous motivation as being indicative of motivation. It may very well be that the recognition of autonomous motivation may have been overestimated. However, despite this background, the assessment of controlled motivation turns out to be a difficult task. Hence, it seems that much of the complex nature of patients' motivation is missed when motivation is being measured by a mere estimation of the participant being motivated or not (dichotomy) as perceived by the health care provider [15,16,31]. It seems that amotivation and autonomous motivation are more obvious to the perception of the health care provider. The more subtle traits of controlled motivation are overlooked, although this type of motivation proved most important for understanding patient's well-being and expectations of RTW. This lack of insight might nourish the existing hopping between long-term unemployment and long-term sickness. Inspection authorities of unemployment funds often exert pressure on the unemployed to retain jobs. Many unemployed, therefore, are found in attempts to find a definite label that legitimately would allow them to fall back on the sickness funds. Forcing one to retain a job under these circumstances is related to a non-sustainable way of returning to work and, possibly, high relapse rates. Quite plausibly, patients high in controlled motivation may mistakenly be rated as non-motivated, a label that may further fuel frustration among patients and lead to more negative responses in the long term.

On a smaller note, our results also indicated that participants reported a considerable amount of depressive symptoms. People

unemployed due to physical health conditions often have unrecognized co-morbid mental health issues [52]. In the current research, there was a strong correlation of depressive symptoms with the health care provider's assessment of the motivation of the patient. It is therefore plausible that health care providers often confuse depressive symptoms such as inhibition or lack of initiative with amotivation. This is particularly worrisome. If depression is underdiagnosed in primary care settings, this may prevent patients to get inadequate treatment [53]. Within the context of work disability, underdiagnosis of depression may prevent sick-disabled from getting the right approach, and be disbelieved even forced to work, ultimately increasing drop-out rates and pertaining to high numbers of work disability and costs.

Limitations

This study has several limitations. First, the current study is cross-sectional. Therefore, work disability might have a negative impact on autonomous motivation rather than the other way around. To determine causality and understand whether autonomous and controlled motivation may predict actual RTW, longitudinal studies should be performed. Second, given that we used questionnaires, our results are largely based on subjective data and social desirability cannot be excluded. To avoid such biases as much as possible, we guaranteed in the informed consent that participation in the study would not influence their sickness benefit or the evaluation of work disability. Despite these guarantees, only half of the participants completed the expected duration of work disability, and particularly people in the high controlled cluster were less likely to complete this question. Future research should therefore take into account the prudence of work disabled possible participants. Third, the estimation of the health care provider was only covered by one health care provider, who was already educated in SDT. It would also be interesting to gather assessments of a more heterogeneous sample of health care providers. Fourth, the current research includes a wide range of diagnoses. It could be interesting to elaborate research on the dimensionality for each diagnosis separately.

Recommendations for practice

We would like to challenge the leading practice to assess motivation in the context of RTW using a face valid measurement in favor of more evidence-based practices.

First, it is important that practitioners try to decrease the controlled motivation of the people with a work disability and foster their autonomous motivation. Our results show that motivation of low quality could impact the patient's own expectation of duration before returning to work and their well-being in terms of depression and quality of life. Williams et al. [54] for example describe how to influence people's basic psychological needs and therefore their motivation. They describe that one can support autonomy by eliciting and acknowledging people's perspectives and life aspirations, providing a clear rationale for change, triggering effective options for change, supporting self-initiations for change, and minimizing pressure and control. One can support competence by offering relevant feedback and helping to establish a behavior-change plan. Relatedness can be supported by relating to patients in an empathic, non-judgmental manner. The satisfaction of these basic needs will lead to more autonomous motivation, and subsequently also to wellbeing, while the frustration of these needs will lead to pathology [55]. A recent longitudinal study demonstrated that a vocational rehabilitation program

(i.e., program that helps people with work disabilities to keep or find a job) can successfully increase well-being when it makes use of the principles underlying SDT [56–58]. These results, together with the current study, underline the importance of health care practitioners' providing support for their patients' autonomy, competence, and relatedness to reduce controlled motivation and improve autonomous motivation, well-being, physical activity, and RTW in the context of vocational rehabilitation. Further on, in order to address the frustration of the basic psychological needs and prevent controlled motivation, it is important to discuss need frustrating experiences with the patient and to encourage the patient to engage in activities that satisfy their needs. Besides personal costs for the patient in terms of mental quality of life, controlled motivation may also result in economic costs since the patient expects a longer duration of work disability in case of underlying controlled motivation. Future research will need to point out whether low quality motivation impacts the actual duration of work disability.

Second, social security physicians and paramedics, but also occupational physicians and general health care providers, should keep in mind that employees are motivated by several factors at the same time, with some being more beneficial than others. It appears that autonomous motivation is easier to notice compared to controlled motivation, but especially when both types are combined, only assessing autonomous motivation will result in missing out on the detrimental consequences of controlled motivation. This would then lead to persistent lower quality of life and dissatisfaction regarding the work context as well as possible longer duration before returning to work.

Third, assessing the different dimensions of motivation in the context of RTW will be a significant advance. The self-report measures used in this study appear to be viable tools, and these should be considered for use in practice. Patient reports offer good insight into the complex experience of motivation, a complexity that is not easily noticed by health providers' estimations alone. Rarely captured seems to be controlled motivation, which is problematic, as we observe it to be related to more negative outcomes within the context of RTW.

Conclusions

A dimensional reappraisal of motivation within the context of RTW focuses on different qualitative dimensions that are important in itself, and that also may coincide, leading to differential outcomes. By using SDT, we found that controlled motivation is highly prevalent among people with a work disability and has negative implications that are not buffered by the presence of autonomous motivation. Capturing these dimensional profiles is challenging, and not easily attained through reliance on health care provider's estimations alone. We advocate the use of valid tools, such as the self-reports using in this study, that enable to capture the complex dimensionality of motivation regarding RTW. A dimensional approach, we suspect, will further help to optimize RTW practice and reduce costs due to work disability in the long term.

Notes

1. Only 230 of the 366 participants filled in this item.
2. Only 130 participants filled in this question.

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