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Psychometric Properties of the Readiness for Return to Work Scale in Inpatient Occupational Rehabilitation in Norway

Tore N. Braathen · Søren Brage · Gunnar Tellnes ·
Monica Eftedal

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Abstract *Aim* To investigate internal consistency and construct validity of the Readiness for return to work (RTW) scale in a sample participating in a Norwegian inpatient occupational rehabilitation program. *Methods* A cross-sectional study was conducted on baseline measures from a prospective cohort study evaluating a 5 days inpatient occupational rehabilitation program. The participants in the program were 18–67 years, on sickness absence or at risk of sickness absence (N = 193). The Readiness for RTW scale, sociodemographic-, work- and health-related questionnaires were answered by the participants on their first day in the program. Statistical analysis included exploratory factor analyses, reliability analyses and correlations with related instruments. *Results* In the scale for those not working (N = 124) two factors were found, representing (1) RTW inability and (2) RTW uncertainty. These factors corresponded to the precontemplation and contemplation stages in a previous Canadian study. The original prepared for action stages were not identified in this sample. In the scale for those working shortly before the program (N = 60) two factors were identified, representing (1) Uncertain work maintenance and (2) Proactive work maintenance, comparable to the stages in the Canadian study. The factors had satisfactory internal

consistency (Cronbach's alpha >0.7), except for proactive work maintenance (Cronbach's alpha = 0.59). Expected relationships were found between the readiness for RTW stages and the pain stages of change, fear avoidance beliefs for work, subjective health complaints, decision control and coping at work. *Conclusion* Internal consistency and construct validity of the readiness for RTW stages found were satisfactory, except for proactive work maintenance. The results indicate that the construct of readiness for RTW may vary by culture and patient setting.

Keywords Sickness absence · Occupational rehabilitation · Return to work · Readiness for change · Work ability · Measurement

Introduction

Return to work (RTW) after long-term sickness absence can be seen as a behavioral change or process in several stages that workers go through to resume work participation [1, 2]. There is evidence that the person's own RTW perceptions are predictive of future work participation [3–5]. Screening of such perceptions is important in occupational rehabilitation in order to identify which areas the intervention need to address. The readiness for RTW model [2] addresses the motivational factors contributing to RTW behavior and maintenance of work participation. According to this model, the person progresses through stages of change, shifting from the intention not to engage in RTW behavior in the foreseeable future, to the intention and ability to RTW in a sustainable fashion. Identifying which stage persons are in with regard to return to work, will support the rehabilitation personnel's selection of effective and individually tailored interventions. The

T. N. Braathen · S. Brage · G. Tellnes
Department of Community Medicine, Institute of Health
and Society, The University of Oslo, Oslo, Norway

T. N. Braathen (✉) · M. Eftedal
National Centre for Occupational Rehabilitation in Norway,
AiR, Rauland, Norway
e-mail: tore.braathen@air.no

S. Brage
Directorate for Labour and Welfare, Oslo, Norway

readiness for change model posits that, depending on the stage of change of a person, the effectiveness of offered interventions will vary [2]. In that sense, interventions that are stage-based, can target the dimensions of readiness most likely to be modified. E.g: A person in an early readiness for RTW stage, who is highly ambivalent about RTW, might benefit from a discussion with the rehabilitation personnel about the pros and cons of RTW, while a person in a more advanced readiness for RTW stage, may profit from a structured plan regarding gradual increase in work hours or work accommodation [2].

The Readiness for RTW scale was developed and validated in a Canadian cohort study of lost-time claimants with musculoskeletal disorders, assessing stages of readiness for RTW [6]. The scale is divided into two parts: one for persons not working, assessing readiness for RTW; and one for persons working, but at risk of sickness absence relapse, assessing readiness for work maintenance. For persons not working, Franche et al. [6] found four underlying stages in The Readiness for RTW scale: (1) Precontemplation: Workers absent from work due to injury or illness do not yet think about initiating behavior to support RTW. (2) Contemplation: Workers begin to consider RTW in the foreseeable future. Although workers think about pros' and cons', they are not actively engaged in making concrete plans to RTW. (3) Preparation for action–self-evaluative: Workers actively seek information on RTW in the near future, test their abilities to do so, and make concrete plans. (4) Prepared for action–behavioral: Workers put a RTW plan into action. For persons working, Franche et al. found two stages: uncertain and proactive maintenance. The uncertain maintenance group has more functional disability and fear-avoidance, and they struggle to stay at work. The proactive maintenance group includes workers who have found strategies to make work manageable, and use social support to identify and face high-risk situations that can trigger relapse. The psychometric properties of the Readiness for RTW scale confirmed good internal consistency in the Canadian sample [6]. Cronbach's alphas were satisfactory: 0.65 (precontemplation), 0.69 (contemplation), 0.75 (prepared for action, self-evaluative), 0.67 (prepared for action, behavioral), 0.82 (uncertain maintenance) and 0.67 (proactive maintenance). Validity of the scale was supported by demonstrating relationships with depressive symptoms, fear-avoidance beliefs, pain and general health in the hypothesized direction. The readiness for RTW stages were slightly different from the stages in the original readiness for change model [7].

Based on the results of Franche et al. [6], it is of interest to investigate the validity of the Readiness for return to work scale in occupational rehabilitation in Norway, since it has a potential for guiding decision-making and tailoring

individual interventions. After translating a scale, and before using it in a different patient population, it is important to revalidate the scale [8]. In this paper we describe the first validation of the Norwegian version of the scale in persons who are referred to an inpatient interdisciplinary occupational rehabilitation program, and who are on, or at risk of, long-term sickness absence.

Aim

The aim of the study was to investigate the internal consistency and aspects of construct validity of the Readiness for RTW scale in an inpatient occupational rehabilitation context. To examine the construct validity of the scale, the relationships with pain stages of change, fear avoidance beliefs for work, subjective health complaints and psychosocial factors at work were explored as four main hypotheses. We hypothesized that:

1. The stages of readiness for RTW are associated with corresponding stages in readiness for self-management of pain. Research on readiness for self-management of pain has shown that patients with persistent arthritis pain report more severe pain in earlier stages of change [9], and that RTW is associated with lower pain levels [10].
2. High scores on the early stages of readiness for RTW are associated with high fear avoidance beliefs for work. Fear avoidance beliefs for work have been related to the length of time off work and work loss [11–13]. Franche et al. [6] found that earlier stages of readiness for RTW were associated with high fear avoidance beliefs for work.
3. Earlier stages of readiness for RTW are associated with higher levels of subjective health complaints. A study on readiness for self-management of pain has found that persons in earlier stages of change report higher levels of pain-related disability [9]. Perception of better health has been associated with increased RTW [4], and increased levels of subjective health complaints have been associated with sickness absence [14].
4. The proactive maintenance stage is associated with high decision control, leader support and coping at work. An important aspect of control is decision control, i.e. the person's influence on decisions in his or her work situation [15]. Control at work has been associated with RTW [16]. In addition some studies show that workers feel more confident to RTW if supervisors demonstrate support [17, 18], but not all [19]. Furthermore low levels of coping have been associated with increased sickness absence [20].

Methods

Design and Participants

This cross-sectional study was performed on baseline measures from a prospective cohort study evaluating a 5-day inpatient occupational rehabilitation program in Norway in the period October 2008–December 2009. The aim of the program was to help the participants to improve their level of functioning so as to regain and improve their work ability. The rehabilitation clinic received patients 18–67 years old from general practitioners, National Social Insurance offices and hospitals. The participants were either not working, defined as being entirely on sickness absence or other health related benefits, or were working, but at risk of long-term sickness absence. In Norway, a person is entitled to sickness benefits if he/she is incapable of working due to disease, illness or injury. Sickness benefits are paid from the first day of sickness absence for a period of 260 working days (52 weeks). After the sickness absence period, a person can be granted medical and vocational rehabilitation allowance or disability pension. Working part-time in combination with a partial sickness benefit in Norway is widespread. The participants in the rehabilitation program had musculoskeletal disorders, common mental health problems, fatigue or burned out syndrome. Adequate medical treatment and interventions at the workplace should have been carried out before admittance to the program. The criteria for inclusion in the study were completion of the program and being able to understand and complete the questionnaires. A written broad informed consent was obtained from all eligible participants. The project was approved by the regional medical ethics committee in Norway (ID 2010/1903b).

Data Collection

Data were collected through questionnaires on the first day of the program. We asked for:

Background characteristics: Age, gender, marital status, level of education, having children, employment status, work- and benefit-status shortly before the program, type of work and diagnosis.

Readiness for RTW was measured by the Norwegian version of the original Readiness for RTW scale [6]. The original scale was translated forward and backward into a Norwegian version by a professional translation agency. The scale is a 22-item measurement with 13 items for persons not working (Scale A), and 9 items for persons working part-time or full-time (Scale B). Each item is scored on a five point ordinal scale (1 = strongly disagree, 5 = strongly agree) and represents a specific stage: Pre-contemplation (items number A1, A2, A13), contemplation

(A9, A11, A12), prepared for action self-evaluative (A4, A7, A8, A10) or prepared for action behavioral (A3, A5, A6) for persons not working; Uncertain maintenance (B5-9) or proactive maintenance (B1-4) for persons working.

Readiness for self-management of pain was assessed by the Pain stages of change questionnaire (PSOCQ) [21]. It is a 30-item self-report instrument with four subscales representing the precontemplation, contemplation, action and maintenance stages towards adopting a self-management approach to pain.

Fear avoidance beliefs was measured by the Fear avoidance beliefs questionnaire (FABQ) [22]. FABQ assesses the patient's beliefs with regard to the effect of physical activity and work on their pain. We only used the FABQ work subscale, consisting of 7 items on a 7-point scale.

Subjective health complaints were assessed by the Subjective Health Complaints Inventory [23], a 29-item questionnaire regarding common health complaints over the last 30 days, rated on a 4-point scale.

Decision control, leader support and coping at work were measured using questions from the short version of The General Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic 34+) [15].

Statistical Analysis

Descriptive statistics were used on background characteristics of the sample, and on the response distribution on the readiness for RTW items. The working and not working sample were compared by Chi square tests and independent sample *t* tests. Due to a high response rate (90 %), no analysis of non-responders was conducted. The factor structure of the Readiness for RTW scale was analyzed by separate exploratory factor analyses, for the not working and working samples. Early in the analysis process we conducted a confirmatory factor analysis, but when we made respecifications of the original model [6] without reaching an acceptable goodness of fit, we decided to use exploratory factor analysis, as there was still uncertainty about the factor structure of the scale in this population. In these we used generalized least squares extraction method and oblique (direct oblimin) rotation method. Number of factors was chosen based on an evaluation of the scree plot and eigenvalues (above 1.0). Prior to the exploratory factor analysis, the suitability of data for factor analysis was assessed. For both the working and the not working sample, inspection of the correlation matrix revealed the presence of many correlation coefficients of 0.3 and above. The Kaiser–Meyer–Olkin value exceeded the recommended value of 0.6, and Bartlett's Test of Sphericity reached statistical significance, supporting factorability of the correlation matrix. It was decided to drop items with factor

loading <0.3 [24]. We also considered items with communality <0.3 for exclusion [24, 25]. This consideration was based on the importance of the item with respect to the theoretical model and the vulnerability of the factor. When trying out alternative factor analyses methods (maximum likelihood extraction and varimax rotation) the same factor solutions was produced, supporting the stability of the factors in both scales. Reliability analyses were conducted to investigate the internal consistency of the extracted factors. Chronbach's alfa coefficients >0.7 were considered to be satisfactory [26].

Two approaches were used to investigate the construct validity [6]. In the overall approach, a regression factor score was computed on each readiness factor. Then, Pearson correlations between the factor scores and the scores from the other questionnaires were used to test the hypotheses. We expected that the readiness for RTW stages had weak (0.2–0.3) to moderate (0.3–0.6) associations with the related instruments [27]. Weak to moderate correlations with related constructs would support the validity of the scale, while high correlations might suggest a substantial conceptual overlap with related instruments. A stage allocation approach was also conducted. Here, each factor was given a score by taking the mean of all items creating that factor for each person. Persons were allocated to the factor with the highest mean score. The factors were then compared to each other on mean values of the other questionnaires using independent sample *t* tests.

Results

Background Characteristics

Of the 221 persons invited, seven were excluded due to language difficulties or dyslexia. 193 persons completed the questionnaires and gave written consent. Mean age was 44.2 years (SD 10.4) and the educational level was comparable to the distribution in the Norwegian population aged 25–64 years [28] (Table 1). Shortly before the rehabilitation program 31.6 % ($n = 61$) was working either full-time or part-time in combination with partial sickness benefit or rehabilitation allowance, while 132 persons were not working (68.4 %). Among those not working, 59.1 % ($n = 78$) were on sickness absence, and 35.6 % ($n = 47$) were on benefits granted after the sickness absence period of 1 year. In contrast, the not working sample of Franche et al. [6] had been absent from work for a much shorter period of time, with an average of 19 work days at baseline, which was 1 month post-injury. There were no significant differences between those working and those not working regarding gender, age, educational level or type of work. The proportion of mental and behavioral disorders was

higher among those not working (47.6 %) than among those working (28.3 %). The working and not working sample reported similar levels of subjective health complaints ($p = 0.83$). Fear avoidance beliefs for work was lower among the working than the not working ($p < 0.01$), and higher among persons with musculoskeletal disorders than among persons with mental and behavioral disorders

Table 1 Background characteristics of the 193 participants in the 1-week inpatient occupational rehabilitation program

Background characteristics	% (N)
Women	59.1 (114)
Age >45	49.7 (96)
Education ($n = 190$) ^a	
Elementary (10 years or less)	12.6 (24)
Upper secondary education (10–12 years)	51.6 (98)
Tertiary education (13 years or more)	35.8 (68)
Marital status ($n = 191$) ^a	
Single	20.4 (39)
Married/cohabitant	63.4 (121)
Divorced	16.2 (31)
Employed	77.2 (149)
Type of work ($n = 192$) ^a	
Blue collar workers	34.9 (67)
White collar workers	24.5 (47)
Educational workers	11.5 (22)
Health care workers	17.2 (33)
Trade or service workers	12.0 (23)
Main diagnosis	
Musculoskeletal disorders	52.3 (101)
Mental and behavioral disorders	39.9 (77)
Other disorders	7.8 (15)
Application from	
General practitioner	76.7 (148)
Other	23.3 (45)
Work/benefit status ^b	
At work	8.3 (16)
Part-time work and benefit ^c	23.3 (45)
Sickness absence benefit	40.4 (78)
Medical rehabilitation allowance	17.1 (33)
Vocational rehabilitation allowance	5.7 (11)
Disability pension	1.6 (3)
Other	3.6 (7)
Mean fear avoidance work	24.7 (SD 10.5)
Mean health complaints	20.3 (SD 10.5)

^a Some n's are reduced due to missing data

^b The work/benefit status is based on self-reported data about their work and benefit situation shortly before the rehabilitation program

^c Persons working part-time combined with partial sickness benefit or rehabilitation allowance

($p = 0.01$). Among those not working, 66.2 % had an employment contract.

The Readiness for RTW Scale

Descriptive statistics of items in the Readiness for RTW scale A and scale B are presented in Table 2. As 9 persons did not answer the correct scale according to their work status, they were excluded from the analyses of the scale. Skewness was found on many items in both scales.

Scale A: Not Working: Factor Structure

The factor analysis of the Readiness for RTW scale A ($n = 124$), revealed the presence of two factors (Table 3). In contrast, Franche et al. [6] identified four factors in the original model. It was decided to drop items with communality <0.3 , excluding item 3, 6, 7, 8 and 9 from the model. The two-factor solution explained a total of 64.5 % of the variance. The factors were labeled RTW inability (contributing 26 %) and RTW uncertainty (contributing

Table 2 Descriptive statistics of items in the readiness for return to work scale—scale A (not working sample, $n = 124$) and scale B (working sample, $n = 60$)

	% disagree	% neutral	% agree	Mean (SD)	Skewness (SE) ^a
<i>Items scale A</i>					
1: You don't think you will ever be able to go back to work (PC) ^b	77.4	14.5	8.1	1.77 (1.00)	1.11 (0.22)
2: As far as you're concerned, there is no point in thinking about returning to work (PC)	74.2	18.5	7.3	1.82 (1.00)	0.95 (0.22)
3: You are actively doing things now to get back to work (PAB)	19.4	32.3	48.4	3.41 (1.15)	-0.37 (0.22)
4: Physically, you are starting to feel ready to go back to work (PAS)	64.5	23.4	12.1	2.20 (1.07)	0.67 (0.22)
5: You have been increasing your activities at home in order to build up your strength to go back to work (PAB)	31.5	36.3	32.3	2.98 (1.09)	-0.11 (0.22)
6: You are getting help from others to return to work (PAB)	25.0	41.1	24.2	3.06 (1.13)	-0.25 (0.22)
7: You are not ready to go back to work (PAS) ^c	21.8	27.4	50.8	3.40 (1.28)	-0.47 (0.22)
8: You have found strategies to make your work manageable so you can return to work (PAS)	42.7	42.7	14.5	2.56 (1.00)	0.01 (0.22)
9: You have been wondering if there is something you could do to return to work (C)	10.5	21.0	68.5	3.73 (0.92)	-0.81 (0.22)
10: You have a date for your first day back at work (PAS)	81.5	13.7	4.8	1.68 (0.94)	1.40 (0.22)
11: You wish you had more ideas about how to get back to work (C)	13.7	26.6	59.7	3.65 (1.11)	-0.65 (0.22)
12: You would like to have some advice about how to go back to work (C)	4.8	21.8	73.4	4.05 (0.96)	-0.93 (0.22)
13: As far as you are concerned, you don't need to go back to work ever (PC)	83.1	15.3	1.6	1.53 (0.84)	1.48 (0.22)
<i>Items scale B</i>					
1: You are doing everything you can to stay at work (PM)	5.0	1.7	93.3	4.43 (0.89)	-2.33 (0.31)
2: You have learnt different ways to cope with your pain so that you can stay at work (PM)	16.7	41.7	41.7	3.33 (0.97)	-0.15 (0.31)
3: You are taking steps to prevent having to go off work again due to your injury (PM)	5.0	31.7	63.3	3.80 (0.95)	-0.68 (0.31)
4: You have found strategies to make your work manageable so you can stay at work (PM)	13.3	51.7	35.0	3.27 (0.88)	-0.10 (0.31)
5: You are back at work but not sure you can keep up the effort (UM)	8.3	40.0	51.7	3.65 (1.07)	-0.45 (0.31)
6: You worry about having to stop working again due to your injury (UM)	6.7	31.7	61.7	3.78 (0.99)	-0.62 (0.31)
7: You still find yourself struggling to stay at work due to the effects of your injury (UM)	3.3	26.7	70.0	3.87 (0.89)	-0.92 (0.31)
8: You are back at work and it is going well (UM) ^c	31.7	56.7	11.7	2.65 (0.94)	-0.39 (0.31)
9: You feel you may need help in order to stay at work(UM)	3.3	26.7	70.0	3.97 (0.84)	-0.29 (0.31)

Percentages disagreed/neutral/agreed, mean item score (SD = standard deviation) and skewness (SE = standard error of skewness)

^a Positive values of the coefficient of skewness correspond to a right-skewed distribution, while negative values correspond to a left-skewed distribution

^b The letters in parenthesis correspond to the stage to which the item originally belong to. The acronyms are: precontemplation (PC), contemplation (C), prepared for action self-evaluative (PAS), prepared for action behavioral (PAB), uncertain maintenance (UM) and proactive maintenance (PM)

^c Item reversed in the original scale of Franche et al. [6]

38.5 %). RTW inability was composed both from all items of the original precontemplation stage (Items 1, 2 and 13) and reversed items from the prepared for action stages (Items 4 and 5). The items from the original precontemplation stage had the strongest loadings, thus RTW inability corresponded with the precontemplation stage. RTW uncertainty consisted of two of three items from the original contemplation stage (items 11 and 12) and a reversed item from the prepared for action (self-evaluative) stage (item 10). The items with the strongest loadings were from the contemplation stage, thus RTW uncertainty corresponded with the contemplation stage. The original prepared for action stages were not identified in this sample. Chi square goodness of fit showed a significant difference between the data and the model ($p = 0.02$). Internal consistency was satisfactory: Cronbach's alpha was 0.81 for RTW inability, and 0.72 for RTW uncertainty. The factors did not correlate significantly.

Scale B: Working: Factor Structure

Like Franche et al. [6], the factor analysis of those working ($n = 60$) revealed the presence of two factors (Table 3). As there were many items with communality <0.3 , we chose to only drop items with communality <0.2 (excluding item 8 only), in order to keep a sufficient number of items. All the retained items had factor loadings >0.4 , although many items had communalities less than 0.3. The two-factor solution explained 55.1 % of the variance. The factors were labeled uncertain work maintenance (explaining 34.4 %) and proactive work maintenance (explaining 20.6 %). Uncertain work maintenance contained three items from the original uncertain maintenance stage (items 5, 6 and 7) and two items from the original proactive maintenance stage (items 1 and 3). Proactive work maintenance consisted of two items from the original proactive maintenance stage (items 2 and 4) and a reversed item from

Table 3 Results of the exploratory factor analyses of the Readiness for return to work scale (pattern matrix)

Items (eight of 13 items were included)	RTW uncertainty $\alpha = 0.81$	RTW inability $\alpha = 0.72$
Scale A—not working ($n = 124$)		
12: You would like to have some advice about how to go back to work (C)	0.96	-0.19
11: You wish you had more ideas about how to get back to work (C)	0.70	-0.10
10*: You have a date for your first day back at work (PAS)	0.49	0.34
2: As far as you're concerned, there is no point in thinking about returning to work (PC)	-0.11	0.85
1: You don't think you will ever be able to go back to work (PC)	-0.12	0.84
13: As far as you are concerned, you don't need to go back to work ever (PC)	-0.21	0.69
5*: You have been increasing your activities at home in order to build up your strength to go back to work (PAB)	0.06	0.55
4*: Physically, you are starting to feel ready to go back to work (PAS)	0.22	0.53
Items (eight of the nine items were included)	Uncertain work maintenance $\alpha = 0.75$	Proactive work maintenance $\alpha = 0.59$
Scale B—working ($n = 60$)		
7: You still find yourself struggling to stay at work due to the effects of your injury (UM)	0.85	0.05
3: You are taking steps to prevent having to go off work again due to your injury (PM)	0.73	0.13
6: You worry about having to stop working again due to your injury (UM)	0.64	0.05
5: You are back at work but not sure you can keep up the effort (UM)	0.49	0.02
1: You are doing everything you can to stay at work (PM)	0.41	-0.08
9*: You feel you may need help in order to stay at work (UM)	-0.41	0.77
4: You have found strategies to make your work manageable so you can stay at work (PM)	0.19	0.56
2: You have learnt different ways to cope with your pain so that you can stay at work (PM)	0.15	0.55

Loadings and Chronbach's alpha (α) of each item on each factor. The strongest loading of each item in bold. Only items included in the model are presented

The letters in parenthesis correspond to the stage to which the item originally belong to. The acronyms are: *PC* precontemplation, *C* contemplation, *PAS* prepared for action self-evaluative, *PAB* prepared for action behavioral, *UM* uncertain maintenance, *PM* proactive maintenance

* This is the original phrasing, but in these results the item has been reversed. E.g.: Question 10 should be interpreted as "you do not have a date for your first day back at work"

the original uncertain maintenance stage (item 9). Thus, both factors corresponded to the original scale. Chi square goodness of fit did not show a significant difference between the data and the model ($p = 0.38$). Internal consistency was satisfactory for uncertain work maintenance, and low for proactive work maintenance, Cronbach's alpha 0.75 and 0.59 respectively. The factors did not correlate significantly.

Construct Validity

Overall Approach

The hypotheses were tested on the four readiness for RTW stages we found. Among those not working, all correlations were in the expected directions, and the hypotheses were confirmed (Table 4). High RTW inability score correlated with high scores on the PSOCQ precontemplation stage, high fear avoidance beliefs for work and high levels of subjective health complaints. High RTW uncertainty score correlated with high scores on the PSOCQ contemplation stage and high fear avoidance beliefs for work.

In the working sample, the hypotheses were only partly confirmed (Table 4). High uncertain work maintenance score correlated only with high coping at work. High proactive work maintenance score correlated with high scores on the PSOCQ action and maintenance stage, high decision control and high coping at work.

Stage Allocation Approach

Of the not working sample, 12.1 % ($n = 15$) were allocated to the RTW inability stage. Their mean score on the factor items was moderate (3.07, $SD = 0.90$). The remaining part of those not working, 87.9 % ($n = 109$)

were allocated to the RTW uncertainty stage, and their mean score of the factor items was high (4.1, $SD = 0.63$).

Of the working sample, 90 % ($n = 54$) were allocated to the uncertain work maintenance stage. They had a high mean score on the factor items (4.04, $SD = 0.55$). Of the persons allocated to this stage, 74.1 % worked part-time in combination with partial sickness benefit or rehabilitation allowance. 10 % ($n = 6$) of the working sample were allocated to the proactive work maintenance stage, and their mean score on the factor items was moderate (3.44, $SD = 0.75$).

Due to a low numbers of persons in the RTW inability and proactive work maintenance stages, we only compared mean values of related instruments between the RTW uncertainty stage and the uncertain work maintenance stage. This was in line with the selected strategy of Franche et al. [6]. The two groups showed no significant differences in subjective health complaints or PSOCQ scores, but fear avoidance beliefs for work was lower among persons in the uncertain work maintenance stage compared to persons in the RTW uncertainty stage ($p < 0.01$).

Discussion

The four factors we found were RTW inability, RTW uncertainty, uncertain work maintenance and proactive work maintenance. They had satisfactory internal consistency, except for proactive work maintenance. The factors identified had both similarities with and differences from the factor structure of Franche et al. [6]. Construct validity was supported, since we found expected relationships between the readiness for RTW stages and the pain stages of change, fear avoidance beliefs for work, subjective health complaints, decision control and coping at work.

Table 4 Pearson's correlation coefficients between the Readiness for return to work factors found and pain stages of change, fear avoidance beliefs for work, subjective health complaints, decision control, leader support and coping at work

Related constructs	Not working sample (n = 124)		Working sample (n = 60)	
	RTW inability	RTW uncertainty	Uncertain work maintenance	Proactive work maintenance
PSOCQ precontemplation	0.35**	0.02	0.03	0.07
PSOCQ contemplation	-0.10	0.41**	-0.03	-0.34*
PSOCQ action	-0.23*	0.10	-0.02	0.29*
PSOCQ maintenance	-0.13	0.05	0.03	0.40**
FABQ work	0.26*	0.26*	-0.11	-0.23
Health complaints	0.37**	-0.01	0.23	-0.18
Decision control			0.02	0.34**
Leader support			0.19	0.23
Coping at work			0.32*	0.25*

RTW return to work, PSOCQ pain stages of change questionnaire, FABQ fear avoidance beliefs questionnaire

* $p \leq 0.05$; ** $p \leq 0.01$

Readiness for RTW Factors

One clear difference from Franche et al. [6] was that we did not identify any prepared for action stages. One reason for this could be that the participants belonged to a narrowly selected group of persons referred to an inpatient occupational rehabilitation program. Only baseline measures from the first day of the program were used in our study. To capture the prepared for action stages, a measurement point at the end of the program should be included.

Only a small proportion of those not working were allocated to the RTW inability stage. They responded neutrally to the RTW inability items, possibly because they had some belief in their future work ability. The RTW inability stage corresponds to the original precontemplation stage, where persons not yet thinking about initiating behavior to support RTW typically are found. The vast majority of the not working sample was allocated to the RTW uncertainty stage. This stage corresponds to the original contemplation stage, and typically contains persons who consider, but do not yet initiate change. According to theory, a defining characteristic of the contemplation stage is ambivalence [2]. Persons with RTW uncertainty may have problems finding realistic RTW options. In a qualitative study exploring perceptions of RTW, perceived uncertainty was found to play a key role in persons' formation of RTW perceptions [29]. Here, uncertainty was described as ambiguity about present and future options in relation to health and RTW. Since the RTW inability and RTW uncertainty stages seem to reflect the precontemplation and contemplation stages, clinicians can use this knowledge when they plan the RTW with their patients. They can also use the readiness for change model to tailor their interventions [8, 30].

Among those working, the majority was working part time in combination with a sickness benefit. Most were allocated to the uncertain work maintenance stage. This was probably a group with high uncertainty about their future ability to maintain work. In addition to the items that were in accordance with the original uncertain maintenance stage, this stage contained two unexpected items (items 1 and 3) that Franche et al. [6] placed in the proactive maintenance stage. These items may have been interpreted differently by our respondents, possibly because of language or culture differences or because of the patient mix or setting. The working sample was in fact not working on the day they answered the scale, but they had been before the program. This may have led to confusion.

The item with the strongest loading in proactive work maintenance was a reversed item from the original uncertain maintenance stage: "You do not feel you need help in order to stay at work". Even though the item belonged to the uncertain maintenance stage in the original model, it

was by Franche et al. [6] hypothesized a priori to belong to the proactive maintenance stage, before their factor analysis. Thus, in the reversed form we interpret it as an indicator of proactive work maintenance. It is reasonable to believe that workers who have developed skills in order to stay at work, score high on this factor. Franche et al. [6] described such workers as "successful strugglers". Only six persons were allocated to this stage, and they responded neutrally to the proactive maintenance items. This was not surprising since the participants were referred to the program, thus they were considered in need of additional help to stay at work.

RTW inability, RTW uncertainty and uncertain work maintenance had satisfactory internal consistency, supporting the validity of the factors [26]. Proactive work maintenance had low internal consistency and consisted of three items only. The results indicate that more validation research is needed, including testing of other wording or inclusion of new items to better capture the proactive maintenance stage.

Like Franche et al. [6], but contrary to the readiness for change model [7], we found a clear distinction between persons working and persons not working. This distinction may be uniquely linked to the behavior of persons in a RTW process, where the relation to work and employer is crucial. Like several other researchers [6, 21, 31, 32], we failed to identify all the original five stages of change in RTW behavior, as defined by Prochaska et al. [7]. The selection procedures to the program may have given a sample unfit to distinguish all stages. In addition, the smaller size of our sample may have given fewer factors than the original stages. The results indicate that the construct of readiness for RTW may vary by culture and patient setting. This study was based on the short version of the scale, but future validation may be improved by using Franche et al.'s [6] initial pool of 12 items for those working and 22 items for those not working. Longitudinal studies are also needed in further validation of the scale to find out if and how persons progress through stages in the RTW process.

Construct Validity

The hypotheses regarding relationships between the identified stages and relevant instruments were generally confirmed. The stages of readiness for RTW were associated as expected with the stages in the PSOCQ, fear avoidance beliefs for work, and subjective health complaints. These findings support the construct validity of the readiness for RTW stages identified. Persons allocated to the RTW inability or RTW uncertainty stages may think their health problems are important barriers for RTW. Construct validity is further supported by the associations between

the proactive work maintenance stage and the psychosocial factors at work. Persons scoring high on proactive work maintenance reports high coping at work, i.e. high consonance between the work demands and own abilities/performance. Coping has also been seen in conjunction with the perception of control [15, 33], which also showed an expected association with proactive work maintenance. This means that persons scoring high on proactive work maintenance to a greater extent had possibilities to influence work demands and amount of work.

Surprisingly, uncertain work maintenance was associated with high coping at work. Persons in this stage had similar levels of subjective health complaints as persons in the RTW uncertainty stage, but lower fear avoidance beliefs for work. Franche et al. [6] found comparable levels of both health and fear avoidance beliefs for work for persons in the uncertain maintenance stage and persons in the contemplation stage. In occupational rehabilitation programs, a central aim is RTW in spite of health problems. Persons allocated to the uncertain work maintenance stage have probably been referred to this rehabilitation program because of a compromised health situation, even though they were working shortly before the program. As pointed out earlier, the majority of this group was working part-time in combination with a sickness benefit, either because they had managed to RTW only part-time after a period of sickness absence, or because they had lowered their amount of work in order to prevent complete sickness absence. The fact that working part-time in combination with a sickness benefit is widespread, challenges the operationalisation of the Readiness for RTW scale, because of its clear distinction between working and not working.

Strengths and Limitations of the Study

The Readiness for RTW scale has been developed on the basis of an established theory, the readiness for change model, but there is still lack of research on the model within the RTW process. This study is one of few studies investigating readiness for RTW among persons in occupational rehabilitation and on persons with different health problems. Strengths in our study were also the high participation rate and nearly complete data sets. The use of an exploratory factor analysis on the Readiness for RTW scale was deemed appropriate since the model has not yet been established in RTW behavior. In order to investigate several aspects of the construct validity, we also used two different approaches and a number of related instruments. The overall approach retained the complexity of readiness characteristics, and highlighted the relationships with related constructs, while the stage allocation approach made it possible to look at differences in absolute levels of these constructs between the stage-based groups. Our next

step in the validation process will be to assess the predictive validity of the scale using follow up data on RTW from the national social insurance register.

The readiness for RTW model found in this study is vulnerable because the factors RTW uncertainty and proactive work maintenance contained only three items each. The generalizability of our study results is restricted to persons participating in inpatient occupational rehabilitation programs in Norway. The study sample differed from the sample of Franche et al. [6] in several ways. The language and culture are apparently different. Our sample included persons with different health problems, time off work was longer, and combinations of work and sickness benefits were more common. Since about 23 % of the participants had no employment contract, modifications of the scale might be needed to better capture the readiness for RTW of the unemployed. Words such as pain and injury in the scale need to be replaced, e.g. with health complaints, in order to make all items relevant to persons with other health problems than musculoskeletal disorders. Important national differences between social security systems exist, complicating comparisons between this study and the study of Franche et al. [6]. Differences in the underlying factor structure may be due to any of the sample differences described. Given the number of elements that varied between the two studies, the consistencies described in some of the factors of the scale, support their validity particularly. A small sample size, especially in the working sample, did not allow for investigating differences in readiness for RTW between diagnostic groups.

Implications

The Readiness for RTW scale may have clinical potential, facilitating more tailored RTW interventions. It may be used as a screener in rehabilitation practice to guide further assessment, goal setting and RTW decision-making. However, before practical use, more validation of the scale is needed to confirm the readiness dimensions in this patient setting.

Conclusion

This paper has described the initial validation of the Norwegian version of the Readiness for RTW scale in an inpatient occupational rehabilitation sample. Internal consistency and construct validity of the readiness for RTW stages found were satisfactory, except for the proactive work maintenance stage. The results indicate that the construct of readiness for RTW may vary by culture and patient setting.

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